
Central Board of Secondary Education

CTET

Central Teacher Eligibility Test

Junior Level

(Class VI-VIII)

(Maths and Science Group)

Solved Papers with Explanation

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Central Teacher Eligibility Test (CTET) Syllabus Junior Level (For Class VI to VIII)

CTET Paper II Syllabus 2022 with Topic-wise Weightage

Sections	Topics	Questions
Child Development and Pedagogy	Development of an Elementary School Child	15
	Concept of Inclusive education and understanding children with special needs	5
	Learning and Pedagogy	10
Language 1 and Language 2 (30 questions each)	Language Comprehension	15
	Pedagogy of Language Development	15
Mathematics and Science	Mathematics Number system, Algebra, Geometry, Mensuration, Data Handling Pedagogical issues	20
	Pedagogical issues	10
	Science Food, Materials, The world of the living, Moving things, people and ideas, How things work, Natural phenomena and resources	20
	Pedagogical issues	10

I. Child Development and Pedagogy Syllabus

(a) Child Development (Elementary School Child) - 15 Questions

- Concept of development and its relationship with learning
- Principles of the development of children
- Influence of Heredity & Environment
- Socialization processes: Social world & children (Teacher, Parents, Peers)
- Piaget, Kohlberg, and Vygotsky: constructs and critical perspectives
- Concepts of child-centered and progressive education
- Critical perspective of the construct of Intelligence
- Multi-Dimensional Intelligence
- Language & Thought
- Gender as a social construct; gender roles, gender-bias and educational practice
- Individual differences among learners, understanding differences based on diversity of language, caste, gender, community, religion, etc.
- The distinction between Assessment for learning and assessment of learning;
- School-Based Assessment, Continuous & Comprehensive Evaluation: perspective and practice
- Formulating appropriate questions for assessing readiness levels of learners; for enhancing learning and critical thinking in the classroom and for assessing learner achievement.

(b) Concept of Inclusive education and understanding children with special needs -5 Questions

- Addressing learners from diverse backgrounds including disadvantaged and deprived
- Addressing the needs of children with learning difficulties, 'impairment'
- Addressing the Talented, Creative, Specially abled Learners

(c) Learning and Pedagogy - 10 Questions

- How children think and learn; how and why children 'fail' to achieve success in school performance.
- Basic processes of teaching and learning; children's strategies of learning; learning as a social activity; social context of learning.
- Child as a problem solver and a 'scientific investigator'
- Alternative conceptions of learning in children, understanding children's 'errors' as significant steps in the learning process.
- Cognition & Emotions
- Motivation and learning
- Factors contributing to learning – personal & environmental

II. Language I Syllabus

(a) Language Comprehension - 15 Questions

- Reading unseen passages – two passages one prose or drama and one poem with questions on comprehension, inference, grammar and verbal

<p>ability (Prose passage may be literary, scientific, narrative or discursive)</p> <p>(b) Pedagogy of Language Development - 15 Questions</p> <ul style="list-style-type: none"> • Learning and acquisition • Principles of language Teaching • Role of listening and speaking; function of language and how children use it as a tool • A critical perspective on the role of grammar in learning a language for communicating ideas verbally and in written form; • Challenges of teaching language in a diverse classroom; language difficulties, errors and disorders • Language Skills • Evaluating language comprehension and proficiency: speaking, listening, reading and writing • Teaching-learning materials: Textbook, multimedia materials, multilingual resource of the classroom • Remedial Teaching <p>III. Language – II Syllabus</p> <p>(a) Comprehension - 15 Questions</p> <ul style="list-style-type: none"> • Two unseen prose passages (discursive or literary or narrative or scientific) with a question on comprehension, grammar, and verbal ability <p>(b) Pedagogy of Language Development- 15 Questions</p> <ul style="list-style-type: none"> • Learning and acquisition • Principles of language Teaching • Role of listening and speaking; function of language and how children use it as a tool • A critical perspective on the role of grammar in learning a language for communicating ideas verbally and in written form; • Challenges of teaching language in a diverse classroom; language difficulties, errors and disorders • Language Skills ○ Evaluating language comprehension and proficiency: speaking, listening, reading and writing ○ Teaching-learning materials: Textbook, multimedia materials, multilingual resource of the classroom ○ Remedial Teaching <p>IV. Mathematics and Science Syllabus</p> <p>(i) Mathematics -30 Questions</p> <p>(a) Content 20 Question</p> <ul style="list-style-type: none"> • Number System • Knowing our Numbers • Playing with Numbers • Whole Numbers 	<ul style="list-style-type: none"> • Negative Numbers and Integers • Fractions • Algebra • Introduction to Algebra • Ratio and Proportion • Geometry • Basic geometrical ideas (2-D) • Understanding Elementary Shapes (2-D and 3-D) • Symmetry: (reflection) • Construction (using Straight edge Scale, protractor, compasses) • Mensuration • Data handling <p>(b) Pedagogical issues - 10 Questions</p> <ul style="list-style-type: none"> • Nature of Mathematics/Logical thinking • Place of Mathematics in Curriculum • Language of Mathematics • Community Mathematics • Evaluation • Remedial Teaching • Problem of Teaching <p>(ii) Science - 30 Questions</p> <p>(a) Content 20 Questions</p> <ul style="list-style-type: none"> • Food • Sources of food • Components of food • Cleaning food • Materials • Materials of daily use • The World of the Living • Moving Things People and Ideas • How things work • Electric current and circuits • Magnets • Natural Phenomena • Natural Resources <p>(b) Pedagogical issues - 10 Questions</p> <ul style="list-style-type: none"> • Nature & Structure of Sciences • Natural Science/Aims & objectives • Understanding & Appreciating Science • Approaches/Integrated Approach • Observation/Experiment/Discovery (Method of Science) • Innovation • Text Material/Aids • Evaluation - cognitive/psychomotor/affective • Problems • Remedial Teaching
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Central Teacher Eligibility Test (CTET) 2021

Junior Level (Class VI-VIII)

Solved Paper with Explanation

(Exam Date : 21.01.2022)

PART-I

Child Development and Pedagogy

1. Assertion (A): It is important to focus on the development of children from infancy to adolescence.

Reason (R): Even though the first few years of life are significant for development, from the point of view of brain plasticity, the whole of childhood and adolescence is a sensitive period. Choose the correct option.

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
(c) (A) is true but (R) is false.
(d) Both (A) and (R) are false.

Ans. (a) : Both (A) and (R) are true and (R) is the correct explanation of (A) because the most important phase of life is the first few years when you are a child. That's when the brain grows really fast- faster than any other time in our life. The brain makes (more than 1 million) new connections every seconds. Adolescence is the period of transition between childhood and adulthood. Children who are entering adolescence are going through many changes. So, it is important to focus on the development of children from infancy to adolescence.

2. Which of the following statements about socialization is correct ?

- (a) Families and schools are major contributors to socialization but there are other agencies such as media and peers who have an important role.
(b) Schools are the primary agency of socialization of children.
(c) Media is not a very significant agency of socialization of children.
(d) Religious institutions do not play any role in socialization of children.

Ans. (a) : Socialization is the process by which children are prepared to become successful members of society. This requires the learning of skills, behavior patterns, ideas, and values needed for competent functioning in the society in which a child is growing up. Families and schools are major contributors to socialization but there are other agencies such as media and peers who have an important role.

3. In a progressive classroom, stress needs to be placed on creating an atmosphere where

- (a) emotional needs of students are taken care of and they feel valued.
(b) stress is placed on 'performance goals' and achievement in tests directs teacher's perception of students.
(c) the teacher leads and children follow passively.
(d) students are expected to 'learn for exams'.

Ans. (a) : John Dewey, an American philosopher has proposed the concept of 'progressive education' which emphasizes that learning takes place only through 'hands-on' approach so the students must interact with their environment to adapt and learn. Stress needs to be placed on creating an atmosphere where emotional needs of students are taken care of and they feel valued.

4. A child is shown a 3D model of three mountains. Another person is looking at the model from a different position. The child is asked to depict the other person's view of the model but is unable to do so correctly. According to Jean Piaget, this is illustrative of

- (a) egocentrism
(b) animism
(c) object performance
(d) Hypothetical thinking

Ans. (a) : According to Jean Piaget, this is illustrative of egocentrism. Egocentrism refers to the child's inability to see a situation from another person's point of view. The egocentric child assumes that other people see, hear and feel exactly the same as the child does. In the developmental theory of Jean Piaget, this is a feature of the preoperational child.

5. Jean Piaget proposed that children's thinking is _____ that of adults.

- (a) not different from
(b) qualitatively different from
(c) quantitatively different from
(d) quite similar to

Ans. (b) : Swiss psychologist Jean Piaget (that's Jean as in French for 'John') carried out some remarkable studies on children that had a powerful influence on our theories of child thought. He argued that children's thinking is qualitatively different from the thinking of adults. Piaget realized that older children were able to answer more questions on the same test. Also, there were qualitative differences between the answers and the logic that the older children applied, but they are not qualitatively different.

6. Lev Vygotsky referred to the difference between what a child can do on his own and what can be accomplished with some assistance as :

- (a) intelligence
- (b) zone of proximal development
- (c) scaffolding
- (d) adaptation

Ans. (b) : The Zone of Proximal Development (ZPD) was a key construct in Lev Vygotsky's theory of learning and development. The Zone of Proximal Development is defined as the space between what a learner can do without assistance and what a learner can do with adult guidance or in collaboration with more capable peers.

7. Pedagogical strategy of 'Reciprocal teaching' is based on

- (a) Behaviouristic principles
- (b) Socio-cultural approach
- (c) Information processing theories of learning
- (d) Howard Gardner's construct of multiple intelligences.

Ans. (b) : Reciprocal teaching refers to an instructional activity in which students become the teacher in small group reading sessions. Teachers model, then help students learn to guide group discussions using four strategies : summarizing, question generating, clarifying and predicting. Reciprocal teaching is a cooperative learning strategy is based on socio-cultural approach looks at how a person's experiences, influences and culture help shape why they act the way they do.

8. Responding to 'Heinz Dilemma' Roohi says, 'stealing the drug is wrong under any circumstance because it is wrong to steal'. According to Lawrence Kohlberg's Theory of Moral Development, Roohi is at

- (a) Pre conventional level; Punishment Obedience Orientation
- (b) Pre conventional level; Personal-reward Orientation
- (c) Conventional level; Law and Order Orientation
- (d) Post conventional level; Social-contract Orientation

Ans. (c) : According to Lawrence Kohlberg's theory of moral development, Roohi is at conventional level of law and order orientation. Kohlberg's theory proposes that there are three levels of moral development, which each level split into two stages.

Stage 4 : The law and order orientation. The individual is oriented toward authority, fixed rules, and the maintenance of the social order. Right behavior consists in doing one's duty, showing respect for authority, and maintaining the given social order for its own sake.

9. What does 'interpersonal intelligence' in Howard Gardner's theory of Multiple Intelligences mean?

- (a) Ability to discriminate complex inner feelings and to use them to guide one's own behaviour.
- (b) Ability to detect and respond appropriately to the moods, temperaments, motivations and intentions of others.

- (c) Ability to use the body skillfully for expressive as well as goal-directed purposes.
- (d) Ability to perceive the visual-spatial world accurately.

Ans. (b) : Howard Gardner gave different types of intelligences (logical, visual, musical etc.). Interpersonal intelligence is the capacity to understand the intentions, motivations, moods, temperaments and desires of other people and consequently to work effectively with others.

10. National Education Policy 2020 proposes inclusion of ____ and ____ for assessment of children.

- (a) group work; self-assessment
- (b) projects; standard tests
- (c) standard tests; portfolios
- (d) norm-referenced; criterion-referenced tests

Ans. (a) : NEP (2020) proposes inclusion of group work and self assessment for assessment of children. It is true that 360-degree assessment also includes self assessment and peer/group assessment, and progress of the child in project-based and inquiry-based learning, quizzes, role plays, group work, portfolios etc., along with teacher assessment.

11. For the purpose of comprehensive assessment, a teacher should :

- (a) consider scores based on correct answers on a quiz.
- (b) consider only the errors made by children.
- (c) consider outcome as well as process of learning for students.
- (d) use standardised tests for all students.

Ans. (c) : The purpose of comprehensive assessment system is to increase student learning by producing actionable data, evaluate the effectiveness of programs and ensure that all students are making progress towards achieving learning goals. For the purpose of comprehensive assessment, a teacher should consider outcome as well as process of learning for students.

12. In many cases, young girls rather than boys are expected to perform household chores and sibling care in the absence of their mothers. This is an example of ____.

- (a) gender stereotype
- (b) gender equity
- (c) gender equality
- (d) gender relevance

Ans. (a) : Gender stereotypes are the psychological traits believed to be more characteristic of one sex relative to the other. These stereotypes are closely related to sex role ideologies and they have often been used to account for variations in sex role ideologies across cultures. In many cases, young girls rather than boys are expected to perform household chores and sibling care in the absence of their mothers. This is an example of gender stereotype.

13. Which of the following is not a characteristic of progressive education?

- (a) Focus on continuous and comprehensive evaluation
- (b) Encouraging rote memorisation
- (c) Emphasis on collaborative learning
- (d) Promoting lifelong learning

Ans. (b) : Progressive education is a response to traditional methods of teaching. It is defined as an educational movement which gives more value to experience than formal learning. It is based more on experiential learning that concentrate on the development of a child's talents. Progressive education focus on continuous and comprehensive evaluation, emphasis on collaborative learning, promoting lifelong learning, but it is not encourage rote memorisation.

14. Which of the following statements about language and thought is correct from a Vygotskian perspective ?

- (a) Language facilitates development of higher mental functions.
- (b) Language hinders development of cognitive faculties.
- (c) Language dose not play any role in cognitive development.
- (d) Thought occurs independent of language development.

Ans. (a) : In Vygotsky's perspective, language plays a central role in the theory of human cognitive development. Language plays multiple roles including cultural shaping the event behavior of individuals as well as influencing their covert behavior, such as thinking. According to Vygotsky, thought and language is interdependent processes, from the beginning of life. The acquisition of language by the child modifies its higher mental functions : it gives a definite shape of thought, enables the emergence of imagination, memory usage, and action planning.

15. A teacher encourages children to talk to their elders and members of community to learn about their heritage.

Choose the set of options that indicate teacher's belief about socialisation and learning .

- (i) **Recognising the importance of knowledge that children gain through community.**
 - (ii) **Understanding that learning takes place in a social context and it is important to connect with it.**
 - (iii) **Importance of linking school knowledge with local knowledge.**
 - (iv) **Giving more importance to school knowledge.**
- (a) (i) only (b) (ii) and (iii) only
(c) (i), (ii) and (iii) (d) (i), (ii),(iii) and (iv)

Ans. (c) : A teacher encourages children to talk to about their elders and members of community to learn their heritage to recognising the importance of knowledge that children gain through community, to understanding that learning takes place in a social context and it is important to connect with it, and importance of linking school knowledge with local knowledge indicate teacher's belief about socialisation and learning.

16. Mathematical disorder in context of 'Learning disability' is referred to as _____.

- (a) Dyspraxia (b) Dyslexia
- (c) Dyscalculia (d) Dysgraphia

Ans. (c) : Dyscalculia is a learning disability in math. People with dyscalculia have trouble with math at many levels. They often struggle with key concepts like bigger vs. smaller. And they can have a hard time doing basic math problems and more abstract math.

17. Salma, a 5-year-old girl, started playing the musical instrument Guitar without any outside instruction when she was 3 years old. This talent would characterizes her as a

- (a) slow learner (b) child with low IQ
- (c) gifted (d) Autistic

Ans. (c) : Gifted children are born with natural abilities well above the average for their age. Gifted child, any child who is naturally endowed with a high degree of general mental ability or extraordinary ability in a specific sphere of activity or knowledge. For example – Salma, a 5-year-old girl, started playing the musical instrument Guitar without any outside instruction when she was 3 years old. This talent would characterizes her as a gifted.

18. Hardik has low vision. The teacher has not been informed of his condition. Which of the following actions in class can indicate the teacher that he has low vision?

- (a) Squinting of eyes while reading
- (b) Standing far away from the blackboard to read it clearly
- (c) completing worksheets with fine print quickly
- (d) reading physical maps which have minimum details

Ans. (a) : Squinting the eyes while reading shows the low vision. If you find yourself squinting a lot, there's probably a reason for it. It's likely that you have a refractive error (near sightedness or far sightedness) and need glasses or a new prescription.

19. A teacher can create a conducive classroom environment for learners with disability by:

- (a) creating strong expectations that they follow rigid curriculum.
- (b) taking all decisions for them independently without consulting the child.
- (c) ensuring that they are assessed through standardized assessment parameters.
- (d) making reasonable and appropriate curricular accommodations.

Ans. (d) : A teacher can create a conducive classroom environment for learners with disability by making reasonable and appropriate curricular accommodations. Promote positive interaction amongst your students. Allow them to share their feelings, and encourage them to listen to each other, give compliments, express gratitude and practice problem solving together. As a teachers, can present topics and help initiate discussions, but then let students guide the conversations.

20. Assertion (A): Inclusive education does not include children with 'giftedness'.

Reason (R): Inclusive education functions on 'deficit' perspective only.
Choose the correct option.

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (b) Both (A) and (R) are true but (R) is not correct explanation of (A)
- (c) (A) is true (R) is false.
- (d) Both (A) and (R) are false.

Ans. (d) : Both (A) and (R) are false, because inclusive education means education for all children (general and specific students) in school. It refers to the inclusion of all children in the education system, regardless of their differences and disabilities. There are two distinct perspectives on inclusive education. First, emerging largely from the developed countries, and the second, owing to the felt need and circumstances prevailing in the developing world. In richer developed countries, education is largely inclusive of girls, the disadvantaged and the ethnic groups.

21. **Which of the following characterizes a metacognitive skill?**
- (a) Rote memorization of content without engagement
 - (b) Imitating the behaviour of others
 - (c) Thinking about one's own thinking processes
 - (d) Describing the procedure of preparing a particular dish

Ans. (c) : Metacognitive skills means that they are able to recognize their own cognitive abilities, direct their own learning, evaluate their performance, understand what caused their successes or failures and learn new strategies. It can also help them learn how to revise.

22. **A teacher encourages his/her students to make concept maps after teaching a topic. This would be helpful in**
- (i) **conducting formative assessment.**
 - (ii) **testing the capability of students to summarize the main points.**
 - (iii) **developing rubrics to evaluate the level of the students.**
 - (iv) **testing the artistic ability of students.**
- (a) (i),(ii) and (iii) (b) (i) and (iv)
 - (c) (ii),(iii) and (iv) (d) (ii) and (iv)

Ans. (a) : Concept maps include graphical and diagrammatical representations to illustrate the meaningful acquisition of various sub-topics of a concept. A teacher is using a concept map to enhance the spatial ability of the learner so that she/he can see the complete unit as a whole. Concept map would be helpful in conducting formative assessment, testing the capability of students to summarize the main points, developing rubrics to evaluate the level of the students.

23. **Primary school children learn most effectively in an atmosphere where**
- (a) the teacher is authoritarian and always dictates what should be done.
 - (b) the teacher leads all the learning and students are expected to be passive.
 - (c) where the main stress is on mastery of reading skills and achievement of 'marks'
 - (d) where the socio-emotional needs for the children are taken care of.

Ans. (d) : Primary school children learn most effectively in an atmosphere where the socio-emotional needs for the children are taken care of. Young children acquire social and emotional skills, such as regulating emotions, sharing with others and following instructions. These skills lay the foundation for developing literacy, numeracy and other cognitive abilities that are critical for success in school and life.

24. _____ is an example of effective classroom practice.
- (a) Use of rewards and punishment
 - (b) 'Competitive' classroom
 - (c) Comparative evaluation
 - (d) Collaborative learning

Ans. (d) : Collaborative learning is an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together usually, students are working in groups of two or more, mutually searching for understanding, solutions or meanings, or creating a product.

25. **Which of the following is an example of intrinsic motivation?**
- (a) A student is doing an experiment to get good grades
 - (b) A student is doing experiment because he is curious about the result of experiment.
 - (c) A student is doing experiment because he does not like theory class.
 - (d) A student is doing experiment because he wants to impress his teacher.

Ans. (b) : Intrinsic motivation is defined as the doing of an activity for its inherent satisfaction rather than for some separable consequence. When intrinsically motivated, a person is moved to act for the fun or challenge entailed rather than because of external products, pressures or rewards. A student is doing experiment because he is curious about the result of experiment is an example of intrinsic motivation.

26. **Which of the following scenario exemplifies constructivist pedagogy?**
- (a) Students listen to the teachers and take notes on the content covered.
 - (b) Students repeat aloud long passages to memorize them.
 - (c) Students learn the material in their text books and take tests covering the content at the end of the year.
 - (d) A teacher presents his students with a contemporary issue, on which they discuss and debate.

Ans. (d) : A teacher presents his student's with a contemporary issue, on which they discuss and debate this scenario exemplifies constructivist pedagogy. The constructivist pedagogy is thought of as the creation of classroom environments, activities, and methods that are grounded in a constructivist theory of learning, with goals that focus on individual students developing deep understandings in subject matter of interest and habits of mind.

27. Which of the following attitude is best suited to positive group dynamics within the classroom ?

- (a) Laying down strict external rules prohibiting group interaction.
- (b) Dividing the class into permanent 'ability based' sub groups for easy functioning.
- (c) Encouraging all students in class to dialogue and collaborate for problem solving.
- (d) Encouraging competition between groups to enhance performance.

Ans. (c) : Encouraging all students in class to dialogue and collaborate for problem solving is best suited to positive group dynamics within the classroom. This form of change of behavior of students is called group dynamics because of their contact with group members. If a teacher organizes a collaborative project activity on every subject in classroom, the teacher formulates various groups and offers them activity/work for the project.

28. A metaphor of 'Jug and the mug' is often used to depict how traditional education views teacher as a big jug pouring knowledge into the mind of a student depicted by a smaller mug. This kind of understanding is problematic because:

- (a) Students carry valuable experiences with them and learning is constructed with their active participation with teacher and peers.
- (b) Students are naive and they can't learn anything without the teacher.
- (c) There is no need of any content or teacher in the process of learning.
- (d) Learning happens best if children listen to the teacher passively.

Ans. (a) : This kind of understanding is problematic because students carry valuable experiences with them and learning is constructed with their active participation with teachers and peers. As in the traditional processes of teaching, the teacher was only actively participating and the children used to remain passive. The whole process of teaching was centered around the teacher. The 'Jug and Mug model', is the traditional way of teaching in classrooms, as it is a one-way process.

29. Errors in children's work:

- (a) confirms their intellectual inferiority over others.
- (b) definitely confirms the lack of preparedness on part of teacher.
- (c) should be ignored by the teacher to avoid disappointment among children.
- (d) should be thoroughly analyzed by the teacher and discussed with children.

Ans. (d) : Errors in children's work should be thoroughly analyzed by the teacher and discussed with children. When a learners can't master a topic, he/she is vulnerable to make errors. Errors are nothing but incorrectness made by a child during learning.

- It also takes place due to the mismatch in previously assimilated and the newly accommodated knowledge.

- Errors are a significant step in the teaching learning process.
- Errors are necessary in the learning process to give insight into children's thinking.

30. Which of the following can enhance critical thinking in middle school students?

- (a) Asking students to read the textbook on their own and avoid discussion with peers
- (b) Asking students to discuss topics in groups and come up with questions.
- (c) Presentation by the teacher using lecture method.
- (d) Giving students homework to write the answers to recall the questions given at the end of the textbook.

Ans. (b) : Critical thinking in middle school students can enhance by asking students to discuss topics in groups and come up with questions. You can get middle schoolers to develop their critical thinking skills by inviting discussions on everyday situations. For instance, analyze points of view and persuasion methods employed in advertisements in print and on TV. Classroom discussions of historical figures can cause students to question their presumptions.

PART-II

MATHEMATICS AND SCIENCE

31. The sum of squares of distinct common prime factors of 120, 210 and 330 is

- (a) 34
- (b) 38
- (c) 39
- (d) 46

Ans. (b) : The Prime factors of given numbers are-

$$120 = 2 \times 2 \times 2 \times 3 \times 5$$

$$210 = 3 \times 7 \times 2 \times 5$$

$$330 = 2 \times 3 \times 5 \times 11$$

Common factors are = $2 \times 3 \times 5$

$$\text{Sum of squares of common factors} = 2^2 + 3^2 + 5^2 = 38$$

32. If the 9-digit number $985x3678y$ is divisible by 72, then what is the value of $(3x + 2y)$?

- (a) 16
- (b) 18
- (c) 20
- (d) 24

Ans. (c) : Since the given number is divisible by 72. It must be divisible by 4, 8 and 9.

Since it is divisible by 4 therefore last two- digit must be divisible by 4. So possible value of y are 0, 4, & 8 since it is divisible by 8 therefore last three digit must be divisible by 8.

$$\begin{aligned} 985x3678y &= 9 + 8 + 5 + x + 3 + 6 + 7 + 8 + y \\ &= 46 + x + y \\ &= 46 + x + 4 \\ &= 50 + x \end{aligned}$$

For $x = 4$ the value is

$$= 50 + 4$$

54 which is divisible by 9

$$x = 4$$

$$y = 4$$

$$(3x + 2y) = \dots \dots (i)$$

Putting the value of x and y in equation (i)

$$(3 \times 4 + 2 \times 4) = 20$$

33. The value of

$$1\frac{3}{5} - \frac{2}{3} \div \frac{12}{13} + \frac{7}{5} \times \frac{1}{3}$$

$$11\frac{1}{5} \div 9\frac{1}{3} \times 20\frac{1}{6}$$

- (a) $\frac{1}{18}$ (b) $\frac{1}{16}$
 (c) $\frac{1}{80}$ (d) $\frac{1}{90}$

Ans. (a) :

$$1\frac{3}{5} - \frac{2}{3} \div \frac{12}{13} + \frac{7}{5} \times \frac{1}{3}$$

$$11\frac{1}{5} \div 9\frac{1}{3} \times 20\frac{1}{6}$$

$$= \frac{8}{5} - \frac{2}{3} \div \frac{12}{13} + \frac{7}{5} \times \frac{1}{3}$$

$$= \frac{56}{5} \div \frac{28}{3} \times \frac{121}{6}$$

$$= \frac{8}{5} - \frac{2}{3} \times \frac{13}{12} + \frac{7}{15}$$

$$= \frac{56}{5} \times \frac{3}{28} \times \frac{121}{6}$$

$$= \frac{8}{5} - \frac{13}{18} + \frac{7}{15}$$

$$= \frac{288 - 130 + 84}{180}$$

$$= \frac{242}{180} \times \frac{5}{121}$$

$$= \frac{1}{18}$$

34. If $3.4 + 2.025 + 9.36 - 3 \times (4.1003) = 3 - p$, then what is the value of p?

- (a) 0.4741 (b) 0.4841
 (c) 0.5159 (d) 0.5249

Ans. (c) : $3.4 + 2.025 + 9.36 - 3 \times (4.1003) = 3 - p$

$$3.4 + 2.025 + 9.36 - 12.3009 = 3 - p$$

$$14.785 - 12.3009 = 3 - p$$

$$2.4841 = 3 - p$$

$$p = 3 - 2.4841$$

$$p = 0.5159$$

35. What is the sum of the cubes of the integers lying between -5 and 6?

- (a) 120 (b) 125
 (c) 210 (d) 216

Ans. (b) : The numbers lying between -5 and 6 are

-4, -3, -2, -1, 0, 1, 2, 3, 4, 5

Now cubes of each of these numbers are -

$$-4^3 = -64$$

$$-3^3 = -27$$

$$-2^3 = -8$$

$$-1^3 = -1$$

$$-0^3 = -0$$

$$1^3 = 1$$

$$2^3 = 8$$

$$3^3 = 27$$

$$4^3 = 64$$

$$5^3 = 125$$

Now adding all cubes-

$$(-64) + (-27) + (-8) + (-1) + 0 + 1 + 8 + 27 + 64 + 125 = 125$$

36. If $0.000001275 = k \times 10^{-7}$, then the value of

$$\frac{k}{5}$$

- (a) 1.55 (b) 2.55
 (c) 12.75 (d) 15.5

Ans. (b) : $0.000001275 = k \times 10^{-7}$

$$k = \frac{0.000001275}{10^{-7}}$$

$$k = 0.000001275 \times 10^7$$

$$k = 12.75$$

Then,

$$\frac{k}{5} = \frac{12.75}{5}$$

$$= 2.55$$

37. If x is added to each of the numbers 5, 11, 3 and 8, the number, so obtained in this order, are in proportion. What is the value of

$$\sqrt{(x+2)(4x-3)} ?$$

- (a) 12 (b) 15
 (c) 20 (d) 30

Ans. (b) : According to the question,

$$\frac{x+5}{x+11} = \frac{x+3}{x+8}$$

$$(x+8)(x+5) = (x+3)(x+11)$$

$$x^2 + 5x + 8x + 40 = x^2 + 11x + 3x + 33$$

$$13x + 40 = 14x + 33$$

$$x = 7$$

$$\text{Then } \sqrt{(x+2)(4x-3)} = \sqrt{(7+2)(4 \times 7 - 3)}$$

$$= \sqrt{9 \times 25} = 3 \times 5 = 15$$

38. An article is marked 25% above its cost price. If a discount of 25% is given on the marked price, then there is a

- (a) a loss of $5\frac{3}{4}\%$ (b) a loss of $6\frac{1}{4}\%$
 (c) a gain of $6\frac{3}{4}\%$ (d) no gain no loss

Ans. (b) : Let C.P. be ₹100

$$\text{Then MP} = ₹125$$

$$\text{Discount} = 25\%$$

$$\text{SP} = \frac{125 \times 75}{100}$$

$$\text{SP} = ₹93.75$$

$$\begin{aligned} \text{Loss}\% &= \frac{\text{CP} - \text{SP}}{\text{CP}} \times 100 \\ &= \frac{100 - 93.75}{100} \times 100 \\ &= 6.25\% \text{ or } 6\frac{1}{4}\% \end{aligned}$$

39. If $\frac{3x+10}{2} - 4x = 1 - \frac{5x-4}{6}$, then the value of $(7x - 8)$ is
- (a) -1 (b) 6
(c) -15 (d) 13

Ans. (b) : Given,

$$\begin{aligned} \frac{3x+10}{2} - 4x &= 1 - \frac{5x-4}{6} \\ \frac{3x+10-8x}{2} &= \frac{6-5x+4}{6} \\ 10-5x &= \frac{10-5x}{3} \\ 30-15x &= 10-5x \\ 10x &= 20 \\ x &= 2 \end{aligned}$$

$$\text{So, } (7x - 8) = 7(2) - 8 = 6$$

40. Let $P = 10x^2 - 8y^2 + 5xy$
 $Q = 12xy + 10y^2 + 3x^2$
- And $R = 8y^2 - 3x^2 + 4xy$
- Then, $(P-Q) + R =$
- (a) $4x^2 + 10y^2 - 3xy$ (b) $4x^2 - 10y^2 - 3xy$
(c) $4x^2 - 10y^2 + 7xy$ (d) $4x^2 - 26y^2 - 11xy$

Ans. (b) : $(P - Q) + R$

$$\begin{aligned} &= (10x^2 - 8y^2 + 5xy - 12xy - 10y^2 - 3x^2) \\ &\quad + 8y^2 - 3x^2 + 4xy \\ &= (7x^2 - 18y^2 - 7xy) + 8y^2 - 3x^2 + 4xy \\ &= 4x^2 - 10y^2 - 3xy \end{aligned}$$

41. If $x = -2, y = 3,$ and $z = -3$, then what is the value of $y^2x^3 + 2y^3 - 3x^2y^2 + 4xyz$?
- (a) -36 (b) -54
(c) 36 (d) 54

Ans. (b) : Given,

$$\begin{aligned} x &= -2 \\ y &= 3 \\ z &= -3 \end{aligned}$$

Then $y^2x^3 + 2y^3 - 3x^2y^2 + 4xyz$

$$\begin{aligned} &= 3^2(-2)^3 + 2(3)^3 - 3(-2)^2 3^2 + 4(-2) \times 3 \times (-3) \\ &= 9 \times (-8) + 2 \times 27 - 3 \times 4 \times 9 + 72 \\ &= -72 + 54 - 108 + 72 \\ &= -54 \end{aligned}$$

42. One of the factors of $(a + b + c)^2 - (a + c - d)^2$ is
- (a) $b + c$ (b) $2a + b + c - d$
(c) $b + d$ (d) $2a - b + 2c - d$

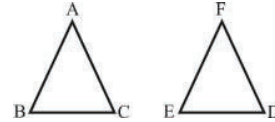
Ans. (c) : $(a + b + c)^2 - (a + c - d)^2$
Formula-

$$\begin{aligned} (a^2 - b^2) &= (a + b)(a - b) \\ \Rightarrow (a + b + c - a - c + d)(a + b + c + a + c - d) \\ &= (b + d)(2a + 2c + b - d) \end{aligned}$$

One of the factor of given equation = $b + d$

43. If $\triangle ABC \cong \triangle FED$, then
- (a) $AB = DE$ (b) $BC = FE$
(c) $\angle B = \angle E$ (d) $\angle C = \angle F$

Ans. (c) :

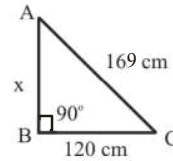


If $\triangle ABC \cong \triangle FED$ then,

$$\begin{aligned} \angle A &= \angle F & AB &= FE \\ \angle B &= \angle E & BC &= ED \\ \angle C &= \angle D & AC &= FD \end{aligned}$$

44. In $\triangle ABC$, $\angle B = 90^\circ$, $AC = 169\text{cm}$, and $BC = 120\text{cm}$. The length of AB (in cm) is
- (a) 109 (b) 121
(c) 119 (d) 123

Ans. (c) :



By the Pythagoras theorem-

$$\begin{aligned} AC^2 &= AB^2 + BC^2 \\ (169)^2 &= x^2 + (120)^2 \\ x^2 &= (169)^2 - (120)^2 \\ x^2 &= (169+120)(169-120) \\ x^2 &= 289 \times 49 \\ x &= 17 \times 7 \\ x &= 119\text{ cm.} \end{aligned}$$

45. Which of the following is not true?
- (a) A right triangle can have at most one line of symmetry
(b) A parallelogram has no line of symmetry
(c) A circle has only one line of symmetry
(d) A rhombus is symmetrical about its diagonals

Ans. (c) : The option (c) is not true among the given options.

A circle has its diameter as the line of symmetry and a circle can have an infinite number of diameters. Hence a circle has infinite lines of symmetry, whereas the statements of all other options are true.

46. In $\triangle ABC$, $\angle A = (2x - 5)^\circ$, $\angle B = (5x + 5)^\circ$ and $\angle C = (3x + 50)^\circ$. Side BC is produced to D and CE is the bisector of $\angle ACD$. The measure of $\angle ECD$ is
- (a) 45° (b) $45\frac{1}{2}^\circ$
(c) 44° (d) $44\frac{1}{2}^\circ$

Ans. (b) : Given,

$$\angle A = (2x - 5)^\circ, \angle B = (5x + 5)^\circ$$

$$\text{and } \angle C = (3x + 50)^\circ$$

Sum of angles of triangle is 180°

$$\text{Hence } \angle A + \angle B + \angle C = 180^\circ$$

$$2x - 5 + 5x + 5 + 3x + 50 = 180^\circ$$

$$10x = 180 - 50$$

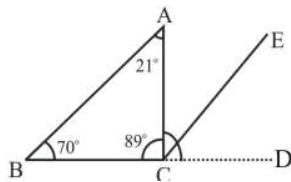
$$10x = 130^\circ$$

Now,

$$\angle A = 2(13) - 5 = 21^\circ$$

$$\angle B = 5(13) + 5 = 70^\circ$$

$$\angle C = 3(13) + 50 = 89^\circ$$



In triangle sum of two opposite interior angle is equal to exterior angle

$$\angle ACD = \angle A + \angle B$$

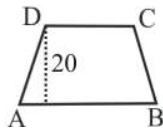
$$\angle ACD = 21 + 70 = 91^\circ$$

$$\text{Therefore, } \angle ECD = 91/2 \text{ or } 45\frac{1}{2}^\circ.$$

47. **ABCD** is a trapezium in which **AB** \parallel **DC**. The ratio of **AB** to **DC** is **2:1**, and the distance between **AB** and **DC** is **20cm**. If the area of the trapezium is **720cm²**, then the length of **AB** is

- (a) 36 cm (b) 42 cm
(c) 48 cm (d) 54 cm

Ans. (c) :



$$\text{Given ratio } \frac{AB}{DC} = \frac{2}{1} = \frac{2x}{x}$$

Area of trapezium

$$= \frac{1}{2} \times \text{Sum of parallel side} \times (\text{Distance between parallel sides})$$

$$720 = \frac{1}{2} \times \text{Sum of parallel sides} \times 20$$

$$\text{Sum of parallel side i.e. } AB + DC = 72$$

$$2x + x = 72$$

$$3x = 72$$

$$x = 24$$

$$AB = 2x = 2 \times 24 = 48 \text{ cm.}$$

48. The volume of a right circular cylinder is **7392 cm³** and its height is **12 cm**. The area (in **cm²**) of its base is (take $\pi = \frac{22}{7}$)

(a) 528

(b) 572

(c) 616

(d) 660

Ans. (c) : Given,

Volume of a right circular cylinder = **7392cm³**,
height = **12cm**,

$$\pi = \frac{22}{7}$$

The volume of cylinder = $\pi r^2 h$

or

$$= \text{area of base} \times \text{height}$$

$$7392 = \text{area of base} \times 12$$

$$\Rightarrow \text{Area of base} = 616 \text{ cm}^2$$

49. **Water is pouring into a cuboidal reservoir at the rate of 1200 liters per minute. The length, breadth and height of the reservoir are 24 m, 18 m and 10 m respectively. The number of hours, it will take to fill the reservoir, is**

- (a) 45 (b) 50
(c) 56 (d) 60

Ans. (d) : Given

length = 24 m

breadth = 18m

height = 10 m

rate = 1200 liter/minute

Volume of reservoir = length \times breadth \times height

$$= 24 \times 18 \times 10$$

$$V = 4320 \text{ m}^3$$

The number of hours, it will take to fill the reservoir

$$= \frac{\text{Volume}}{\text{Rate}}$$

$$= \frac{4320}{1200 \times 10^{-3} \times 60}$$

$$= 60 \text{ hours.}$$

50. **What is the mean of the range, median and mode of the data given below?**

18, 7, 5, 10, 8, 12, 6, 8, 12, 14, 8, 18, 15, 9, 6

- (a) 9 (b) 9.5
(c) 10 (d) 10.3

Ans. (c) : 18, 7, 5, 10, 8, 12, 6, 8, 12, 14, 8, 18, 15, 9, 6

Rearranging in increasing order-

5, 6, 6, 7, 8, 8, 8, 9, 10, 12, 12, 14, 15, 18, 18

Here most frequent data is 8

\therefore mode = 8

total no of term in given data

$$n = 15 \text{ (odd)}$$

$$\text{Median} = \left(\frac{n+1}{2} \right)^{\text{th}}$$

$$= \left(\frac{15+1}{2} \right)^{\text{th}}$$

$$= 8^{\text{th}} \text{ term}$$

$$\text{Median} = 9$$

Now Range = Maximum value - Minimum value

$$= 18 - 5$$

$$\text{Range} = 13$$

Mean of Range, Mode and Median

$$= \frac{\text{Range} + \text{Mode} + \text{Median}}{3}$$

$$= \frac{8+9+13}{3}$$

$$= 10$$

51. Which of the following is the most appropriate strategy for introducing the concept of multiplication of two fractions in the middle school?

- The algorithm should be used to introduce the concept.
- The process should be visually represented.
- Multiplication as repeated addition should be emphasised.
- Multiplication as inverse of division should be emphasised.

Ans. (b) : Most appropriate strategy for introducing the concept of multiplication of two fractions in the middle school is that it should be visually represented.

- Multiplication as repeated addition become difficult for fraction and decimal numbers.
- Algorithm are used for a highly complicated and upper level calculations. Multiplication is basic scenario of mathematics.
- Visual representation are used in mathematics to help students solve problem and understand abstract ideas.

52. Which of the following would NOT qualify as a higher aim of teaching mathematics?

- To help students understand the basic structure of mathematics
- To enable students to identify relationships
- To train students in mechanical calculations
- To enable students to handle abstractions

Ans. (c) : The aim of teaching and learning Mathematics are to encourage and enable student to recognize that Mathematics permeates the world around us, appreciate the usefulness power and beauty of Mathematics, enjoy Mathematics and develop patience and persistence when solving problems. Mechanical calculations undoubtedly is a part of mathematics but it is not a higher aim. Its higher aim is to visualize the practicability of mathematics in a world around us.

53. "School curriculum should teach important mathematics". What does this statement mean?

- Mathematics should be taught to only those students who plan to pursue it in higher classes.
- Difficult concepts should be omitted for disinterested students.
- Students should be provided with context which highlights the need for mathematical concepts.
- The concepts which are tested in year-end examination must be taught in detail.

Ans. (c) : In school curriculum, students should be provided with context highlights the need for mathematical concepts by which students can easily understand the mathematical problem and solve them.

54. Identify the correct statement from among the following.

- Formal proofs are obtained only by inductive reasoning.
- Hypotheses are always formulated only through deductive logic.
- Conjectures have no role in construction of mathematical knowledge
- Counter-examples are helpful in assessing the validity of generalisations

Ans. (d) : The option (d) is the correct statement from the following statements.

A counter example to an argument is a situation which shows that the argument can have true premises and a false conclusion. Counter examples are helpful in assessing the validity of generalization.

55. Which of the following is an example of mathematical modeling?

- Efficient usage of calculating devices.
- Setting up equations for a word Problem.
- Using mathematical 'tricks' to carry out long calculations.
- Making models of 3-D shapes.

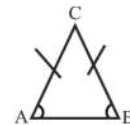
Ans. (b) : Mathematical modeling involves to setup equations for a word problem.

Mathematical modeling is the process of describing a real world problem in mathematical terms, usually in the form of equations and then using these equation to help understand the original problem.

56. For a triangle to be isosceles, which of the following statements is true?

- "Two of its angles are equal" is a sufficient but not necessary condition.
- "Two of its angles are equal" is a necessary but not sufficient condition.
- "Two of its angles are equal" is both necessary and sufficient condition.
- "Two of its angles are equal" is neither sufficient nor necessary condition.

Ans. (c) : In geometry an Isosceles triangle is a triangle that has two equal sides and two equal angles.



57. Consider the following statements.

Statement A: If n is even, n^2 is even.

Statement B: If n^2 is not even, then n is not even.

Which of following statements is correct?

- B is contrapositive of A
- B is inverse of A
- B is converse A
- B is reverse of A

Ans. (a) : If n is even, n^2 is even,

Suppose that even number is 2

$$n^2 = 2^2 = 4$$

\Rightarrow Satisfies the first statement

If n^2 is not even then n is not even number

Let us take 9
 $(3)^2 = 9$ is not even number
 \Rightarrow Satisfies the second statement.
Hence, we can conclude that B is contrapositive of A.

58. Which of the following statements is true regarding 'Geogebra'?

- (a) It is an application of geometry in algebra
- (b) It is a branch of mathematics dealing with geometry and algebra
- (c) It is a specialized topic in geometry
- (d) It is a software used in exploring geometry

Ans. (d) : Geogebra is a mathematics software for all level of education that brings together geometry, algebra, spreadsheet, graphing, statistics and calculus in one easy to use package. Geogebra is a software used in exploring geometry.

Geogebra is a rapidly expanding community of millions of users located in just about every country.

59. Which of the following statements is correct regarding teaching-learning of mathematics?

- (a) Medium of instruction impacts mathematical understanding
- (b) Gender impacts mathematical competency
- (c) Teacher's belief about learners does not impact mathematical competency
- (d) Mathematical ability is innate

Ans. (a) : Medium of instructions impacts mathematical understanding is correct regarding teaching- learning of mathematics.

The role that language plays in the teaching and learning of mathematics is one of some importance in the current literature in mathematics education. As children get older, language supports their ability to learn, to identify and to understand the symbolic nature of numerals.

60. Dyscalculia is characterized by
a. difficulty in understanding number concepts.
b. lack of an intuitive grasp of numbers.
c. inability to coordinate the verbal and spatial aspects of numbers.
d. inability to recognise alphabets.

- (a) a and b
- (b) c and d
- (c) a, b, and c
- (d) a and c

Ans. (c) : Dyscalculia is a specific learning difficulty characterized by a severe and persistent impairment in Mathematics, including difficulties using number and quantity, simple arithmetic and counting. Dyscalculia is not the same as the ordinary experience of "being bad at math".

Dyscalculia is characterized by \Rightarrow

- (a) Difficulty in understanding number concepts.
- (b) Lack of an intuitive grasp of numbers.
- (c) Inability to coordinate the verbal and spatial aspect of numbers.

61. 'X' is a plant which is an autotroph as well as a heterotroph. What could 'X' be

- (a) Pitcher plant
- (b) Algae
- (c) Cuscuta
- (d) Fungi

Ans. (a) : The pitcher plant has both autotrophic and heterotrophic modes of nutrition. The pitcher plants performs photosynthesis which make it an autotrophic plant but it has also a partial heterotrophic mode of nutrition because pitcher plants grow on nitrogen deficient soil.

- Algae are a diverse group of aquatic organisms that have the ability to conduct photosynthesis.
- Cuscuta (also known as dodder) is a genus of over 201 species of yellow, orange or red parasitic plant.
- Fungi are eukaryotic organisms that includes microorganism such as yeast, mould and mushroom.

62. 'Z' is a microorganism present in the alimentary canal of human beings and other animals which aids in digestion of food. What is 'Z'?

- (a) Bacteria
- (b) Virus
- (c) Algae
- (d) Fungi

Ans. (a) : 'Z' is a bacteria present in the alimentary canal of human beings and other animals which aids in digestion of food.

These bacteria help your body to break down big food molecules into useable components. The bacteria also produce vitamin and help protect the body from diseases. The whole population of bacteria in our bodies is called the human microbiome. The relationship between you and bacteria is symbiotic.

63. There are many steps involved in making wool from sheep. Which of the following represents the correct sequence of the steps?

- (a) Shearing, scouring, sorting, dyeing, rolling into yarn, weaving.
- (b) Scouring, sorting, shearing, dyeing, rolling into yarn, weaving.
- (c) Sorting, scouring, shearing, rolling into yarn, dyeing, weaving.
- (d) Shearing, scouring, dyeing, rolling into yarn, sorting, weaving.

Ans. (a) : The major steps necessary to process wool from the sheep to the fabric are shearing, cleaning and scouring, grading and sorting, dyeing, spinning or rolling into yarn, weaving and finishing.

64. Which of the following represents correct matching set of type of joints?

(A) Ball and socket joint	(i) Arms and shoulders
(B) Pivotal joint	(ii) Jaw
(C) Hinge joint	(iii) Neck
(D) Fixed joint	(iv) Elbow

- (a) A-(i), B-(iii), C-(iv), D-(ii)
- (b) A-(iii), B-(i), C-(ii), D-(iv)
- (c) A-(ii), B-(iii), C-(i), D-(iv)
- (d) A-(iv), B-(i), C-(ii), D-(iii)

Ans (a) :	
(A) Ball and socket joint	(i) Arms and shoulders
(B) Pivotal joint	(ii) Neck
(C) Hinge joint	(iv) Elbow
(D) Fixed joint	(ii) Jaw

65. Which of the following statements is correct?

- (a) The unfertilized egg has one chromosome
- (b) The unfertilized egg has 23 pairs of chromosome
- (c) The unfertilized egg has one 'X' i.e. sex chromosome
- (d) The unfertilized egg has 22 chromosome

Ans. (c) : Unfertilized egg is female gamete which is haploid. It contains one X chromosome i.e. sex chromosome. The sperm contain either an X or a Y chromosome. A male child (XY) is produced if the sperm containing a Y chromosome fuses with the egg. If the sperm containing an X chromosome fuses with the egg, than a female child (XX) is produced.

66. 'X' and 'Y' are elements which are highly reactive with air, hence stored in Kerosene. What could 'X' and 'Y' be?

- (a) Phosphorus and Sodium
- (b) Phosphorus and Sulphur
- (c) Sodium and Potassium
- (d) Sulphur and Potassium

Ans. (c) : Sodium and Potassium are highly reactive metals and react vigorously with the oxygen, carbon dioxide and moisture present in the air such that it may even cause a fire. To prevent this explosive reaction, these elements is kept immersed in kerosene because they doesn't react with kerosene.

67. 'X' is a synthetic fiber which resembles wool and is used to make shawls and sweaters and blankets. What could 'X' be?

- (a) Rayon
- (b) Acrylic
- (c) Nylon
- (d) Polyester

Ans. (b) : Acrylic is man-made fibre since, acrylic resembles wool so it is also known as artificial wool or synthetic wool. Acrylic is cheaper than natural wool and can be dye in various colours. Thus acrylic is very popular and taking the place of wool today. Acrylic is used in making sweaters, blanket and other many woolen clothes.

68. In which of the following situations, water cannot be used to extinguish fires?

- (A) electrical fire
- (B) burning of wood
- (C) burning of petrol
- (D) burning of paper

- (a) A and B
- (b) A and C
- (c) B and D
- (d) B and C

Ans. (b) : • Water is a good fire extinguisher. But water can not be used to extinguish electrical fires. This is because water is a good conductor of electricity. It can cause electric shock and can harm the person who is trying to put it off.

• We can not use water in case of oil fires. Oil floats over water and thus oil fires cannot be extinguished by using water. So situation A and C cannot be used to extinguish fires.

69. A compilation of data on population status of endangered species is

- (a) Green data book
- (b) Brown data book
- (c) Red data book
- (d) White data book

Ans. (c) : IUCN Red list of endangered species is the world most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of quantitative criteria to evaluate the extinction risk of thousands of species. The book containing this list is called red data book. So A compilation of data on population states of endangered species is red data book.

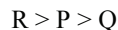
70. Metal 'P' displaces metal 'Q' from its salt solution but is not able to displace metal 'R' from its salt solution. Identify the least reactive metal.

- (a) P
- (b) Q
- (c) R
- (d) Cannot be determined

Ans. (b) : Metal P displaces metal Q from its salt solution so P is more reactive than Q

• Metal P can not displace metal R from its salt solution so R is more reactive than P.

So reactive order is



So metal Q will be the least reactive metal.

71. Shyama is standing 1m away from a plane mirror and is observing her image. She takes two steps backwards. What change would she see in her image?

- (a) The image increases in size but remains at the same distance from mirror
- (b) The image remains the same size but moves further away from the mirror
- (c) The image remains the same size but moves closer to the mirror
- (d) The image increases in size and moves further away from the mirror

Ans. (b) : Plane mirrors: Plane mirrors are simply flat mirror without curves. These are polished surface coated with mercury such that they reflect most of the light falling on them.

The distance of the image behind the mirror is the same as the distance of the object in front of the mirror. From the given situation we can conclude that the size of image and object are equal and the distance of image increases as the distance of object increases from a plane mirror.

So, as Shayama takes two steps backwards then her image remains the same size but moves further away from the mirror.

72. A green cube with side of 0.25m, a red cube with side of 0.35 m and a yellow cube having side of 0.5 m are lying on a flat table. Which of them would exert more pressure on the table given that mass of all cubes is same.

- (a) Green cube
- (b) Red cube
- (c) Yellow cube
- (d) All will exert same pressure

Ans. (a) : Given the sides of cubes

Green Cube = 0.25m

Red Cube = 0.35m

Yellow Cube = 0.5m
 We know that pressure is inversely proportional to the surface area of contact.
 Therefore area of cubes = (side)²
 Green cube, area = (0.25)² = 0.0625m²
 Red cube, area = (0.35)² = 0.1225m²
 Yellow cube area = (0.5)² = 0.25m²
 Hence, pressure exerted by green cube is more than other cubes.

73. Identify the **incorrect** statement from the following.

- (a) sound can travel through vacuum
- (b) The higher the frequency of vibration, higher is the pitch
- (c) All vibratory motions are oscillations
- (d) Sound in a flute is produced by the vibrating air-column

Ans. (a) : A medium is required for transmission of sound waves. Vacuum is an enclosed place in which there is no molecules or matter. Therefore sound cannot travel through vacuum where there is no molecule or atom to induce vibrations.

74. Which of the following sets comprises liquids which are good conductors of electricity?

- (a) Lemon juice, vegetable oil, tap water
- (b) Distilled water, shampoo, vinegar
- (c) Lemon juice, vinegar, tap water
- (d) Shampoo, vegetable oil, lemon juice

Ans. (c) : Some liquids are good conductors of electricity and some are poor conductors of electricity.

- Most liquid that conduct electricity are solution of acid bases and salts.
- The passage of a electric current through a conducting liquid cause chemical reaction. The resulting effect are called chemical effect of current

Example:- Lemon Juice, vinegar, tap water are good conductor of electricity.

75. Which of the following sets comprises physical changes?

- (a) Shredding of paper, baking a cake, bursting of crackers
- (b) Boiling of water, cooking of food, rusting of iron
- (c) Burning of paper, setting of milk into curd, breaking a glass
- (d) Breaking of glass, grinding wheat, boiling of water

Ans. (d) : Physical changes are changes affecting the form of a chemical substance, but not its chemical composition.

Example: Breaking of glass, grinding wheat, boiling of water.

- In chemical change the chemical composition of substance is changed.

76. Reva is driving from her office to her home. Which is 22km away. She travels at a speed of 48km per hour for 10 minutes. She stops for 15 minutes at a market to buy some items. She resumes her journey at a speed of 56 km per

hour. What is her average speed for the entire journey?

- (a) 33 km/h
- (b) 44 km/h
- (c) 50 km/h
- (d) 52 km/h

Ans. (a) :

Distance travelled by Reva in 10 minutes

$$\Rightarrow 48 \times \frac{10}{60} = 8\text{km}$$

Remaining Distance i.e. 22 – 8 = 14 km, travelled by Reva at a speed 56 km/h

$$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$$

$$\frac{22\text{km}}{\frac{10}{60}\text{h} + \frac{15}{60}\text{h} + \frac{14}{56}\text{h}} = 33\text{km/h}$$

77. Which of the following will not be helpful in the process of separating a mixture of chalk and water?

- (a) Filtration
- (b) Decantation
- (c) Sedimentation
- (d) Sublimation

Ans. (d) : The mixture of chalk and water can be separated by sedimentation, decantation or filtration process.

- Sublimation is the transition of a substance directly from the solid to the gas state without passing the liquid state.
- Decantation is a process for the separation of mixtures of immiscible liquids or of a liquid and a solid mixture such as suspension.

78. Given below are a few statements about the phenomenon of shadow formation of an object. Identify the **correct** statements.

(A) Size of shadow depends upon the distance between light source and the object.

(B) Position of shadow depends upon the direction of incident light.

(C) The colour of shadow depends upon the colour of object

(D) Shadow formation can be explained on the same concept as image-formation

- (a) A and B
- (b) B and C
- (c) C and D
- (d) A and D

Ans. (a) : The phenomenon of shadow formation of an object shows that–

- Size of shadow depend upon the distance between light source and the object if the light source is near the object then size of shadow will be short but the light source is away from the object then side of shadow will be large.
- Position of shadow depends upon the direction of incident light

Example: If the source of light is infrant of object then the shadow will be formed in backward.

If the source of light is in left of the object then the shadow will be formed in right of the object.

So, statement A and B both are correct.

79. Identify the correct statements from among the following

- (a) The percolation rate of water in clayey soil is higher than that of loamy soil
- (b) The percolation rate of water in loamy soil is higher than that of sandy soil
- (c) The percolation rate of water in clayey soil is same as that of sandy soil
- (d) The percolation rate of water in sandy soil is higher than that of clayey soil

Ans. (d) : Clay soil has very fine soil particles through which water cannot be easily percolated whereas in sandy soil, they have big soil particles so that water can be easily filtered or percolated.

This is the reason why there is low percolation rate in clay soil compared to sandy soil.

Hence, the percolation rate of water sandy soil is higher than that of clayey soil.

80. 'X' is a vitamin which is fat soluble and helps in keeping skin and eye healthy. 'Y' represents food items rich in this vitamin. Identify 'X' and 'Y'

- (a) Vitamin D, Milk products
- (b) Vitamin A, Citrus fruits
- (c) Vitamin D, Citrus fruits
- (d) Vitamin A, Yellow fruits

Ans. (d) : Vitamin A helps with the reproductive process, growth and development. It also keeps eyes and skin healthy and acts as an antioxidant.

Yellow fruits and vegetables in general are great sources of vitamin A and antioxidants that can combat certain kinds of cancer and are good for the heart and eyes.

81. Which of the following statements best describes nature of science?

- (a) Science is about appreciation of nature
- (b) Science is an individual pursuit
- (c) Science is value-free and objective to the core
- (d) Science is a social endeavour

Ans. (d) : Science is a social endeavor because it involves solution of various problem, satisfy various needs and sustainable development of society with the help of scientific knowledge.

82. What is the need for having a historically valid science curriculum?

- (A) It helps understand how social factors influence the development of science.
- (B) It helps the learner to view science as infallible.
- (C) It helps learners appreciate how the concepts of science evolve with time.
- (D) It helps to highlight achievement of western countries in science.

- (a) (A) and (B) (B) only (D)
- (c) Only (B) (d) (A) and (C)

Ans. (d) : Historical validity requires that science curriculum be informed by a historical perspective, enabling the learner to appreciate how the concepts of science evolve with time. It also help the learner to view science as a social enterprise and to understand how social factor influence the development of science.

83. According to NCF 2005, the pedagogic practices recommended at the upper primary stage are

- (A) group discussion
- (B) designing simple investigations
- (C) verification of the theoretical principles

- (a) (A) and (C) (b) (B) and (C)
- (c) (A) and (B) (d) only (C)

Ans. (c) : According to NCF 2005, the pedagogic practices recommended at the upper primary stage are

- Group discussion
- Designing simple investigations

84. From the following statements about science, identify the one that is false.

- (a) Scientific ideas are tentative.
- (b) Technology has preceded science in the history of civilization.
- (c) The scientific method is the only guide for conducting research.
- (d) In science self-examination and skepticism is important.

Ans. (c) : When conducting research, scientists use the scientific method to collect measurable, empirical evidence in an experiment related to a hypothesis that is designed to support or contradict a scientific theory. For conducting research there can be various factors to guide scientist, for example the needs of society, correcting the wrong etc. Hence, scientific method is not only guide for conducting research.

85. Ashu was given individual task of measuring the body temperatures of at least five classmates. Following are the task specific indicators to assess Ashu.

Identify the undesirable indicator.

- (a) Washes and wipes thermometer before use
- (b) Jerks the thermometer to bring the level of mercury below 35°C.
- (c) Draws conclusion that temperature of every person is exactly 37°C
- (d) Show curiosity in finding information on how to measure temperature in dogs.

Ans. (c) : A thermometer is used to measure temperature of a person. The normal body temperature is 37°C but it is not necessary that every person have same temperature since they may have fever or cold.

86. A science teacher with in a constructivist framework would be in agreement to all of the following, except...

- (a) Learners' intuitive ideas always correspond with scientific knowledge.
- (b) Learners come from diverse backgrounds and their perceptions and beliefs vary.
- (c) Learners' ideas that they bring to classrooms are important.
- (d) Learners' ideas are resistant to change by conventional teaching-learning.

Ans. (a) : A science teacher with in a constructivist framework would be in agreement to all of the following, except learners' intuitive ideas always correspond with scientific knowledge. Ideas don't always shows scientific aspect, it shows the thinking skills of person.

87. To make your science classes more gender inclusive you may do all of the following, except
- Challenging stereotypes
 - Selecting activities that emphasize co-operation and caring
 - Teaching students to recognize gender inequalities
 - Encouraging girls to be more competitive than boys.

Ans. (d) : To make your science classes more gender inclusive you may do all of the following, except encouraging girls to be more competitive than boys since inclusive class itself means all student in same class with equal teaching practices and upbringing the other students to same level.

88. A teacher brought into her classroom $\frac{1}{2}$ kg flour, some warm water, sugar and yeast and asked following questions, Identify the questions that are divergent.
- What do you think I am going to do with all these things?
 - Will sugar dissolve easily in warm water?
 - Will yeast dissolve in water?
 - Name some of the eatables that are baked?
- A and B
 - B and C
 - A and C
 - B and C

Ans. (a) : The divergent questions are questions with no specific answer but rather exercises one's thinking ability about the topic which is being taught. So the teacher may ask the question-

(A) What do you think I am going to do with all these things?

(B) Will sugar dissolve easily in warm water?

Note: A divergent question is a question with no specific answer, but rather exercises one's ability to think broadly about a certain topic.

89. The advantages of conducting field trips over using educational software is that
- it involves all the senses.
 - it can cater to large groups.
 - it can be arranged easily and quickly
 - it gives individual attention.
- A and B
 - C and D
 - A, B and C
 - A, B and D

Ans. (a) : The advantages of conducting field trips over using educational software is that it involves all the senses and it can cater to large groups. Field trip provides the student with the opportunity of having first hand knowledge of happening in our environment. It helps to generate and sustain student interest in the subject.

90. What will be the sequence of your lesson planning using inquiry approach?
- Provide plenty of time for discussions before presenting the scientific terms
 - Stimulate students interest
 - Give opportunity for applications of the concepts and principles
- A, B, C
 - C, B, A
 - C, A, B
 - B, A, C

Ans. (d) : The sequence of the lesson planning using inquiry approach is –

Stimulate students interest

↓

Provide plenty of time for discussions before presenting the scientific terms

↓

Give opportunity for applications of the concepts and principles.

PART-III LANGUAGE-I : ENGLISH

Question Number : (91 to 99)

Read the passage given below and answer the question/complete the statements that follow with the help of given options.

Our giant water tower was home to some big and menacing honey free colonies. We made all efforts to get rid of them for the safety of the human residents of the colony.

Honey collectors were invited but were only able to destroy a few hives. Actually they never wished to get rid of all the honey trees honey was their livelihood. Whenever we saw that honey collectors in their loin-dhoti, jute ropes, leaf baskets and flaming torches, the children would run home for fear of the bees and hail the honey collectors for their bravery from our balconies. For me as a kid bees did not belong to the urban environment.

Decades later, a thousand kilometres from the water tank, I accompanied honey collector deep into the forest suits. Climbing up the trees, protected by the bee suit, the collectors set to the task – they extracted the honey chamber learning the hive intact. A few days before the extraction, they had inspected the hives to select those that looked full or healthy – ensuring that honey extraction does not damage the hives. This sustainable harvest ensured that the bees were not destroyed and the collectors retired their livelihood. For the biologist the bees belonged to the wilderness.

In between the water tower and the forest lie our gardens and fruit orchards. Here both humans and bees meet more intimately. Here our relationship with bees is give and take. They pollinate our flowers and help our fruit trees to get laden with fruit.

91. The writer of this article is a :
- Biologist
 - Photographer
 - Honey collector
 - Bee keeper

Ans. (a) : The writer of this article is a biologist because he says that for biologist the bees belonged to the wilderness. And for him bees did not belong to the urban environment. Hence option (a) is correct.

92. The topic discussed herein is :
- Fear of bees
 - Honey extraction
 - Bee keeping
 - Safety from bees

Ans. (b) : The activities of honey extraction is discussed in this passage. Writer shared the experience of honey extraction with honey collectors.
Hence option (b) is correct.

93. Study the following statements :

(A) Honey collectors cheated the residents of the colony.

(B) Safety of the colony residents was completely ensured.

(C) Hailing the honey collectors by the residents was misplaced.

(a) (A) is right and (B) is wrong.

(b) (B) is right and (A) is wrong.

(c) (B) is right and (C) is wrong.

(d) (C) is right and (A) is wrong.

Ans. (a) : According to the passage, statement (A) is correct.

Honey collectors cheated the residents of the colony as honey was their livelihood but statement (B) and (C) is incorrect.

Hence option (a) is correct.

94. In the forest, the honey collectors :

(a) help pollinate the flowers

(b) carry flaming torches to distract the bees

(c) don't have to climb the trees

(d) collect more honey

Ans. (d) : According to the passage, In the forest, the honey collectors collect more honey.

Hence option (d) is correct.

95. Study the following statements :

(A) The trees are treated as a menace in the cities.

(B) Man derives a double benefit from the bees.

(a) (A) is right and (B) is wrong

(b) (B) is right and (A) is wrong

(c) Both (A) and (B) are right

(d) Both (A) and (B) are wrong

Ans. (c) : Both (A) and (B) are right

Trees are treated as a menace in the cities as bees belong to trees.

And Man derives a double benefit from the bees they pollinate our flower and help our fruit trees to get laden with fruit.

Hence option (c) is correct.

96. 'Only able to destroy a few hives' the word opposite in meaning to 'destroy' is :

(a) Enjoy (b) Enlarge

(c) Build (d) Occupy

Ans. (c) : The word "destroy" means नष्ट करना।

Enjoy – आनंद लेना

Enlarge – विस्तार करना

Build – निर्माण करना

Occupy – ले लेना

So, opposite of 'destroy' is build

Hence option (c) is correct.

97. And 'smouldering torches' the word 'smouldering' here means :

(a) glowing

(b) burning

(c) bright

(d) shining

Ans. (b) : In the phrase "Smouldering torches" "Smouldering" means "burning slowly with smoke but no flame".

Hence option (b) is correct.

Smouldering means burning.

98. This sustainable harvest ensured that the bees were not destroyed.

The underlined clause is :

(a) Principal (b) Noun

(c) Adjective (d) Adverb

Ans. (b) : A noun clause is a dependent clause that takes the place of a noun in the sentence. If a dependent clause can stand in for a person, place or thing then it is a noun clause.

In the given sentence– 'That the bees were not destroyed' is a noun clause.

Hence option (b) is correct.

99. 'those that looked full' the underlined word is a/an :

(a) Adjective

(b) Adverb

(c) Pronoun

(d) Preposition

Ans. (c) : In the given sentence, "Those that looked full", 'that' is a relative pronoun.

Relative pronoun connect dependent clauses to independent clause.

Hence option (c) is correct.

Question Number : (100 to 105)

Read the stanza given below and answer the questions/complete the statements that follow with the help of given options.

Fail I alone, in words and deeds?

Why, all men strive and who succeeds?

Saw other regions, cities, new,

As the world rushed by one either side.

I thought – All labour, yet no less

Bear up beneath their unsuccess.

Look at the end of work, contrast

The petty done, the undone vast,

This present of theirs with the hopeful past!

I hoped she would love me, here we ride.

100. The poet here is talking like a/an

(a) optimist

(b) pessimist

(c) realist

(d) indifferent person

Ans. (a) : The poet here is talking like an optimist as he worries he has failed at love.

Hence option (a) is correct.

101. In line 3-5 the lover is :

(a) worried about his 'unsuccess'.

(b) trying to forget his loss in love

(c) enjoying his present

(d) Confused by the scene around

Ans. (c) : In spite of lackylove's rejection poet is enjoying his present as he says– "This present of theirs with hopeful past.

Hence option (c) is correct.

102. Study the following statements :

(A) All those who are hopeful achieve success at the end.

(B) Everyone makes an attempt but very few succeed.

- (a) (A) is right and (B) is wrong
- (b) (B) is right and (A) is wrong
- (c) Both (A) and (B) are right
- (d) Both (A) and (B) are wrong

Ans. (b) : Statement (B) is right but (A) is wrong. Poet says that, all men strive but who succeeds? It means that everyone makes an attempt but very few succeed.

Hence option (b) is correct.

103. Choose the correct statement :

- (a) The poet fell in love and succeeded
- (b) His beloved did not like his looks
- (c) The poet did not propose properly
- (d) She had a soft heart

Ans. (d) : According to the poet, alternatives (a), (b) and (c) are not correct but (d) "she had a soft heart" is correct.

Hence option (d) is correct.

104. 'It seemed my spirit flew.' The figure of speech used in the expression is :

- (a) Simile
- (b) Imagery
- (c) Metaphor
- (d) Hyperbole

Ans. (b) : In the given line "It seemed my spirit flew" poet feels his spirit is flying.

There is imagery in this line. Imagery can be defined as a writer or speaker's use of words or figures of speech to create a vivid mental picture or physical sensation.

105. 'As the world rushed by on either side' the figure of speech used in the expression is :

- (a) Simile
- (b) Metaphor
- (c) Personification
- (d) Hyperbole

Ans. (c) : There is personification (figure of speech) in this line.

Personification is when you give an object or animal human behaviour. So here world is acted as human behaviour.

Hence option (c) is correct.

106. What is 'mother tongue based multilingualism'?

- (a) Learners begin their schooling in their mother tongue and move on to add at least two more languages.
- (b) Learners learn their mother tongue, state language, Hindi and Sanskrit.
- (c) Learners begin their schooling in their state language and add English, Hindi and a foreign language
- (d) Learners begin their schooling in English medium and add the state language, Hindi and English.

Ans. (a) : Multilingualism– is the use of more than one language, either by an individual speaker or by a group of speaker. So learners begin their schooling in their mother tongue and move on to add at least two more language.

Hence option (a) is correct.

107. What is this activity known as?

Students are divided into groups of four and each one is assigned a character in a family situation and supplied with some language chunks. They converse for the situation in their groups and the teacher later picks up each character from some group and asks them to converse as a group to the whole class.

- (a) Dramatics
- (b) Speaking activity
- (c) Role play
- (d) Language generating activity

Ans. (c) : The above activity is known as role play. It can be effectively used in the classroom to motivate and engage students. It provide in real world situations (negotiation, debate and teamwork)

Hence option (c) is correct.

108. 'Input rich environment' refers to

- (a) making the language seen, noticed and used by learners.
- (b) input in the training given to learns.
- (c) making the language teacher to use the language in the classroom
- (d) textbooks and other materials

Ans. (a) : "Input rich environment" where the language is seen, noticed, and used by the children help them learn the language and proficiency in the language also increase.

Hence option (a) is correct.

109. Which of the following are essential for learners in a classroom to start using language for different purposes?

- (a) Language inputs and interaction
- (b) Grammar teaching
- (c) Vocabulary
- (d) Narratives and poetry

Ans. (a) : Language inputs and interaction is essential for learners in a classroom to start using language for different purpose.

Hence option (a) is correct.

110. A teacher makes groups of four learners and asks them to read and make a summary of the text/story. When students are working in groups she is helping them as and when required by the groups, later she asks the groups to present it to the whole class. What could this be described as?

- (a) Group work
- (b) Scaffolding
- (c) Whole classroom discussion in groups
- (d) Communicative language teaching

Ans. (b) : The whole activity could be described as scaffolding. It refers to a variety of instructional techniques used to move students progressively toward stronger understanding. Teachers provide successive levels of temporary support that help students reach higher levels of comprehension.

Hence option (b) is correct.

111. 'Inferring meaning' is :

- (a) to deduce meaning base on evidence and reasoning.
- (b) to understand what is being implied and understood.
- (c) to find out the meanings of words
- (d) to write a summary of text.

Ans. (a) : "Inferring meaning" is to deduce or conclude from evidence and reasoning rather than explicit statement.
For example, if someone slams a door, you can infer that she is upset about something.

112. 'Semantic due' in reading is

- (a) the meaning of a word
- (b) the prompt for identifying the grammatical item.
- (c) the prompt that supports the meaning-making process.
- (d) the prompt for the correct pronunciation of the word.

Ans. (c) : Semantic means the meaning and interpretation of words, signs and sentence structure and also prompt that supports the meaning making process.
Hence option (c) is correct.

113. Here is a conversation between two persons. Read it carefully and find out the purpose of the interaction.

Person 1 : Hello! How are you? Glad that you have come back.

Person 2 : Hello! How are you? I am doing well. What about you?

Person 1 : I am fine. How is your health now?

Person 2 : Improving, I am able to work now.

- (a) Personal communication
- (b) Informative purpose
- (c) Transactional purpose
- (d) Interactional purpose

Ans. (d) : The purpose of above conversation is interactional that deals with how humans use language to interact each other the aim of interactional language is to maintain a social relationship.
Hence option (d) is correct.

114. What are 'Form oriented language inputs' for language learning?

- (a) Inputs which focus on information
- (b) Learners receive vocabulary, pronunciation and grammar.
- (c) Learning to use language for meaning conveyed in the inputs.
- (d) Potential of the input for learning writing.

Ans. (b) : Form oriented language input is competencies to enhance in using the language. In this input learners receive vocabulary, pronunciation and grammar.
Hence option (b) is correct.

115. The new structure of school education in the National Education Policy 2020 recommends :

- (a) 5 years primary + 3 years upper primary + 2 years secondary + 2 years senior secondary

- (b) 2 years pre primary + 5 years primary + 3 years upper primary + 4 years secondary
- (c) 5 years foundational + 3 years primary + 3 years middle + 3 years secondary
- (d) 1 year pre primary + 5 year primary + 3 years middle + 2 years secondary + 2 years senior secondary.

Ans. (c) : The new structure of school education in the National Education Policy 2020 recommends–
5 years foundational + 3 years primary + 3 years middle + 3 years secondary.
Hence option (c) is correct.

116. Language curriculum aims 'To develop control over different registers'. What does this mean?

- (a) Learners comprehend and use language suitable to the content of different subjects.
- (b) Learners understand text in science and social sciences.
- (c) Learners use language for day-to-day communicative purposes and functions.
- (d) Learning the language registers in different languages.

Ans. (a) : Language curriculum aims "to develop control over different registers" means learners comprehend and use language suitable to the content of different subjects.
Hence option (a) is correct.

117. Which one of the following is NOT advocated as a goal of developing reading among learners?

- (a) Drawing inferences while reading a text
- (b) Relating the text with one's previous knowledge
- (c) Mere decoding of the text
- (d) Make meaning of words, language chunks

Ans. (c) : The goal of developing reading among learners is drawing inferences while reading a text, relating the text with one's previous knowledge and make meaning of words language chunks but mere decoding of the text is not.
Hence option (c) is correct.

118. Which two of the following are bottom-up strategies in listening skills?

- (A) Recognize word and clause divisions
 - (B) Use key words to construct schema of the discourse
 - (C) Infer the setting for a text
 - (D) Retain input while it is being processed.
- (a) C and D are bottom-up strategies
 - (b) A and D are bottom-up strategies
 - (c) B and C are bottom-up strategies
 - (d) A and B are bottom-up strategies

Ans. (b) : The bottom-up-approach in listening develop learners to recognize individual words, sentences and clause divisions and retain input while it is being processed.
Hence option (b) statement (A) and (D) is correct.

119. Meena is able to recognize the word 'envisage' in a text or when it is spoken, but is not able to use it on her own. What would you call this vocabulary?

- (a) Active vocabulary (b) Passive vocabulary
(c) Difficult word (d) New word

Ans. (b) : To the above activity you would call this passive vocabulary is the word that they understand but don't use yet. This can be compared with learners understand and use in speaking and writing. Hence option (b) is correct.

120. Which of the following is NOT true of grammar learning?

- (a) Learning to use the grammar item in real life purposes.
(b) Discovering the form through use in contexts.
(c) Learning the rules of grammar by mastering the rules of the language
(d) Using the form in contexts.

Ans. (c) : "Learning the rules of grammar by mastering the rules of the language" is not true of grammar learning. Hence option (c) is correct.

PART-IV LANGUAGE-II : ENGLISH

Direction (121-128)-

- The havoc the October super cyclone caused in Orissa could have been avoided had its mangrove forests not been destroyed to develop shrimp farms. New Scientist magazine, quoting coastal geographers from Cambridge University, recently said: "The (Orissa) coastline was once covered with mangrove forests and these would have dissipated the incoming wave energy."
- Indeed, considering the unbridled human activity along the Indian coast more Orissa's can be expected at greater frequency-For, the delicate environment balance has been upset, compounding Nature's abnormalities.
- India isn't alone in targeting its coastal areas for economic activates like ports, shrimp farms, oil refineries, luxury hotels and holiday resorts. In a few years, nearly 80% of the US population will be living within 50 miles of the coast. In India too, coastal populations are growing.
- The emergence of megacities along the sea is seen as the single greatest threat to the world's coastal environment. Today, mangrove forests cover just 15.8 million hectares, and are declining at an assumed rate of 2 % every year. In the last few decades, feverish human activity has either destroyed or transformed nearly 50% of the world's total mangrove forest area. Worse, Only about one per cent of the global mangrove area is protected.
- Mangroves are flowering plants, which grow on tidal coasts between the high and low water marks in clay and silt, They possess unusual" prop and knee" root system which enables them to trap sediments in

their roots and provide the seabed a shallow slop. This helps it to absorb the energy of waves and tidal surges, and acts as a shield for the hinterland. The trees themselves form a barrier against wind.

6. Since mangrove areas are ideal for shrimp farms, they are being 'Colonised' and mindlessly destroyed. India is among the top four shrimp exporters, with production growing at 15% a year. But this has extracted its price-in the past 40 years, India is estimated to have lost half its Mangrove forests, rendering states like Orissa and Andhra Pradesh vulnerable to the fury of cyclones.

121. Read the following statements.

(A) The damage caused by the October cyclone could have been prevented by the mangrove forests.

(B) Shrimp farms are responsible for October cyclone.

(C) The incoming waves could have arrested the October cyclone.

- (a) (A) is true and (B) and (C) are false
(b) (A) and (B) are true and (C) is false
(c) (A) and (C) are true and (B) is false
(d) (A) and (C) are false and (B) is true

Ans. (b) : According to the passage, statement (A) & (B) are true. "The havoc the october super cyclone caused in Orissa could have been avoided had its mangrove forests not been destroyed to develop shrimp forms."

The given statement (C) is false.

Therefore, option (b) is correct.

122. The destruction of the mangrove forests cannot be attributed only to

- (a) Waves and tidal surges
(b) Unbridled human activity
(c) The development of shrimp farms
(d) Economic activities

Ans. (a) : As per the passage, the destruction of the mangrove forests cannot be attributed to below given activities.

(i) The development of shrimp forms.

(ii) Unbridled human activity

(iii) Economic activities

Waves and tidal surges can't be attributed to the destruction of the mangrove forests.

Therefore, option (a) is correct.

123. Study the following statements.

(A) the mangroves absorb the energy of waves and tidal surges.

(B) the mangroves form a barrier against clay and silt.

- (a) Both A and B true and B is responsible for A.
(b) Both A and B are true and B is not responsible for A.
(c) Bothe A and B are false.
(d) A is true and B is false.

Ans. (d) : According to the passage. "The mangroves trees absorb the energy of waves and tidal surges, and acts as a shield for the hinterland. The trees themselves form a barrier against wind, therefore we can clearly identify that statement (A) is true & (B) is false.

Hence, option (d) is correct.

124. The single greatest threat to the world's coastal environment is:

- (a) The unbridled human activity along the coast.
- (b) The emergence of megacities along the sea
- (c) The reduction of mangroves
- (d) Feverish human activity

Ans. (d) : According to the passage, "The emergence of megacities along the sea is seen as the single greatest threat to the world's coastal environment. Hence, option (d) is correct.

125. 'Pop and knee' root system means that they

- (1) trap sediments in their roots.
 - (2) provide the sea bed with a shallow slope.
 - (3) act as a shield for the hinterland.
 - (4) allow wind to cross finally.
- (a) 1,2,3 are true (b) 2,3,4 are true
(c) 1,2,4 are true (d) 1,3,4 are true

Ans. (a) : According to the para (5) "Management are flowering plants, which grow on tidal coasts between the high and low water marks in clay & silt. They possess unusual "Prop and knee" root system which enables them to trap sediments in their roots and provide the seabed a shallow slope. This helps it to absorb the energy of waves and tidal surges, and acts as a shield for hinterland. The trees themselves form a barrier against wind."

We can conclude that it supports statement (1), (2) & (3) and does not support statement (d). Therefore, option (a) is true.

126. 'In coming' in para 1 is used as a/an

- (a) noun (b) adverb
- (c) adjective (d) verb

Ans. (c) : The word 'Incoming' is an adjective. Britannica dictionary definition of incoming always used before a noun, : Coming in : Such as a : arriving at as coming to a place.

Synonym of 'incoming' word-
Arriving, entering, approaching, coming.
Therefore, option (c) is correct.

127. 'Unbridled' in para 2 means the same as

- (a) Uncontrolled (b) Undesired
- (c) Unexpected (d) unforeseen

Ans. (a) : The similar meaning of the word 'unbridled' (निरंकुश) is uncontrolled (निरंकुश).

The synonym of this word is -
unrestrained, unconstrained, uninhibited, unrestricted
Therefore, option (a) is correct.

**128. (A) Mangroves are flowering plants
(B) Which grow on tidal
(C) coasts among the high and low water
(D) marks in clay and silt**

The above sentence has an error in part

- (a) A (b) B
- (c) C (d) D

Ans. (c) : In the given sentence, part (C) has an error, as 'between' should be used in place of among because this sentence talks about only two thing- between the high & low water.

Among- Among is used for more than two things.
Therefore, option (c) is correct.

Direction (129-135)-

The idea of euthanasia of hastening the death of someone from motives of compassion, covers two main situations. The first is where someone is close to death and can be kept alive briefly, only with intensive medical care. In this case it ought perhaps to be stated explicitly in law that a doctor is not bound in all circumstances to use all conceivable means of prolonging a patient's life. The official reason for the use of every possible technique on patients for whom there seems, to the lay eye, no hope is that we never know that there is no hope of at least a brief recovery.

The second situation, in which it is proposed to end life of someone who is not expected to die at once from natural causes, is morally more doubtful. In so far as the suggestion may be based on the notion of the 'quality of life' experienced by the patient, this is an inadequate approach to human beings, whatever their capacities. At one extreme we may be dealing with a birth that cannot be called 'Human' at all: such a being is likely to live at the most for only a few hours. Many people would feel that during this time it ought to be given ordinary nursing care. But it would be difficult to condemn anyone who took the opposite view. At anything less than this extreme, the bringing to an end the life of say, a spastic child, by the deliberate refusal of the fullest medical care seems morally indefensible.

129. Euthanasia means hastening someone's death

- (a) for material gain
- (b) for medical experimentation.
- (c) on compassionate grounds.
- (d) for better quality of life.

Ans. (c) : According to the passage, "the idea of euthanasia of hastening the death of someone from motives of compassion as if someone is near death and his life is not justified to be lived therefore, option (c) is correct.

130. The reason for banning euthanasia's is that :

(A) we can never be sure that there is no hope of recovery.

(B) it may lead to immoral exploitation.

- (a) (A) is true and (B) is false.
- (b) (A) is false and (B) is true.
- (c) Both (A) and (B) are true
- (d) Both (A) and (B) are false.

Ans. (d) : Euthanasia is the practice of intentionally enduring life to relieve pain and suffering different countries have different euthanasia laws.

Both the statement (A) & (B) are false, and does not fulfill the reason for banning euthanasia.

Therefore, option (d) is correct.

131. Which of the following cases does not come under the terminal category?

- (a) A spastic child
- (b) A person on life saving drugs
- (c) A patient with prolonged illness
- (d) Someone likely to survive only for a few hours

Ans. (d) : Someone likely to survive only for few hours doesnot come under the terminal category. (किसी चीज/व्यक्ति के अंत था छोर पर होना।)

Therefore, option (d) is correct.

132. The reason for banning euthanasia's is that :
(A) we can never be sure that there is no hope of recovery.
(B) it may lead to immoral exploitation.
 (a) (A) is true and (B) is false.
 (b) (A) is false and (B) is true.
 (c) Both (A) and (B) are true.
 (d) Both (A) and (B) are false.

Ans. (c) : Both the statement (A) and (B) are true.
 The reason for banning euthanasia is that we can never be sure that there is no hope of recovery and it may lead to immoral exploitation.
 Therefore, option (c) is correct.

133. It would be difficult to condemn anyone who took the opposite view
The underlined is an example of a/an _____ clause.
 (a) Adverb (b) Adjective
 (c) Noun (d) Principle

Ans. (b) : The underlined is an example of an adjective clause.
Adjective clause– It is a type of clause that gives information about the noun or pronoun that it modifies it generally starts off with words like who, whom, whose, when, where, which that and why.
 Therefore, option (b) is correct.

134. 'Lay eye' in line 5 means a/an
 (a) wasted article
 (b) idle child
 (c) inexperienced person
 (d) blind eye

Ans. (c) : The meaning of 'lay eye' is – inexperienced person.
 It means to see or look at someone or something especially for the first time. A possessive adjective. Can be used between 'Lay' and 'eyes'.
 Therefore option (c) is correct.

135. Which of the following means the same as 'notion' in line 8?
 (a) mode (b) belief
 (c) pledge (d) plaudit

Ans. (b) : The similar meaning of 'notion' is 'belief' (मन में कोई बात, ख्याल, विचार, धारणा)
 The meaning of other words are –
 Mode – किसी वस्तु या कोई काम करने का प्रकार
 Pledge – प्रतिज्ञा, औपचारिक वचन या सहमति
 Plaudit – शाबाशी, किसी काम के लिए प्रशंसा
 Therefore, option (b) is correct.

136. National Education Policy 2020 recommends the study of foreign languages such as Korean , Japanese, Thai, French, German, Spanish, Portuguese and Russian as
 (a) part of three language formula
 (b) additional languages
 (c) part of the vocational courses
 (d) part of skill development

Ans. (b) : National education policy 2020 recommends in addition to high quality offering in Indian language

and english, foreign languages, such as korean, japanese, thai, french, german, spanish, portugues and russian, will also be offered at the secondary level, for students to learn about.

The cultures of the world and to enrich their global knowledge and mobility according to their own interests and aspirations. These languages are included as additional language.

Therefore, option (b) is correct.

137. A learner in the city of Srinagar opts Malayalam as her third language and is able to speak and read it within a year through her classroom exposure and interactions. What is this known as ?
 (a) language learning
 (b) Language acquisition
 (c) language addition
 (d) Subtractive bilingualism

Ans. (a) : This process is known as language learning- **Language learning**– It is an active process that begins at birth and continuous throughout life. Students learn language as they use it communicate their thoughts, feelings and experience establish relationships with family members and friends, and strive to make sense and order of their world.
 Therefore, option (a) is correct.

138. Which two of the following are true as per current understanding of language learning?
 (1) Errors are learning areas.
 (2) Errors hamper language learning.
 (3) Errors should be corrected then and there.
 (4) Errors are feedback for the teacher
 (a) 2 and 3 (b) 1 and 2
 (c) 1 and 4 (d) 3 and 4

Ans. (c) : In applied linguistics, an error is an unintended deviation from the immanent rules of a language variety made by a second language learner. Such errors result from the learners' lack of knowledge of the correct rules of the target language variety errors are learning areas, & it is a feedback for the teacher. Hence statement 1 and 4 are true.
 Therefore, option (c) is correct.

139. Procedural knowledge in learning of grammar is know as _____.
 (a) analyse one's errors to learn language
 (b) understanding how a (grammatical) form works and applying the same
 (c) learning the rules of grammar and reproducing it later
 (d) understanding how a grammatical form works from a grammar book.

Ans. (b) : The two motions are similar to Chomsky's distinction between competence and performance, the first referring to the factual knowledge of a language (grammar) and the second to the actual ability of using language. The concept of declarative and procedural knowledge is based on the view of language.
 Procedural knowledge is known as understanding how a (grammatical) from works and applying the same.
 Therefore, option (b) is correct.

140. A short story is a _____.

- (a) Descriptive writing
- (b) Analytical writing
- (c) Narrative writing
- (d) Comparative writing

Ans. (c) : A short story is a form of narrative writing that has all the same elements as novels— plot, character, development, point of view, story structure, theme — but are delivered in fewer words. For many writers short stories are a less daunting way to dive into creative writing than attempting to write a novel. Therefore, option (c) is correct.

141. Multilingualism as a strategy in a language or content classroom is _____.

- (a) Making use of the languages of learners to teach-learn languages and content subjects.
- (b) Teaching-learning of many languages which includes mother tongue, modern Indian languages, classical languages and a foreign language.
- (c) Teaching-learning of as many languages as possible.
- (d) Learning the mother tongue both as a language as a medium.

Ans. (a) : Multilingualism (multilingual classroom) is a classroom with learners having more than one languages at their disposal (irrespective of level of competence), including learners from migrant backgrounds, such as first & second generation and newly- arrived immigrants and refugees. This strategy makes use of the languages of learners to teach-learn languages and content subjects. Therefore, option (a) is correct.

142. Learners undergo the various stages of writing . what is this approach to writing known as ?

- (a) Product approach
- (b) Process approach
- (c) Paragraph dictation
- (d) Personal writing

Ans. (b) : Process approach— A working process approach is based on the principle that if students receive formative feedback during the process of writing than their final products will improve. This approach to writing known as process approach. Therefore, option (b) is correct.

143. Here is a teacher who divides her class into groups of four and allocates a number of themes/ topics to each group to work over a period of three months and to write and present the report to the whole class. What is the group activity known as ?

- (a) Group work
- (b) Assignment
- (c) language task
- (d) Project work

Ans. (d) : This kind of group activity is known as project work it is a work which focuses on completing a task. Project work normally involves a lot of resources — time, people and materials and learners practice a range of skills and language systems. A group of teenage learners work on a project to develop a series of posters on how to protect the environment.

For example— build a garage, develop a website, go on vacation, organize a party. Therefore, option (d) is correct.

144. What is the following typology of question known as ?

Imagine you are the son in the story and write your feelings in your diary at the end of the day.

- (a) Descriptive writing
- (b) Extrapolative writing
- (c) Autobiographical writing
- (d) Creative writing

Ans. (b) : This type of typology of question known as extrapolative writing — it is about taking facts and observations about a present or known situations and use them to make a prediction about what might eventually happen.

Extrapolation comes from the word extra, meaning "outside" and a shortened form of the word interpolation.

Therefore, option (b) is correct.

145. major aim of teaching -learning poetry is _____.

- (a) enjoyment and appreciation
- (b) Learning the art of writing poetry
- (c) Language learning
- (d) Learning vocabulary and grammar

Ans. (a) : The major aim of teaching poetry is enjoyment and appreciation. Poetry has tremendous appeal for children and it is the best way of exciting their love of the language. It lays the foundation for the appreciation of the beauty of the language. It enables students to enjoy recitation in individual and chorus.

Therefore, option (a) is correct.

146. It is expected in a language classroom that learners work in and work with language. This is _____.

- (a) Learning the forms of the language
- (b) using the language with accuracy
- (c) engagement with language
- (d) acquisition of language

Ans. (c) : This is engagement with language. In the context of language learning and use, 'engagement with language' (engagement) is a cognitive, and/or affective, and/or social state and a process in which the learner is the agent and language is the object and may be the vehicle (means of communication).

Therefore, option (c) is correct.

147. An ' authentic text' is _____.

- (a) a text/ narrative written by textbook authors
- (b) an original of the text from context
- (c) a completely modified and contrived text from the original writing
- (d) a story and pictures drawn by learners as part of their assignment

Ans. (b) : An authentic text is an original of the text from context. Authentic text may be thought of an any text that was written and published for the public. Journal articles, blog posts and novels are just a few examples. Authentic texts are written for 'real world' purposes and audiences: to entertain, inform, explain, guide, document or convince.

Therefore, option (b) is correct.

148. **Basic Interpersonal Communicative Skills (BICS) refers to _____.**

- language needed for conveying abstract ideas.
- Language needed for communication by young learner.
- language needed for here-and-now communication.
- communicative language teaching

Ans. (c) : Basic interpersonal communicative skills (BICS) refers to language needed for here-and-now communication.

It is a language skills needed to interact in social situations, for example- when chatting to a friend. Therefore, option (c) is correct.

149. **Language assessment is oriented to _____.**

- Measure the achievement of learners.
- find the place of the learners in their class.
- measure their overall or summative achievement.
- measure the language proficiency of learners.

Ans. (d) : Language assessment is oriented to measure the language proficiency of learners.

Learning oriented assessment (LOA) is a systematic approach to language learning that uses formal and informal assessment to : help teachers and learners to plan learning more effectively, measure progress, identify areas for improvement.

Therefore, option (d) is correct.

150. **What is 'content oriented language inputs'?**

- Inputs which focus on how language is used
- Vocabulary, pronunciation, grammar, etc.
- Presentation of the inputs and its processes.
- Language inputs which focus on information.

Ans. (d) : Content oriented language input focuses on information precisely competencies to enhance in using the language linguistic competence guidance from the teacher and another source on vocabulary pronunciation and grammar. Discourse competence appropriate things to say in specific contexts

Therefore, option (d) is correct.

PART-III

Language-I: Hindi

निर्देश (91-99) - निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़कर दिए गए प्रश्नों के सबसे उपयुक्त विकल्प को चुनकर उत्तर दीजिए-

नीलकंठ और राधा की सबसे प्रिय ऋतु तो वर्षा ही थी। मेघों के उमड़ आने से पहले ही वे हवा में उसकी सजल आहट पा लेते थे और उनकी मंद केका की गुंज-अनुगूँज तीव्र से तीव्रतर होती हुई मानो बूँदों के उतरने के लिए सोपान-पंक्ति बनने लगती थी। मेघ गर्जन के ताल पर ही उसके तन्मय नृत्य का आरम्भ होता और फिर मेघ जितना अधिक गरजता, बिजली जितनी अधिक चमकती, बूँदों की रिमझिमाहट जितनी तीव्र होती जाती, नीलकंठ के नृत्य का वेग उतना ही अधिक बढ़ता जाता और उसी केका का स्वर उतना ही मंद से मंदतर होता जाता। वर्षा के थम जाने पर वह दाहिने पंजे पर दाहिना पंख और बाएँ पर बायाँ पंख फैलाकर सुखाता। कभी-कभी वे दोनों एक-दूसरे

के पंखों से टपकने वाली बूँदों को चोंच से पी-पीकर पंखों का गीलापन दूर करते रहते। इस आनंदोत्सव की रागिणी में बेमेल स्वर कैसे बज उठा, यह भी एक करुण कथा है। एक दिन मुझे किसी कार्य से नखासकोने से निकलना पड़ा और बड़े मियाँ ने पहले के समान कार को रोक लिया। एक बार किसी पिजड़ों की ओर नहीं देखूँगी, यह संकल्प करके मैंने बड़े मियाँ की विरल दाढ़ी और सफ़ेद डोरे से कान में बँधी ऐनक को ही अपने ध्यान का केंद्र बनाया।

91. **गद्यांश में नीलकंठ शब्द किसके लिए प्रयुक्त हुआ है?**

- शुतुरमुर्ग के लिए
- नीलकंठ के लिए
- मोर के लिए
- पपीहा के लिए

Ans. (c) : गद्यांश में नीलकंठ शब्द मोर के लिए प्रयुक्त हुआ है शेष विकल्प असंगत है।

92. **'हवा में उसकी सजल आहट' का भाव है-**

- हवा में पानी का बूँदों का होना
- हवा में नमी का अहसास
- हवा में धूल का अहसास
- खूब जोरदार बारिश का होना

Ans. (b) : हवा में उसकी सजल आहट का भाव हवा में उसकी नमी का अहसास है। अन्य विकल्प गलत है।

93. **नीलकंठ के केका की गूँज तीव्र क्यों होती है?**

- बारिश होने के अनुभव से
- मेघों के उमड़ आने से
- मेघ की गर्जना से
- विजली की चमक से

Ans. (a) : नीलकंठ के केका की गूँज बारिश होने के अनुभव से तीव्र होती है।

94. **मेघ गर्जना के ताल पर नृत्य कौन करता है?**

- राधा
- बिजली
- नीलकंठ
- बारिश की बूँदें

Ans. (c) : मेघ गर्जना के ताल पर नीलकंठ नृत्य करता है। क्योंकि मोर की सबसे प्रिय ऋतु वर्षा ही होती है।

95. **पंखों का गीलापन दूर करने के लिए क्या किया जाता था?**

- पंखों को झाड़ दिया जाना
- चोंच से पंखों का पानी पीना
- धूप में पंखों को फैलाना
- हवा में पंखों को फैलाना

Ans. (b) : पंखों का गीलापन दूर करने के लिए मोर एक-दूसरे के पंखों से चोंच से पानी पीते हैं।

96. **'सोपान' पंक्ति का प्रयोग हुआ?**

- काले मेघों के नीचे उतरने के लिए
- बारिश की बूँदों गिरने के लिए
- हवा की बहती ध्वनियों के लिए
- बिजली के कड़कने के लिए

Ans. (b) : 'सोपान' पंक्ति का प्रयोग बारिश को बूँदों के गिरने के लिए किया गया है।

97. **आनंदोत्सव का संधि-विच्छेद है-**

- आनंद का उत्सव
- आनंदो + उत्सव
- आनंदो + त्सव
- आनंद + उत्सव

Ans. (d) : 'आनन्दोत्सव' का सही संधि-विच्छेद आनन्द + उत्सव होगा। आनन्द + उत्सव शब्द मिकर 'आनन्दोत्सव' शब्द बनाते हैं।

तथा आनन्द + उत्सव = आनन्दोत्सव में अ + उ = ओ का मेल हो रहा है। अतः इसमें गुण सन्धि होगी।

गुण सन्धि— यदि 'अ' या 'आ' के बाद 'इ' या 'ई', 'उ' या 'ऊ' और 'ऋ' आए, तो दोनों मिलकर क्रमशः 'ए', 'ओ' और 'अर्' हो जाते हैं। जैसे-

देवेन्द्र = देव + इंद्र = अ + इ = ए
चंद्रोदय = चंद्र + उदय = अ + उ = ओ

98. 'गूँज-अनुगूँज' के स्थान पर कौन-सा शब्द प्रयोग किया जा सकता है?

- (a) प्रतिध्वनि (b) टंकार
(c) आवाज (d) पुकार

Ans. (a) : गूँज-अनुगूँज शब्द के स्थान पर 'प्रतिध्वनि' शब्द का प्रयोग किया जा सकता है।

99. 'सजल' किस प्रकार का शब्द है?

- (a) संज्ञा (b) सर्वनाम
(c) विशेषण (d) विशेष्य

Ans. (c) : सजल विशेषण शब्द है। संज्ञा या सर्वनाम की विशेषता बताने वाले शब्द विशेषण कहलाते हैं। ये शब्द संज्ञा के साथ लगकर संज्ञा की विशेषता बताते हैं।

उदाहरण— मीरा बहुत सुन्दर लड़की है।

मोहन एक मेहनती विद्यार्थी है।

पहले वाक्य में मीरा एक लड़की का नाम है, और वह संज्ञा है सुन्दर शब्द विशेषण है, जो संज्ञा की विशेषता बता रहा है। इसलिए यह शब्द विशेषण कहलाएगा।

दूसरे वाक्य में भी मेहनती शब्द मोहन की विशेषता बता रहा है अतः स्पष्ट है कि मेहनती शब्द विशेषण है।

निर्देश (100-105)— निम्नलिखित पद्यांश को ध्यापूर्वक पढ़कर दिए गए प्रश्नों के सबसे उपयुक्त विकल्प को चुनकर उत्तर दीजिए—

कलम, आज उनकी जय बोल,
जला अस्थियाँ बारी-बारी
छिटकायी जिसने चिनगारी,
जो चढ़ गये पुण्य-वेदी पर लिये बिना गरदन का मोल।
जो अगणित लघु दीप हमारे
तूफानों में एक किनारे,
जल-जल कर बुझ गये, किसी दिन माँगा नहीं स्नेह मुँह खोल।

कलम, आज उनकी जय बोल।

100. कवि किनका गुणगान कर रहा है?

- (a) वीर सैनिकों का
(b) वीरगति को प्राप्त सैनिकों का
(c) स्वतंत्रता सेनानियों का
(d) पैनी लेखनी का

Ans. (b) : उपर्युक्त पद्यांश के अनुसार कवि वीरगति को प्राप्त सैनिकों का गुणगान कर रहा है।

101. चिनगारी छिटकाने से क्या तात्पर्य है?

- (a) अंगार बिखेरने से (b) आग की लपट से
(c) युद्ध की भावना से (d) नयी चेतना से

Ans. (d) : उपर्युक्त पद्यांश के अनुसार चिनगारी छिटकाने से तात्पर्य नयी चेतना जगाने से है।

102. लघु दीप का सम्बोधन किसके लिए किया गया है?

- (a) सेना के जवानों के लिए
(b) भारत के युवाओं के लिए
(c) बलिदानी वीरों के लिए
(d) राष्ट्रवादी क्रान्तिकारियों के लिए

Ans. (c) : उपर्युक्त पद्यांश के अनुसार लघु दीप का संबोधन बलिदानी वीरों के लिए किया गया है।

103. 'जल-जल कर बुझ गये' का भाव है—

- (a) वीरगति को प्राप्त होना (b) मृत्यु हो जाना
(c) तड़पकर मर जाना (d) जलकर मर जाना

Ans. (a) : उपर्युक्त पद्यांश के अनुसार जल-जल कर बुझ गये का भाव है वीरगति को प्राप्त होना।

104. निम्नलिखित में से संज्ञा शब्द है—

- (a) पुण्य (b) लघु
(c) छिटकायी (d) चिनगारी

Ans. (d) : निम्नलिखित में से चिनगारी संज्ञा शब्द है। संज्ञा— किसी प्राणी, वस्तु, स्थान, भाव इत्यादि के नाम को 'संज्ञा' कहते हैं। जैसे— राम, गंगा, मेज इत्यादि। संज्ञा के निम्नलिखित पाँच भेद होते हैं—

- व्यक्ति वाचक संज्ञा
- भाव वाचक संज्ञा
- जाति वाचक संज्ञा
- समूह वाचक संज्ञा
- द्रव्य वाचक संज्ञा

105. निम्न में से विशेषण-विशेष्य है—

- (a) लय बोल (b) एक किनारे
(c) अगणित (d) लघु दीप

Ans. (d) : निम्नलिखित में 'लघु-दीप' क्रमशः विशेषण-विशेष्य के उदाहरण है।

विशेषण— 'संज्ञा' या 'सर्वनाम' की विशेषता बताने वाले शब्दों को 'विशेषण' कहते हैं। जिसकी विशेषता बतायी जाती है, उसे 'विशेष्य' कहा जाता है। जैसे—

लघु	दीप	काली	गाय
↓	↓	↓	↓
विशेषण	विशेष्य	विशेषण	विशेष्य

106. मातृभाषा पर आधारित बहुभाषिकता क्या है?

- (a) शिक्षार्थी अपनी विद्यालयी शिक्षा अपनी मातृभाषा में प्रारम्भ करते हैं तथा आगे कम से कम दो भाषाएँ और पढ़ते हैं।
(b) शिक्षार्थी अपनी मातृभाषा, राज्य की भाषा, हिन्दी तथा संस्कृत सीखते हैं।
(c) शिक्षार्थी अपनी विद्यालयी शिक्षा अपने राज्य की भाषा में आरंभ करते हैं तथा आगे अंग्रेजी, हिन्दी तथा एक विदेशी भाषा और पढ़ते हैं।
(d) शिक्षार्थी अपनी विद्यालयी शिक्षा अंग्रेजी माध्यम में आरंभ करते हैं तथा आगे राज्य की भाषा, हिन्दी तथा अंग्रेजी पढ़ते हैं।

Ans. (a) : शिक्षार्थी अपनी विद्यालयी शिक्षा अपनी मातृभाषा में प्रारम्भ करते हैं तथा आगे कम से कम दो भाषाएँ और पढ़ते हैं। बहुभाषी का अर्थ ऐसे व्यक्ति से है जो दो या दो अधिक भाषाओं का

प्रयोग करता है। विश्व में बहुभाषी लोगों की संख्या एक भाषियों की तुलना में बहुत अधिक है। विद्वानों का मत है कि द्विभाषिकता किसी भी व्यक्ति के ज्ञान एवं व्यक्तित्व के विकास के लिए बहुत उपयोगी है।

बहुभाषिकता के विविध आयाम—

- भाषा और बोली के सन्दर्भ में बहुभाषिकता।
- एक से अधिक भाषाओं के प्रचलन की स्थिति में प्रथम भाषा, द्वितीय भाषा और तृतीय भाषा का निर्धारण।
- विदेशी भाषा का द्वितीय भाषा के रूप में निर्धारण।
- भाषाओं की व्यावहारिक स्थिति का निर्धारण।

107. इस गतिविधि को क्या कहते हैं?

विद्यार्थियों को चार-चार के समूह में बाँटकर प्रत्येक को पारिवारिक स्थिति का कोई एक चरित्र दे दिया जाता है। भाषा के शब्द या वाक्यांश दिए जाते हैं। वे अपने समूह में उस स्थिति पर वार्तालाप करते हैं। बाद में अध्यापक प्रत्येक समूह से विद्यार्थी आमंत्रित कर समूची कक्षा के सामने एक समूह के रूप में वार्तालाप करने को कहती/ कहता है।

- (a) नाटक (b) गतिविधि
(c) रोलप्ले (d) भाषा सृजन बतिविधि

Ans. (c) : विद्यार्थियों को चार-चार के समूह में बाँटकर प्रत्येक को पारिवारिक स्थिति का कोई एक चरित्र दे दिया जाता है। भाषा के शब्द या वाक्यांश दिये जाते हैं। वे अपने समूह में उस स्थिति पर वार्तालाप करते हैं। बाद में अध्यापक प्रत्येक समूह से विद्यार्थी आमंत्रित कर समूची कक्षा के सामने एक समूह के रूप में वार्तालाप करने को, कक्षा-कक्ष की इस गतिविधि को रोलप्ले कहते हैं।

108. 'निवेश समृद्ध परिवेश' हैं-

- (a) शिक्षार्थियों द्वारा देखी-सुनी और प्रयोग में लाई गई भाषा का इस्तेमाल करना।
(b) शिक्षार्थियों को दिए जाने वाले प्रशिक्षण में निवेश
(c) भाषा शिक्षक द्वारा कक्षाकक्ष में भाषा के प्रयोग करने के लिए तैयार करना
(d) पाठ्य पुस्तकें तथा अन्य सामग्री

Ans. (a) : शिक्षार्थियों द्वारा देखी-सुनी और प्रयोग में लाई गई भाषा का इस्तेमाल करना 'निवेश समृद्ध परिवेश' कहलाता है। कक्षा का ऐसा वातावरण जिसमें बच्चे अपनी भाषा प्रयोग में सहज महसूस करें कक्षा का ऐसा महौल निवेश समृद्ध परिवेश कहलाता है।

109. निम्नलिखित में से कौन-सा शिक्षार्थियों द्वारा विभिन्न उद्देश्यों के लिए भाषा का प्रयोग आरंभ करने के लिए कक्षा-कक्ष में आवश्यक है?

- (a) भाषा निवेश तथा पारस्परिक संवाद
(b) व्याकरण
(c) शब्दावली
(d) वृत्तान्त एवं कविता

Ans. (a) : निम्नलिखित में से भाषा निवेश तथा पारस्परिक संवाद शिक्षार्थियों द्वारा विभिन्न उद्देश्यों के लिए भाषा का प्रयोग आरम्भ करने के लिए कक्षा-कक्ष में आवश्यक है।

110. एक शिक्षिका शिक्षार्थियों को चार समूह में बाँटती है और उन्हें एक उद्घरण/कहानी पढ़ने तथा उसका सार लिखने के लिए कहती है। जब विद्यार्थी समूह में कार्य

कर रहे हैं तो जैसी और जब आवश्यकता होती है वह उनकी मदद कर रही है। बाद में उन्हें उस कार्य को पूरी कक्षा के सामने प्रस्तुत करने के लिए कहती है। इसे क्या कह सकते हैं?

- (a) समूह कार्य
(b) सहायता करना
(c) समूहों में समूहों में समस्त कक्षाकक्ष चर्चा
(d) संप्रेषणात्मक भाषा शिक्षण

Ans. (b) : एक शिक्षिका शिक्षार्थियों को चार के समूह में बाँटती है और उन्हें एक उद्घरण/कहानी पढ़ने तथा उसका सार लिखने के लिए कहती है। जब विद्यार्थी समूह में कार्य कर रहे हैं तो जैसी और जब आवश्यकता होती है वह उनकी मदद कर रही है। बाद में उन्हें उस अर्थ को पूरी कक्षा के सामने प्रस्तुत करने के लिए कहती है। इसे सहायता करना कहते हैं।

111. 'अर्थ के लिए अनुमान' है-

- (a) तथ्यों तथा तर्कों पर आधारित अर्थ निकालना
(b) क्या अंतर्निहित है तथा क्या समझा गया, इसे समझना
(c) शब्दों के अर्थ ढूँढना
(d) उद्घरण का सार लिखना

Ans. (a) : अर्थ के लिए अनुमान, तथ्यों तथा तर्कों पर आधारित अर्थ निकालना है।

112. पठन में 'वर्ण-संकेत' हैं -

- (a) किसी शब्द का अर्थ
(b) व्याकरणिक बिंदुओं को पहचानने के लिए संकेत
(c) वे संकेत जो अर्थ बनाने की प्रक्रिया में सहायक है
(d) शब्द के सही उच्चारण के लिए संकेत

Ans. (c) : वे संकेत जो अर्थ बनाने की प्रक्रिया में सहायक हैं वर्ण-संकेत कहलाते हैं। वर्ण-संकेत वर्ण-विशेष के अर्थ को प्रदर्शित करते हैं। जिसके द्वारा उसके पूरे अर्थ का बोध होता है। अन्य विकल्प असंगत है।

113. यह दो व्यक्तियों के मध्य वार्तालाप है। इसे ध्यान से पढ़िए तथा इस बातचीत का उद्देश्य ढूँढ़िए।

व्यक्ति1- हैलो! आप कैसे हैं? आप वापिस आ गए खुशी हुई।

व्यक्ति2- हैलो! आप कैसे हैं? मैं अच्छा हूँ। आप अपने बारे में बताएँ।

व्यक्ति1- मैं अच्छा हूँ। अब आपका स्वस्थ कैसा है?

व्यक्ति2- पहले से बेहतर है। अब मैं काम कर सकता हूँ।

- (a) व्यक्तिगत वार्तालाप
(b) सूचनात्मक उद्देश्य
(c) कार्य संपादन का उद्देश्य
(d) पारस्परिक क्रिया का उद्देश्य

Ans. (d) : उपर्युक्त उदाहरण पारस्परिक क्रिया का उद्देश्य है। पारस्परिक क्रिया या बातचीत मनुष्य द्वारा समाज और परस्पर संपर्क कायम करने का एक बहुपक्षीय और स्वाभाविक माध्यम है उससे मनुष्य अपने विचारों का आदान-प्रदान करता है। पारस्परिक क्रिया समाजशास्त्र की वह शाखा है जो मानव अंतःक्रिया की बनावट और

संगठन का अध्ययन करती है, जिसमें पारस्परिक संपर्क विषय प्रभुत्व होता है। पारस्परिक क्रिया ही समाज में, संस्थान में, कार्यालय में, देश-विदेश में अपनी विशिष्ट पहचान बनाने का सशक्त माध्यम है आप विनम्रता जैसे तन्त्रों को अपनाकर पारस्परिक क्रिया को प्रभावशाली बना सकते हैं। बातचीत करने के लिए आत्मविश्वास, शारीरिक भाषा और नेत्र सम्पर्क जैसे पहलुओं पर ध्यान दे कर आप एक सफल इन्सान बन सकते हैं।

114. भाषा अधिगम के लिए 'रूप उन्मुखी भाषा निवेश' क्या है?

- वह निवेश जो सूचना पर केन्द्रित है।
- शिक्षार्थी शब्दसंपदा, उच्चारण तथा व्याकरण की समझ प्राप्त करते हैं?
- निवेश में दिए गए अर्थ को भाषा में प्रयोग करना सीखना
- लिखना सीखने के लिए निवेश की संभाव्यता

Ans. (b) : भाषा अधिगम के 'रूप उन्मुखी' भाषा निवेश द्वारा शिक्षार्थी शब्द सम्पदा, उच्चारण तथा व्याकरण की समझ प्राप्त करते हैं। अधिगम का तात्पर्य होता है सीखना। किसी भी प्रकार के अधिगम की प्रक्रिया जीवनभर चलती रहती है भाषा के सन्दर्भ में भी यह बात लागू होती है, किन्तु जहाँ अन्य प्रकार के ज्ञान के अधिगम अनायास भी सम्भव है, वहीं भाषा का अधिगम स्वयं के प्रयासों तथा इसे सीखे जा सकने वाली वातावरणजन्य परिस्थितियों में ही सम्भव होता है, इसलिए भाषा को अर्जित सम्पत्ति कहा गया है।

115. राष्ट्रीय शिक्षा नीति 2020 विद्यालयी शिक्षा के दस नए ढाँचे की अनुशंसा करती है-

- 5 वर्ष प्राथमिक + 3 वर्ष उच्च प्राथमिक + 2 वर्ष माध्यमिक + 2 वर्ष उच्च माध्यमिक
- 2 वर्ष पूर्व प्राथमिक + 5 वर्ष प्राथमिक + 3 वर्ष उच्च प्राथमिक + 4 वर्ष माध्यमिक
- 5 वर्ष बुनियादी + 3 वर्ष प्रारंभिक + 3 वर्ष मिडिल + 4 वर्ष माध्यमिक
- 1 वर्ष पूर्व प्राथमिक + 5 वर्ष प्राथमिक + 3 वर्ष मिडिल + 2 वर्ष उच्च माध्यमिक

Ans. (c) : राष्ट्रीय शिक्षा नीति 2020 विद्यालयी शिक्षा के दस नए ढाँचे की अनुशंसा करती है जो हैं, 5 वर्ष बुनियादी + 3 वर्ष प्रारंभिक + 3 वर्ष मिडिल + 4 वर्ष माध्यमिक। NEP 2020 के अन्तर्गत पाँचवी कक्षा तक के छात्रों को मातृभाषा, स्थानीय भाषा और राष्ट्र भाषा में ही अध्ययन कराया जाएगा।

- भाषा के चुनाव के लिए छात्रों पर कोई बाध्यता नहीं होगी, उनके लिए संस्कृत और अन्य प्राचीन भारतीय भाषाओं को पढ़ने के विकल्प भी मौजूद रहेंगे।
- कक्षा 10 बोर्ड की अनिवार्यता को खत्म कर दिया गया है। अब छात्र को सिर्फ 12वीं परीक्षा देनी होगी।
- ग्रेजुएशन की डिग्री 3 वर्ष और 4 वर्ष की होगी।
- Mphil की अनिवार्यता खत्म हो जायेगी।

116. भाषा की पाठ्यचर्या का उद्देश्य है 'विभिन्न प्रयुक्तियों पर अधिकार का विकास करना' इसका क्या अर्थ है?

- शिक्षार्थी विभिन्न विषयों की विषय-वस्तु के अनुरूप भाषा को समझते और प्रयोग करते हैं

- शिक्षार्थी विज्ञान तथा सामाजिक-विज्ञान की विषय-वस्तु समझते हैं
- शिक्षार्थी रोजमर्रा के संप्रेषणात्मक उद्देश्यों तथा कार्यों के लिए भाषा का प्रयोग करते हैं
- विभिन्न भाषाओं में भाषा प्रयुक्तियाँ सीखते हैं।

Ans. (a) : भाषा की पाठ्यचर्या का उद्देश्य है विभक्ति प्रयुक्तियों पर अधिकार का विकास करना इसका अर्थ है, शिक्षार्थी विभिन्न विषयों की विषय-वस्तु के अनुरूप भाषा को समझते और प्रयोग करते हैं। पाठ्यचर्या शब्द दो शब्दों से मिलकर बना है पाठ्य एवं चर्या। पाठ्य का अर्थ है- पढ़ने योग्य अथवा पढ़ाने योग्य और चर्या का अर्थ है- नियमपूर्वक अनुसरण। इस प्रकार पाठ्यचर्या का अर्थ हुआ पढ़ने योग्य (सीखने योग्य) अथवा पढ़ाने योग्य। विषय वस्तु और क्रियाओं का नियमपूर्वक अनुसरण।

117. निम्नलिखित में से किसकी 'शिक्षार्थियों' में पठन के विकास के लक्ष्य के रूप में वकालत नहीं की गई है?

- विषय सामग्री को पढ़ते समय अनुमान लगाना
- विषय सामग्री को अपने पूर्व ज्ञान से जोड़ना
- विषय सामग्री को सिर्फ पहचानना
- भाषिक सामग्री तथा शब्दों के अर्थ गढ़ना

Ans. (c) : निम्नलिखित में विषय सामग्री को सिर्फ पहचानना शिक्षार्थियों में पठन के विकास के लक्ष्य के रूप में वकालत नहीं की गई है।

118. निम्नलिखित में से कौन सी दो श्रवण कौशल की ऊर्ध्वामुखी रणनीतियाँ हैं?

- शब्द तथा वाक्यांश को पहचानना
 - विमर्श के लिए रूप रेख बनाने के लिए मुख्य शब्दों का प्रयोग करना
 - विषय की तैयारी के लिए अनुमान लगाना
 - प्रक्रिया के समय निवेश को बनाए रखना
- C तथा D ऊर्ध्वामुखी रणनीतियाँ हैं।
 - A तथा D ऊर्ध्वामुखी रणनीतियाँ हैं।
 - B तथा C ऊर्ध्वामुखी रणनीतियाँ हैं।
 - A तथा B ऊर्ध्वामुखी रणनीतियाँ हैं।

Ans. (b) : शब्द तथा वाक्यांश को पहचानना एवं प्रक्रिया के समय निवेश को बनाये रखना, ये दो श्रवण कौशल की ऊर्ध्वामुखी रणनीतियाँ हैं। श्रवण कौशल से, आशय सही ढंग से सुनने की क्षमता है। 'श्रवण' शब्द 'श्रु' धातु से बना है जिसका शाब्दिक अर्थ है सुनने की क्रिया, ध्यानपूर्वक सुनना, अध्ययन करना, अधिगम कहलाता है। कौशल का अर्थ ठीक तरह के काम करने की योग्यता, दक्षता या समर्थता। बालक ध्वनियों को सुनते हैं और सुनकर अनुकरण करते हैं।

श्रवण कौशल के उद्देश्य-

- छात्रों में श्रवण के प्रति रूचि उत्पन्न करना जिससे वे दूसरों की बातों को ध्यानपूर्वक सुन सकें।
- छात्रों में सुनकर अर्थग्रहण करने की योग्यता विकसित करना।
- दूसरों के द्वारा उच्चारित शब्दों को सुनकर शुद्ध उच्चारण करने के योग्य बनाना।
- श्रुत सामग्री के महत्वपूर्ण अंशों को पहचानने की योग्यता विकसित करना।
- श्रुत सामग्री के महत्वपूर्ण आकर्षक, मर्मस्पर्शी विचारों तथा भावों का चयन करने की योग्यता विकसित करना।

119. मीना किसी विषय सामग्री में या वार्तालाप में 'सामना' शब्द पहचानती है, किन्तु स्वयं से उस शब्द का प्रयोग करने में असमर्थ है। आप इस शब्दावली को क्या कहेंगे?

- (a) सक्रिय शब्दावली (b) निष्क्रिय शब्दावली
(c) कठिन शब्द (d) नवीन शब्द

Ans. (b) : मीना किसी विषय सामग्री में या वार्तालाप में 'सामना' शब्द पहचानती है, किन्तु स्वयं से उस शब्द का प्रयोग करने में असमर्थ है। ये शब्दावली निष्क्रिय शब्दावली के अन्तर्गत आती है।

120. निम्नलिखित में से कौन-सा व्याकरण सीखने के बारे सत्य नहीं है?

- (a) व्याकरणिक इकाइयों को वास्तविक जीवन के उद्देश्यों में प्रयोग करना सीखना।
(b) संदर्भों में प्रयोग द्वारा अनेक रूप खोजना।
(c) भाषा के नियमों में निपुणता द्वारा व्याकरण के नियमों को सीखना।
(d) संदर्भों में अनेक रूपों का प्रयोग करना।

Ans. (c) : निम्नलिखित में से भाषा के नियमों में निपुणता द्वारा व्याकरण के नियमों को सीखना व्याकरण सीखने के संदर्भ में सत्य नहीं है। जबकि अन्य विकल्प (a), (b), (d) विकल्पों के कथन व्याकरण सीखने के संदर्भ में सत्य हैं।

PART-IV

Language-II : Hindi

निम्नलिखित गद्यांश को पढ़कर पूछे गए प्रश्नों (प्रश्न संख्या 121 से 128) के सबसे उपयुक्त उत्तर वाले विकल्प को चुनिए :

मानवीय संवेदनाओं की अभिव्यक्ति की छटपटाहट और बेचैनी से उपजी है- चित्रकला। जब अक्षर नहीं थे, भाषा नहीं थी तो मनुष्य ने अपने अंदर की खुशी और उदासी को प्रकट करने के लिए चित्र बनाए। अनपढ़, अस्पष्ट किन्तु भावों से भरपूर बिहार की मधुबनी कला हो या आंध्र की कलमकारी कला, राजस्थान की फड़ चित्रकारी हो या उड़ीसा की पट चित्रकारी। तमाम तरह की चित्रांकन शैलियों का उद्गम स्थल भावनाओं का आंतरिक उद्वेग ही है। वारली ऐसी ही एक आदिवासी लोकअंकन शैली है, जिसका जन्म सदियों पहले हुआ।

वारली चित्रकारी में न्यूनतम उत्पादन तथा सरल, सीधी, तिकोन, गोल रेखाओं का ऐसा आत्मीय व अद्भुत सौंदर्य रचा जाता है कि वह देखने वाले को विमग्न कर देता है। वारली कला की सादगी ही उसकी ताकत है। इस काल को वारली आदिवासी जाति ने शुरू किया था। इसका नाम वारली चित्रकारी पड़ गया। चित्रकारी वारली लोगों की अभिव्यक्ति का माध्यम ही नहीं, जीवन की ऊब से उबरने का जरिया है, साथ ही उनके समाज का जरूरी रिवाज भी। 'वारली' आदिवासी जाति महाराष्ट्र के दहाणु गाँव, जिला ठाणे के निवासी हैं, जो मुंबई के उत्तर में हैं।

121. मानवीय संवेदनाओं की अभिव्यक्ति के लिए सबसे पहले का जन्म हुआ।

- (a) भाषा (b) अक्षर
(c) चित्रकला (d) हस्तकला

Ans. (c) : उपर्युक्त गद्यांश के आधार पर मानवीय संवेदनाओं की अभिव्यक्ति के लिए सबसे पहले 'चित्रकला' का जन्म हुआ।

122. अन्य गद्यांश में मुख्य रूप से चित्रकारी का वर्णन किया गया है?

- (a) मधुबनी (b) फड़
(c) कलमकारी (d) वारली

Ans. (d) : अन्य गद्यांश में मुख्य रूप से 'वारली' चित्रकारी का वर्णन किया गया है। वारली चित्रकला एक प्राचीन भारतीय कला है, जो महाराष्ट्र की एक जनजाति वारली द्वारा बनाई जाती है। यह कला उनके जीवन के मूल सिद्धांतों को प्रस्तुत करती है।

123. 'वारली' कला की ताकत है उसकी-

- (a) रंग-संयोजन (b) विशिष्टता
(c) सादगी (d) आकृति

Ans. (c) : 'वारली' कला की ताकत उसकी 'सादगी' है। यह कला वारली जनजाति के सरल जीवन को भी दर्शाती है।

124. जब अक्षर नहीं थे तो मनुष्य अपने भाव के माध्यम से व्यक्त करता था-

- (a) चित्र (b) वर्ग
(c) संकेत (d) लेखन

Ans. (a) : जब अक्षर नहीं थे तो मनुष्य अपने भाव 'चित्रों' के माध्यम से व्यक्त करता था।

125. 'वारली' लोग ऊब से बचने के लिए क्या करते हैं?

- (a) नृत्य-गायन (b) बांस की टोकरी बनाना
(c) सामूहिक गान (d) चित्रकारी

Ans. (d) : 'वारली' लोग ऊब से बचने के लिए 'चित्रकारी' किया करते थे। वारली चित्रकारी विशेष अवसरों पर दीवारों पर की जाती है।

126. इनमें से संज्ञा शब्द नहीं है-

- (a) खुशी (b) उदासी
(c) सरल (d) सुन्दरता

Ans. (c) : दिये गये विकल्प में से 'सरल' शब्द संज्ञा नहीं है। जबकि खुशी, उदासी, सुन्दरता भाववाचक संज्ञा के अंतर्गत आती है।

भाववाचक संज्ञा- जिस संज्ञा शब्द से व्यक्ति या वस्तु के गुण, धर्म, दशा अथवा स्वभाव का बोध होता है, उसे भाववाचक संज्ञा कहते हैं। जैसे- बुढ़ापा, ईमानदारी, समझ, खुशी, उदासी, सुन्दरता इत्यादि।

'सरल' शब्द गुणवाचक विशेषण है। जिस विशेषण के द्वारा संज्ञा या सर्वनाम के गुण दशा, आकार, रंग स्थान और काल आदि का बोध हो उसको गुणवाचक विशेषण कहते हैं। जैसे- भला, बुरा, चालक, नम्र, उचित, सरल इत्यादि।

127. चित्रांकन का सही संधि-विच्छेद है-

- (a) चित्रा + अंकन (b) चित्रां + कन
(c) चित्र + अंकन (d) चित्रांक + न

Ans. (c) : चित्रांकन का सही संधि-विच्छेद 'चित्र + अंकन' होगा। अतः इसमें दीर्घ स्वर संधि होगी।

दीर्घ स्वर संधि- यदि किसी संधि के पहले खण्ड के अंतिम अक्षर में अ, आ, इ, ई, उ, ऊ, ऋ में कोई एक आए तथा दूसरे खण्ड के पहले अक्षर में वही वर्ण ह्रस्व या दीर्घ आए तो दोनों मिलकर दीर्घ हो जाएंगे। जैसे- स्वार्थी, पुस्तकालय, गिरीश, फणीन्द्र इत्यादि।

128. 'वारली' चित्रकारी का नामकरण हुआ है-

- (a) स्थान विशेष के नाम पर
(b) आदिवासी जाति के आधार पर
(c) आकृतियों के आधार पर
(d) लोक परम्परा के आधार पर

Ans. (b) : 'वारली' चित्रकारी का नामकरण महाराष्ट्र की वारली 'आदिवासी जाति के आधार पर हुआ है।'

निम्नलिखित गद्यांश को पढ़कर पूछे गए प्रश्नों (प्रश्न संख्या 129 से 135) के सबसे उपयुक्त उत्तर वाले विकल्प को चुनिए।

हँसी भीतरी आनंद का बाहरी चिह्न है। जीवन की सबसे प्यारी और उत्तम से उत्तम वस्तु है— एक बार हँस लेना। शरीर को अच्छा रखने की अच्छी से अच्छी दवा एक बार खिलखिला उठना है। पुराने लोग कह गए हैं कि हँसो और पेट फुलाओ। हँसी कितने ही कला-कौशलों से भली है। जितना ही अधिक आनंद से हँसोगे उतनी ही आयु बढ़ेगी। हँसी-खुशी का नाम ही जीवन है। जो रोते हैं, उनका जीवन व्यर्थ है। एक विद्वान लेखक का कहना है कि उत्तम सुअवसर हँसी उदास से उदास मनुष्य के चित्त को प्रफुल्लित कर देती हैं। आनंद एक ऐसा प्रबल इंजन है कि उससे शोक और दुःख की दीवारों को ढहा सकते हैं। प्राण-रक्षा के लिए सदा सब देशों में उत्तम से उत्तम उपाय चित्त को प्रसन्न रखना है। सुयोग्य वैद्य अपने रोगी के कानों में आनंदरूपी मंत्र सुनाता है। वह दवा सेवन के साथ-साथ प्रसन्नचित्त रहने का परामर्श भी देता है। क्योंकि वह जानता है कि हँसी-खुशी से वह शीघ्र स्वस्थ हो जाएगा। सच तो यह है कि सदा प्रसन्नचित्त रहने वाला, ठहाके लगाने वाला स्वस्थ रहता है।

129. भीतरी आनंद को अभिव्यक्त करती है।

- (a) हँसी (b) शोक
(c) दुःख (d) प्रसन्नता

Ans. (a) : उपर्युक्त गद्यांश के आधार पर भीतरी आनंद को हँसी अभिव्यक्त करती है। हँसी भीतरी आनंद का बाहरी चिह्न है।

130. कैसे लोगों की आयु अधिक होती है?

- (a) हँसने वाले लोगों की
(b) दुःख मनाने वाले लोगों की
(c) हथियार उठाने वाले लोगों की
(d) नाचने वाले लोगों की

Ans. (a) : 'हँसने वाले लोगों की आयु अधिक होती है।' एक बार हँस लेना शरीर को अच्छा रखने की अच्छी से अच्छी दवा है। जितना अधिक आनंद से हँसोगे उतनी ही आयु बढ़ेगी।

131. आनंद को प्रबल इंजन कहा गया है, क्योंकि—

- (a) वह प्राणों की रक्षा करता है।
(b) वह शोक और दुःख की दीवारों को तोड़ सकता है
(c) वह मन को प्रसन्न रखता है
(d) वह जीवन की रेल का इंजन है

Ans. (b) : आनंद को प्रबल इंजन कहा गया है, क्योंकि 'वह शोक और दुःख की दीवारों को तोड़ सकता है।'

132. गद्यांश के आधार पर बताइए कि हँसी के संदर्भ में किस बात का ध्यान रखना जरूरी है—

- (a) उचित अवसर (b) उचित अनुतान
(c) उचित अंदाज (d) उचित कुशलता

Ans. (a) : गद्यांश के आधार पर 'उचित अवसर' को हँसी के संदर्भ में ध्यान रखना जरूरी है। एक विद्वान लेखक का कहना है कि उत्तम सुअवसर हँसी उदास से उदास मनुष्य के चित्त को प्रफुल्लित कर देती है।

133. अच्छा वैद्य रोगी को क्या देता है?

- (a) दवा और लंबा बिल
(b) दवा और इलाज का परामर्श
(c) दवा और हँसने पर परामर्श
(d) दवा और व्यायाम करने का परामर्श

Ans. (c) : अच्छा वैद्य रोगी को 'दवा और हँसने का परामर्श' देता है।

134. 'साथ-साथ' में समास का नाम है—

- (a) कर्मधारय (b) अव्ययीभाव
(c) बहुव्रीहि (d) तत्पुरुष

Ans. (b) : 'साथ-साथ' में 'अव्ययीभाव' समास है।

अव्ययीभाव समास— अव्ययीभाव समास में पूर्व पद प्रधान होता है तथा वह अव्यय रूपी होता है। जैसे— प्रति, उप, यावत्, आ, भर, बे, अधि इत्यादि। प्रतिफल, उपकूल, यावज्जीवन, भरसक, बेवफा।

नोट— जहाँ संज्ञा का दोहराव होगा वहाँ अव्ययीभाव समास होगा। जैसे— लाल-लाल, बात-बात, साथ-साथ इत्यादि।

कर्मधारय समास— इस समास का भी उत्तर पद प्रधान होता है। तथा इसमें एक पद दूसरे पद की गरिमा (रूप, रंग, आकार, दशा)। स्वयं पर ले लेता है। जैसे— परमात्मा, पीताम्बर।

बहुव्रीहि समास— इसमें दोनों पद अप्रधान होते हैं। अप्रधानता का कारण दो शब्द के जुड़ने से जो तीसरा अर्थ निकलता है, वही शब्द होता है। तीसरा अर्थ जो निकलता है वह किसी एक व्यक्ति व वस्तु के लिए रूढ़ हो जाता है। जैसे— दशानन, कमलापति, कमलाकान्त, माधव चतुरानन इत्यादि।

135. 'वह शीघ्र स्वस्थ हो जाएगा' वाक्य में रेखांकित शब्द है—

- (a) विशेषण (b) क्रियाविशेषण
(c) क्रिया (d) प्रविशेषण

Ans. (b) : 'वह शीघ्र स्वस्थ हो जाएगा' वाक्य में रेखांकित शब्द 'क्रिया विशेषण' है। जो शब्द क्रिया की विशेषता बताते हैं, उन्हें हम क्रिया विशेषण कहते हैं। जैसे—

- (i) वह तेज दौड़ती है।
(ii) वह शीघ्र स्वस्थ हो जाएगा।

इसमें दौड़ना और स्वस्थ क्रिया है जबकि तेज शब्द क्रिया की विशेषता बता रहा है। अतः स्पष्ट है कि 'शीघ्र' शब्द क्रिया विशेषण है।

136. राष्ट्रीय शिक्षा नीति 2020 में विदेशी भाषाओं जैसे— कोरियन, जापानी, थाई, फ्रेंच, स्पेनिश, पुर्तगाली और रूसी के अध्ययन की के रूप में अनुशंसा की गई है।

- (a) त्रिभाषा सूत्र के अंग के रूप में
(b) अतिरिक्त भाषाओं के रूप में
(c) व्यावसायिक पाठ्यक्रमों के अंग के रूप में
(d) कौशल विकास के अंग के रूप में

Ans. (b) : राष्ट्रीय शिक्षा नीति, 2020 में विदेशी भाषाओं जैसे— कोरियन, जापानी, थाई, फ्रेंच, स्पेनिश पुर्तगाली और रूसी के अध्ययन की अतिरिक्त भाषाओं के रूप में अनुशंसा की गई है। नई शिक्षा नीति 2020 भारत की शिक्षा नीति है, जिसे भारत सरकार द्वारा 29 जुलाई 2020 को घोषित किया गया। यह नीति अंतरिक्ष वैज्ञानिक के. कस्तूरिंगन की अध्यक्षता वाली समिति की रिपोर्ट पर आधारित है। NEP 2020 विदेशी भाषाओं को अतिरिक्त भाषाओं के रूप में मान्यता प्रदान करती है।

137. श्रीनगर में एक शिक्षार्थी तृतीय भाषा के रूप में मलयालम को चुनती है तथा एक वर्ष में कक्षा में उपलब्ध भाषा के अवसरों तथा पारस्परिक क्रियाओं के द्वारा उसे बोलने और पढ़ने योग्य हो गई है। यह किस रूप में जाना जाता है?

- (a) भाषा अधिगम
- (b) भाषा अर्जन
- (c) भाषा का जुड़ना
- (d) व्यवकलनात्मक बहुभाषिकता

Ans. (a) : श्रीनगर में एक शिक्षार्थी तृतीय भाषा के रूप में मलयालम को चुनती है तथा एक वर्ष में कक्षा में उपलब्ध भाषा के अवसरों तथा पारस्परिक क्रियाओं के द्वारा उसे बोलने और पढ़ने योग्य हो गई है, यह शिक्षार्थी में भाषा अधिगम का घटक है।

भाषा अधिगम— अधिगम से तात्पर्य है सीखना। किसी प्रकार के अधिगम की प्रक्रिया जीवनभर चलती है। भाषा के संदर्भ में भी यह बात लागू होती है, किन्तु जहाँ अन्य प्रकार के ज्ञान के अधिगम अनायास ही सम्भव हैं, वही भाषा का अधिगम स्वयं के प्रयासों तथा इसे सीख सकने वाली वातावरण जन्य परिस्थितियों में ही सम्भव होता है, इसलिए भाषा को अर्जित सम्पत्ति कहा गया है।

मनोवैज्ञानिकों के अनुसार भाषा अधिगम— पॉवलाव और स्किनर के अनुसार, “भाषा की क्षमता का विकास कुछ शर्तों के अंतर्गत होता है, जिसमें अभ्यास, नकल, रटने जैसी प्रक्रिया शामिल होती है।”

चॉम्स्की के अनुसार, “बालकों में भाषा सीखने की क्षमता जन्मजात होती है तथा मानव मस्तिष्क में पहले से विद्यमान होती है।”

138. निम्नलिखित में से कौन-से दो कथन सीखने की वर्तमान समझ के अनुसार सत्य हैं?

- (A) त्रुटियाँ सीखने के क्षेत्र हैं।
 - (B) त्रुटियाँ भाषा अधिगम में बाधा डालती हैं।
 - (C) त्रुटियों को तुरन्त ही सुधार देना चाहिए।
 - (D) त्रुटियाँ शिक्षकों के लिए पृष्ठपोषण का काम करती हैं।
- (a) A तथा C (b) A तथा B
(c) A तथा D (d) C तथा D

Ans. (c) : निम्नलिखित में से त्रुटियाँ सीखने के क्षेत्र हैं, तथा त्रुटियाँ शिक्षकों के लिए पृष्ठपोषण का काम करती हैं। सीखने की वर्तमान समझ के अनुसार सत्य है। बच्चों द्वारा की गई त्रुटियाँ उनमें करके सीखने की क्षमता का विकास करती है। तथा बच्चों में त्रुटि सुधार द्वारा सृजनशीलता की क्षमता का विकास होता है। अतः स्पष्ट है कि त्रुटियाँ वर्तमान परिप्रेक्ष्य में अधिगम की घटक है।

139. व्याकरण सीखने में कार्यविधिक ज्ञान को के रूप में जाना जाता है।

- (a) भाषा सीखने के लिए अपनी त्रुटियों का विश्लेषण करने
- (b) व्याकरण के प्रकारों को लागू करने और उन्हें इस्तेमाल करने के तरीकों की समझ
- (c) व्याकरण के नियमों को सीखना तथा बाद में पुनरुत्पादन करना
- (d) व्याकरण पुस्तक में से व्याकरणिक रूप किस प्रकार करने हैं, की समझ

Ans. (b) : व्याकरण सीखने में कार्यविधिक ज्ञान जो व्याकरण के प्रकारों को लागू करने और उन्हें इस्तेमाल करने के तरीकों की समझ उत्पन्न करता है तथा भाषा के शुद्ध रूप में लिखने और बोलने संबंधी नियमों का बोध कराने वाला शास्त्र व्याकरण कहलाता है।

140. एक लघु कहानी है—

- (a) विवरणात्मक लेखन
- (b) विश्लेषणात्मक लेखन
- (c) वर्णनात्मक लेखन
- (d) तुलनात्मक लेखन

Ans. (c) : एक लघु कहानी ‘वर्णनात्मक लेखन’ के अंतर्गत आती है। वर्णनात्मक कहानी लेखन में किसी घटना, वस्तु अथवा स्थान का वर्णन होता है। वर्णन के लिए भाषा सरल और ओजस्वी होनी चाहिए तथा शैली रोचक। जिसे पढ़कर उस वस्तु, घटना या स्थान का पूरा चित्र आँखों के सामने आ जाये वर्णनात्मक लघु कहानी लेखन कहलाता है।

141. भाषा अथवा पाठ्यवस्तु की कक्षा के बहुभाषिकता एक रणनीति के रूप में है—

- (a) शिक्षार्थियों की भाषाओं को भाषाओं तथा विषयों के लिए प्रयोग करना
- (b) अनेक भाषाओं का शिक्षण-अधिगम जिसमें मातृभाषा, आधुनिक भारतीय भाषाएँ, शास्त्रीय भाषाएँ तथा विदेशी भाषा सम्मिलित हैं
- (c) जितनी संभव हो उतनी भाषाओं का शिक्षण-अधिगम
- (d) भाषा तथा माध्यम दोनों के रूप में मातृभाषा सीखना

Ans. (a) : भाषा अथवा पाठ्यवस्तु की कला के बहुभाषिकता एक रणनीति के रूप में शिक्षार्थियों की भाषाओं तथा विषयों के लिए प्रयोग करने के रूप में जाना जाता है। बहुभाषी का अर्थ ऐसे व्यक्ति से है जो दो या दो से अधिक भाषाओं का प्रयोग करता है। विश्व में बहुभाषी लोगों की संख्या एक भाषियों की तुलना में अधिक है।

142. शिक्षार्थी लेखन के अनेक पढ़ावों से गुजरते हैं। लेखन के इस उपागम को किस रूप में जाना जाता है?

- (a) उत्पाद उपागम
- (b) प्रक्रिया उपागम
- (c) अनुच्छेद श्रुतलेख
- (d) व्यक्तिगत लेखन

Ans. (b) : शिक्षार्थी लेखन के अनेक पढ़ावों से गुजरते हैं। लेखन के इस उपागम को ‘प्रक्रिया उपागम’ के रूप में जाना जाता है। लेखन प्रक्रिया के लिए कई अलग-अलग सूत्र हैं, लेकिन मूल चरणों में पूर्वलेखन, आलेखन को शामिल किया जाता है। लेखन में जो हम युक्तियाँ अपनाते हैं वही लेखन प्रक्रिया उपागम है।

अनुच्छेद श्रुतलेखन— भाषा शिक्षण में जब एक शिक्षक सभी बालकों को शुद्ध शब्द लेखन सिखाने का प्रयास करता है तो इसके लिए वह पाठ के किसी अंश को स्वयं शुद्ध उच्चारित करता है एवं बालक सुनने के आधार पर शुद्ध रूप से लिखता है अनुच्छेद श्रुतलेख कहलाता है।

व्यक्तिगत लेखन— वैयक्तिक अनुभव को लिखना या व्यक्तिगत संबंधों को लिखना व्यक्तिगत लेखन है।

143. एक शिक्षिका अपनी कक्षा को चार-चार के समूह में बाँटती है। वह प्रत्येक समूह को विषय/शीर्षक देती है जिन पर उन्हें तीन महीने में लिखने तथा रिपोर्ट तैयार करके पूरी कक्षा के सामने प्रस्तुत करना है।

इस सामूहिक गतिविधि को क्या कहते हैं?

- (a) समूह कार्य (b) प्रदत्त कार्य
(c) भाषा कार्य (d) परियोजना कार्य

Ans. (d) : एक शिक्षिका अपनी कक्षा को चार-चार के समूह में बाँटती है। वह प्रत्येक समूह को विषय/शीर्षक देती है जिन पर उन्हें तीन महीने में लिखने तथा रिपोर्ट तैयार करके पूरी कक्षा के सामने प्रस्तुत करना है। इस सामूहिक गतिविधि को 'परियोजना कार्य' कहते हैं। परियोजना कार्य उन गतिविधियों की एक श्रृंखला है जो छात्रों की उनकी क्षमताओं, रुचियों, व्यक्तिगत अनुभव और दृष्टिकोण का उपयोग करके अध्ययन करने, अनुसंधान करने और खुद को कार्य करने की अनुमति देता है। प्रोजेक्ट वर्क शिक्षक की निगरानी में किया जाता है। परियोजना कार्य का मुख्य उद्देश्य केवल परिणाम का मूल्यांकन करना नहीं है बल्कि सम्पूर्ण प्रक्रिया का मूल्यांकन है।

144. निम्नलिखित प्रश्न के प्रकार को किस रूप में जाना जाता है?

कल्पना कीजिए कि एक कहानी में आप एक पुत्र हैं। दिन के अंत में अपनी भावनाओं को डायरी में लिखिए।

- (a) विवरणात्मक लेखन
(b) बहिर्वेशन लेखन
(c) आत्मकथात्मक लेखन
(d) रचनात्मक लेखन

Ans. (b) : कल्पना कीजिए कि एक कहानी में आप एक पुत्र हैं, दिन के अंत में अपनी भावनाओं को डायरी में लिखिए इस प्रकार का लेखन 'बहिर्वेशन लेखन' कहलाता है।

145. कविता के शिक्षण-अधिगम का मुख्य उद्देश्य है-

- (a) आनंद तथा सराहना करना
(b) कविता लेखन की कला सीखना
(c) भाषा अधिगम
(d) व्याकरण तथा शब्दावली सीखना

Ans. (a) : कविता के शिक्षण-अधिगम का मुख्य उद्देश्य 'आनंद तथा सराहना' करना है। कविता पढ़ाने का लक्ष्य भाषा सीखना नहीं है। अपितु कविता के अध्ययन का लक्ष्य 'आनंद' की प्राप्ति है, कविता में रसानुभूति के स्वरूप को समझने के लिए हम उसे तीन भागों में बाँट सकते हैं अभिव्यक्ति का सौन्दर्य, भावों का सौन्दर्य और विचारों का सौन्दर्य। अतः स्पष्ट है कविता शिक्षण का उद्देश्य आनन्द प्राप्ति तथा रसानुभूति है।

146. भाषा की कक्षा में शिक्षार्थियों से अपेक्षित है कि वे भाषा में तथा भाषा के साथ कार्य करें। यह है-

- (a) भाषा के रूपों को सीखना
(b) भाषा का शुद्धता के साथ प्रयोग करना
(c) भाषा के साथ संलग्नता
(d) भाषा का अर्जन

Ans. (c) : भाषा की कक्षा में शिक्षार्थियों से अपेक्षा की जाती है कि वे भाषा में तथा भाषा के साथ कार्य करें। कक्षा-कक्ष में भाषा से

संबंधित इस प्रकार की गतिविधियाँ भाषा के साथ संलग्नता का द्योतक है।

147. एक 'प्रामाणिक पाठ्य-सामग्री' है

- (a) पाठ्य-पुस्तक के लेखक द्वारा लिखी गई पाठ्य-सामग्री/कथात्मक लेखन
(b) संदर्भ से ली गई मूल पाठ्य-सामग्री
(c) मौलिक लेखन से पूर्णतः रूपांतरित व बनायी गई पाठ्य-सामग्री
(d) शिक्षार्थी द्वारा प्रदत्त कार्य के रूप में लिखी गई कहानी और चित्र

Ans. (b) : एक 'प्रामाणिक पाठ्य सामग्री' सन्दर्भ से ली गई मूल पाठ्य-सामग्री है। प्रामाणिक पाठ्य सामग्री विद्यालय द्वारा निर्धारित पाठ्य वस्तु तथा NCT की गाइड लाइन पर आधारित होता है।

148. आधारभूत अंतः वैयक्तिक संप्रेषणात्मक कौशल (BICS) संबंधित है-

- (a) अमूर्त विचारों को संप्रेषित करने के लिए भाषा की आवश्यकता होती है
(b) बच्चों द्वारा संप्रेषण के लिए भाषा की आवश्यकता होती है
(c) परस्पर संप्रेषण के लिए भाषा की आवश्यकता होती है
(d) संप्रेषणात्मक भाषा शिक्षण

Ans. (c) : आधारभूत अंतः वैयक्तिक संप्रेषणात्मक कौशल (BICS) संबंधित परस्पर संप्रेषण के लिए भाषा की आवश्यकता होती है। संप्रेषण कौशल विचारों का आदान-प्रदान करने एवं अपने विचार अन्य व्यक्ति तक उत्तम तरीके से पहुँचाने की कला है। जिसके माध्यम से अन्य व्यक्तियों को प्रभावित किया जा सकता है। संप्रेषण वह कला एवं कौशल है जिसकी सहायता से हम अपने विचार अन्य व्यक्तियों तक पहुँचाते हैं।

149. भाषा-आकलन संबंधित है-

- (a) शिक्षार्थियों की उपलब्धि के मापन से
(b) कक्षा में शिक्षार्थियों की श्रेणी का पता करने से
(c) उनके सम्पूर्ण अथवा योगात्मक आकलन का मापन
(d) शिक्षार्थी की भाषा प्रवीणता का मापन

Ans. (d) : "भाषा-आकलन" शिक्षार्थी की भाषा प्रवीणता का मापन करता है। भाषा कक्षा में आकलन का उद्देश्य निदानात्मक होता है। अर्थात् शिक्षण अधिगम कार्यक्रम में सुधार करना तथा छात्रों व अध्यापकों को पृष्ठपोषण प्रदान करना व छात्रों की अधिगम संबंधित कठिनाइयों को ज्ञात करना आदि। अतः स्पष्ट है कि भाषा आकलन शिक्षार्थी के भाषा प्रवीणता का माप करता है।

150. 'पाठ्य सामग्री से संबंधित भाषा निवेश' क्या है?

- (a) वे निवेश जो भाषा प्रयोग पर ध्यान देते हैं।
(b) शब्दावली, उच्चारण, व्याकरण इत्यादि।
(c) निवेशों तथा इनकी प्रक्रियाओं का प्रस्तुतीकरण।
(d) भाषा निवेश जो सूचना पर ध्यान देते हैं।

Ans. (d) : 'पाठ्य सामग्री से संबंधित भाषा निवेश' वह हो जो भाषा निवेश तथा सूचना पर ध्यान देता है। जबकि अन्य विकल्प (a), (b), (c) भाषा निवेश के सन्दर्भ में असत्य है।

Central Teacher Eligibility Test (CTET) 2021

Junior Level (Class VI-VIII)

Solved Paper with Explanation

(Exam Date : 17.01.2022)

PART-I

Child Development and Pedagogy

1. _____ represents a specific time when children are particularly susceptible to certain kinds of stimuli in their environment.
- (a) Sensitive periods (b) Explicit periods
(c) Plasticity duration (d) Mental stagnation

Ans. (a) : Sensitive periods are periods of psychological development in the child. This period is a time of limited duration. During the sensitive periods, the child has very powerful capacities. The child is able to do great things and make very important acquisitions like language and movement.
Sensitive periods represents a specific time when children are particularly susceptible to certain kinds of stimuli in their environment.

2. **Assertion (A): Comparisons among children can very accurately assess a child's developmental progress**
Reason (R): The pattern and sequence of development as well as the rates of development are the same, for all children universally
Choose the correct option.
- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
(c) (A) is true but (R) is false.
(d) Both (A) and (R) are false.

Ans. (d) : Teacher assess children's progress by analysing their observations and deciding what they tell him, not with comparisons among children which can accurately assess a child's developmental progress. The pattern and sequence of development as well as the rates of development are not the same, for all universally. So, both (A) and (R) are false.

3. **Secondary socialisation maps the period in _____ when the child begins to attend formal institutions such as the school.**
- (a) infancy (b) early childhood
(c) middle childhood (d) adolescence

Ans. (b) : Secondary socialization refers to the social learning that children undergo when they enter other social institutions, like school. Secondary socialization maps the period in early childhood when the child begins to attend formal institutions such as the school. Early childhood is the period of the most intense and the most crucial socialization.

4. **In which stage can children work with hypothetical statements and explore logical relationships between statements and have the ability to cope with abstractions such as proportions?**
- (a) Sensori-motor Stage
(b) Pre-operational Stage
(c) Concrete Operational Stage
(d) Formal Operational Stage

Ans. (d) : In formal operational stage can children work with hypothetical statements and explore logical relationships between statements and have the ability to cope with abstractions such as proportions. The formal operational stage is characterized by the ability to formulate hypotheses and systematically test them to arrive at an answer to a problem. The individual in the formal stage is also able to think abstractly and to understand the form or structure of a mathematical problem.

5. **Which of the following is a critique of Jean Piaget's theory of cognitive development?**
- (a) Development of children is dependent on their socio-cultural context.
(b) Children are active beings.
(c) Children's thinking is qualitatively different from that of adults.
(d) Development of children takes place by their acting upon the environment

Ans. (a) : Development of children is dependent on their socio-cultural context is a critique of Jean Piaget's theory of cognitive development. Vygotsky emphasized the collaborative nature of learning by the construction of knowledge through social negotiation. He rejected the assumption made by Piaget that it was possible to separate learning from its social context.

6. **Jean Piaget and Lev Vygotsky have shifted the understanding of learning as a _____ process to a _____ process.**
- (a) active, passive
(b) passive, active
(c) mechanical, behavioristic
(d) behavioristic, mechanical

Ans. (b) : Jean Piaget and Lev Vygotsky have shifted the understanding of learning as a passive process to a active process. Learning is perceived as an active, not a passive process, where knowledge is constructed, not acquired. Both believe that children play an active role in discovering and understanding schema and that children are active learners and that exploration and discovery is necessary for cognitive development.

7. According to Lev Vygotsky, the basis of learning is -

- (a) Social interaction
- (b) Reinforcement
- (c) Drill and practice
- (d) Changes in the structures of schemas.

Ans. (a) : According to Lev Vygotsky, learning has its basis in interacting with other people. Once this has occurred, the information is then integrated on the individual level. For example, one culture might emphasize memory strategies such as note-taking.

8. At which stage of Lawrence Kohlberg's moral development theory do individuals believe that society needs to update the rules over time?

- (a) Obedience and Punishment Orientation
- (b) Good boy-good girl orientation
- (c) Social-order maintaining orientation
- (d) Social-contract orientation

Ans. (c) : Stage IV (Maintaining the Social Order)– Judgment of morality is based on one's duty, law and social order. Actively maintaining the current social system ensures positive human relationships and societal order.

9. Which of the following is a correctly matched pair of the type of intelligence and the end state possibilities as per theory of Howard Gardner?

- (a) Type of intelligence : Linguistic; End State Possibility : Accountant
- (b) Type of intelligence : Spatial; End State Possibility : Likely Architect
- (c) Type of intelligence : Bodily - Kinaesthetic; End State Possibility : Singer
- (d) Type of intelligence : Natural; End State Possibility : Teacher

Ans. (*) : The type of intelligence and the end state possibilities as per theory of Howard Gardner–

Linguistic Intelligence– Linguistic intelligence gauges someone's ability to use words effectively. Great careers for people with linguistic intelligence include public speaker, lawyer, journalist, politician etc.

Spatial Intelligence– Spatial intelligence refers to people's ability to view or visualise the world in its three dimensions. Great careers for people with spatial intelligence include architect, engineer, pilot etc.

Bodily-Kinaesthetic Intelligence– Bodily-Kinaesthetic intelligence refers to mind and body co-ordination and is very important in athletes. Great careers for people with bodily kinaesthetic intelligence include dancer, athlete, coach.

Naturalist Intelligence– Naturalist intelligence refers to the ability to read and understand nature. Great careers for people with naturalist intelligence include botanist, gardener, astronomer.

Note– According to answer key, bonus mark awarded to all the candidates in this question.

10. In a child-centered education, the teacher-

- (a) gives direction while the learners follow blindly
- (b) understands the child and the process of learning in a socio-constructivist manner

- (c) sets a rigid and standard curriculum
- (d) uses assessment to rank the students

Ans. (b) : Student-centered learning, also known as learner-centered education, broadly encompasses methods of teaching that shift the focus of instruction from the teacher to the student. In a child-centered education, the teacher understands the child and the process of learning in a socio-constructivist manner.

11. According to National Education Policy 2020, the progress card of the students communicated to the parents would be-

- (a) based on norm-referenced testing
- (b) based on criteria reference testing
- (c) a reflection of relative performance of students in comparison to classmates
- (d) a reflection of the progress as well as the uniqueness of the student

Ans. (d) : According to NEP 2020, the progress card of the students communicated to the parents would be a reflection of the progress as well as the uniqueness of the student. According to the New Education Policy 2020 the progress card of all students for school-based assessment which is communicated by schools to parents, will be completely redesigned. The progress card, a holistic, 360-degree multidimensional will replace the student's current report card, New Education Policy says.

12. To ensure retention of students from socio-economically disadvantaged groups, National Education Policy 2020 proposes the curriculum and pedagogy should be

- (a) centered around exams
- (b) centered around textbooks
- (c) engaging and contextual
- (d) standard and uniform

Ans. (c) : The new education policy will : Increase focus on the skill improvement and competency development of the students. To ensure retention of students from socio-economically disadvantaged groups, National Education Policy 2020 proposes the curriculum and pedagogy should be engaging and contextual. NEP 2020 aims to ensure that no child loses any opportunity to learn and excel because of the circumstances of birth or background.

13. Sex is _____ while gender is _____.

- (a) biological; socially constructed
- (b) socially constructed; biological
- (c) cultural; social
- (d) social; cultural

Ans. (a) : There is a difference between 'sex' and 'gender'. Sex is 'biological' while gender is 'psychological', 'social', or 'cultural'. A person's gender can be different from a person's sex. Gender is thus 'socially constructed' in the sense that, unlike biological sex, gender is a product of society.

14. Which of the following tools should be used by the teachers to assess children?

- (i) Work in groups
- (ii) Classroom participation

- (c) (A) is true but (R) is false.
 (d) Both (A) and (R) are false.

Ans. (b) : Prerequisite knowledge is the foundation upon which new knowledge is built and scaffolded. This will help students bring to mind the information they will need to understand new concept. A corporal punishment or a physical punishment is a punishment which is intended to cause physical pain to a person. When it is inflicted on minors, especially in home and school settings, its methods may include spanking or paddling. When it is inflicted on adults, it may be inflicted on prisoners and slaves. So, (A) is true but (R) is false.

- 22. Any pedagogy which considers subject-matter as an end in itself is likely to yield _____ among students.**
- (a) appreciation for mastery
 (b) desire for innovation
 (c) motivation to learn
 (d) resistance to explore

Ans. (d) : Pedagogy is the study of teaching methods, including the aims of education and the ways in which such goals may be achieved. Any pedagogy which considers subject matter as an end in itself is likely to yield resistance to explore among students. The subject matter taught also has a marked influence on the total teaching situation.

- 23. Assertion (A): Students should be taught self-regulatory knowledge about when, where and why to use variations learning strategies. Reason (R): A learning strategy is more likely to be maintained and employed if students know when, where and why to use it. Choose the correct option**
- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
 (b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
 (c) (A) is true but (R) is false.
 (d) Both (A) and (R) are false.

Ans. (a) : Self-regulated learning refers to one's ability to understand and control one's learning environment. Students should be taught self-regulatory knowledge about when, where and why to use variations learning strategies. A learning strategy is more likely to be maintained and employed if students know when, where, and why to use it. The main goal of learning strategies is to get students to become more effective learner. So, both (A) and (R) are true and (R) is the correct explanation of (A).

- 24. Which of the following is an example of a metacognitive skills?**
- (a) Evaluating process used by oneself in solving a problem.
 (b) Identifying the difference between two pictures.
 (c) Knowing the chemical formula of Methane.
 (d) Recalling the chronological order of a particular dynasty.

Ans. (a) : Metacognitive skills allow you to organize and evaluate your thought process related to learning and problem-solving. Another way to define metacognitive skills is your self-awareness regarding the information you do and don't know and how you work to recall or retain knowledge regarding a particular subject.

- 25. A teacher intends to facilitate procedural knowledge among her students. Which of the following question is appropriate for this purpose?**
- (a) How to solve an oxidation-reduction equation?
 (b) What are the components and structure of DNA?
 (c) Which planet is closest to the sun?
 (d) Who wrote Indian National Anthem?

Ans. (a) : Procedural knowledge (also known as knowing how, and sometimes referred to as practical knowledge, imperative knowledge, or performative knowledge) is the knowledge exercised in the performance of some task. A teacher intends to facilitate procedural knowledge among her students. How to solve an oxidation-reduction equation? is appropriate question for this purpose.

- 26. To make learning meaningful for students, a teacher should:**
- (a) emphasize on rote-memorization of text-book content.
 (b) employ stimulus-response association to condition behavior.
 (c) frequently use tangible rewards to motivate students.
 (d) Provide opportunities to think and reflect on experiences.

Ans. (d) : A teacher supports and encourages a student's commitment to initiate and complete complex, inquiry-based learning requiring creative and critical thinking with attention to problem solving. Teacher provides meaningful learning opportunities for students. Teacher challenges students to think deeply about problems and encourages/models a variety of approaches to a solution and reflect on experiences.

- 27. A teacher asked a student to speak his thoughts to himself when he was somewhat stuck in solving a given problem. Soon enough after doing so, students exclaims 'I know the answer now!!' Which problem-solving strategy has helped the student in this case?**
- (a) Functional fixedness
 (b) Mnemonics
 (c) Response set
 (d) Verbalization

Ans. (d) : In this case, verbalization strategy has helped the student to problem solving. Verbalization, as used in solving problems, is the act of orally stating one's thinking processes. It is a component of explicit instruction and can be used by teachers to model a cognitive or metacognitive process used in problem

solving through "think-alouds". A think-aloud allows students to hear what the teacher is thinking as he or she demonstrates how to use a problem solving or a metacognitive strategy.

28. Which of the following statement is NOT correct in context of misconceptions formed by students?

- (a) Misconceptions can be used constructively by a teacher in the process of learning.
- (b) Misconceptions characterizes the initial phase of children's understanding of certain concepts.
- (c) Misconceptions clearly indicates children's inability to learn anything new and advanced.
- (d) Misconceptions represents children's intuitions about the processes they observe around them.

Ans. (c) : Students generally are unaware that the knowledge they have is wrong. Moreover, misconceptions can be very entrenched in student thinking. In addition, students interpret new experiences through these erroneous understandings, thereby interfering with being able to correctly grasp new information. Misconceptions clearly indicates children's inability to learn anything new and advanced is not correct in context of misconceptions formed by students.

29. Which of the following emotion positively impact learning?

- (a) Anxiety
- (b) Boredom
- (c) Fear
- (d) Hope

Ans. (d) : Hope is the positive emotion we feel when we envision a brighter future and often helps us through hard times. James Averill, a social constructivist, believes that hope does fit an emotional model. He bases his conclusion that hope is an emotion on the findings of a study that compared hope to two other emotions (love and anger).

30. Which of the following set of attributions for failure on a task is likely to motivate a student for future attempts?

- (a) I am not intelligent and intelligence is fixed.
- (b) I didn't put enough effort this time although I am capable of doing so.
- (c) Teacher was biased towards me and I can't change her perception about me.
- (d) This particular exam falls on Tuesday and Tuesday is my unlucky day.

Ans. (b) : To understand their own successes and failures, people attribute them to various causes within and outside of their control. Explore the attribution theory and model, the principle of locus of control, and various types of attribution biases. I didn't put enough effort this time although I am capable of doing so is the set of attribution for failure on a task is likely to motivate a student for future attempts.

PART-II MATHEMATICS AND SCIENCE

31. The value of $\frac{\sqrt{768} \times \sqrt{3267}}{\sqrt{144}}$ is

- (a) 198
- (b) 128
- (c) 132
- (d) 134

Ans. (c) :

$$\frac{\sqrt{768} \times \sqrt{3267}}{\sqrt{144}} = \frac{\sqrt{768 \times 3267}}{\sqrt{144}}$$

$$\begin{aligned} \sqrt{\frac{(256 \times 3) \times (121 \times 27)}{12 \times 12}} &= \sqrt{\frac{(16 \times 16 \times 3) \times (11 \times 11 \times 3 \times 3 \times 3)}{12 \times 12}} \\ &= \frac{16 \times 11 \times 3 \times 3}{12} \\ &= 132 \end{aligned}$$

32. If $x = \frac{-2}{3}$ and $y = \frac{-3}{4}$, then $(x - y)^{-1}$

$+(x^{-1} - y^{-1})^{-1}$ is equal to

- (a) -8
- (b) -2
- (c) $\frac{5}{12}$
- (d) $\frac{7}{6}$

Ans. (*) :

$$x = -\frac{2}{3} \text{ \& } y = -\frac{3}{4}$$

$$(x - y)^{-1} = \left[-\frac{2}{3} - \left(-\frac{3}{4} \right) \right]^{-1}$$

$$= \left[-\frac{2}{3} + \frac{3}{4} \right]^{-1}$$

$$= \left[\frac{-8 + 9}{12} \right]^{-1}$$

$$= \left[\frac{1}{12} \right]^{-1}$$

$$= 12$$

$$x^{-1} = \left(\frac{-2}{3} \right)^{-1} = \frac{-3}{2}$$

$$y^{-1} = \left(\frac{-3}{4} \right)^{-1} = \frac{-4}{3}$$

$$(x^{-1} - y^{-1})^{-1} = \left[\left(\frac{-3}{2} \right) - \left(\frac{-4}{3} \right) \right]^{-1}$$

$$= \left[\frac{-9 + 8}{6} \right]^{-1}$$

$$= \left[\frac{-1}{6} \right]^{-1}$$

$$(x^{-1} - y^{-1})^{-1} = -6$$

$$(x - y)^{-1} + (x^{-1} - y^{-1})^{-1} = 12 + (-6) \\ = 6$$

Note-This question deleted by commission.

33. If $a = 360$ and $b = 900$, then (LCM of a and b) \div (HCF of a and b) is equal to

- (a) $\frac{5}{2}$ (b) 5
(c) 15 (d) 10

Ans. (d) : Factors of 360 = $2 \times 2 \times 2 \times 3 \times 3 \times 5$

Factors of 900 = $2 \times 2 \times 3 \times 3 \times 5 \times 5$

LCM of 360 and 900 = $2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5$
= 1800

HCF of 360 and 900 = $2 \times 2 \times 3 \times 3 \times 5 = 180$

So, $\frac{\text{LCM of } a \text{ and } b}{\text{HCF of } a \text{ and } b} = \frac{1800}{180} = 10$

34. If a 6-digit number $43x82y$ is divisible by 72, then what is the value of $(2x - y)$?

- (a) 8 (b) 10
(c) 12 (d) 14

Ans. (a) : If any number is divisible by 72 must be divisible by 8 & 9.

Number $43x82y$ is divisible by 72 so it will be also divisible by 8 & 9.

A number is divisible by 8 if last three digit is divisible by 8

In $43x82y$

$82y$ must be divisible by 8

Then, $y = 4$

Number = $45x824$

If sum of digits is divisible by 9 then number will be also divisible by 9

Sum of digits = $4 + 3 + x + 8 + 2 + 4$
= $21 + x$

If $x = 6$

Sum of digits = 27, which is divisible by 9.

So, value of x & y are 6 & 4 respectively

Now, $2x - y = 2 \times 6 - 4$
= 8

35. $\frac{\left(\frac{3}{4}\right)^{-3} \times \left(\frac{3}{8}\right)^2 \div 3^{-2}}{\left(\frac{2}{3}\right)^2 \times \left(\frac{4}{3}\right)^{-3}}$ is equal to

- (a) 9 (b) 12
(c) 16 (d) 24

Ans. (c) :

$$\frac{\left(\frac{3}{4}\right)^{-3} \times \left(\frac{3}{8}\right)^2 \div 3^{-2}}{\left(\frac{2}{3}\right)^2 \times \left(\frac{4}{3}\right)^{-3}}$$

$$\begin{aligned} & \frac{\left(\frac{4}{3}\right)^3 \times \left(\frac{3}{8}\right)^2 \times 3^2}{\left(\frac{2}{3}\right)^2 \times \left(\frac{3}{4}\right)^3} \\ & = \left(\frac{4}{3}\right)^3 \times \left(\frac{3}{8}\right)^2 \times 3^2 \times \left(\frac{3}{2}\right)^2 \times \left(\frac{4}{3}\right)^3 \\ & = \left(\frac{4}{3}\right)^6 \times \left(\frac{3}{8}\right)^2 \times 3^2 \times \left(\frac{3}{2}\right)^2 \\ & = \frac{4^6}{3^6} \times \left(\frac{3^6}{8^2}\right) \times \frac{1}{2^2} \\ & = \frac{4^6}{8^2 \times 2^2} \\ & = \frac{4 \times 4 \times 4 \times 4 \times 4 \times 4}{8 \times 8 \times 2 \times 2} \\ & = \frac{64 \times 16 \times 4}{64 \times 4} \\ & = 16 \end{aligned}$$

36. One of the factors of $25(x + y)^2 - 36(x - 2y)^2$ is

- (a) $7x + 11y$ (b) $17y - x$
(c) $11x + 7y$ (d) $11x - y$

Ans. (b) :

$$25(x + y)^2 - 36(x - 2y)^2$$

$$= [5(x + y)]^2 - [6(x - 2y)]^2 \quad [\because a^2 - b^2 = (a + b)(a - b)]$$

$$= [5(x + y) + 6(x - 2y)][5(x + y) - 6(x - 2y)]$$

$$= [5x + 5y + 6x - 12y][5x + 5y - 6x + 12y]$$

$$= (11x - 7y)(17y - x)$$

So factors of given problem are $(11x - 7y)$ & $(17y - x)$

Hence option (b) is correct

37. $\frac{(x^2 - 4)(x - 1)(x + 1)}{(x^2 - 3x + 2)(x + 2)}$ is equal to

- (a) $x - 1$ (b) $x + 2$
(c) $x + 1$ (d) $x - 2$

Ans. (c) :

$$\frac{(x^2 - 4)(x - 1)(x + 1)}{(x^2 - 3x + 2)(x + 2)}$$

$$= \frac{(x^2 - 2^2)(x - 1)(x + 1)}{(x^2 - 2x - x + 2)(x + 2)}$$

$$= \frac{(x + 2)(x - 2)(x - 1)(x + 1)}{[x(x - 2) - 1(x - 2)](x + 2)}$$

$$= \frac{(x + 2)(x - 2)(x - 1)(x + 1)}{(x - 2)(x - 1)(x + 2)}$$

$$= x + 1$$

38. If $5x - 6\left(x + \frac{1}{30}\right) = \frac{1}{3}(x + 1)$, then what is the value of $(5x + 6)$?

- (a) 3 (b) 4
(c) 5 (d) 7

Ans. (b) :

$$\begin{aligned}5x - 6\left(x + \frac{1}{30}\right) &= \frac{1}{3}(x+1) \\5x - 6x - \frac{6}{30} &= \frac{x}{3} + \frac{1}{3} \\-x - \frac{1}{5} &= \frac{x+1}{3} \\-5x - 1 &= \frac{x+1}{3} \\-15x - 3 &= 5x + 5 \\-15x - 5x &= 5 + 3 \\-20x &= 8 \\x &= -\frac{8}{20} \\ \text{The value of } 5x + 6 &= 5 \times \left(-\frac{8}{20}\right) + 6 \\ &= -2 + 6 \\ &= 4\end{aligned}$$

39. What is the constant term in the following product?

$$\left(2x^2 - 3x - \frac{9}{x}\right) \times \left(\frac{7}{x} - x\right)$$

(a) -9 (b) -12
(c) 12 (d) 16

Ans. (b) :

$$\begin{aligned}\left(2x^2 - 3x - \frac{9}{x}\right) \times \left(\frac{7}{x} - x\right) \\= 2x^2 \times \frac{7}{x} - 2x^3 - 3x \times \frac{7}{x} + 3x^2 - \frac{9}{x} \times \frac{7}{x} + 9 \\= 14x - 2x^3 - 21 + 3x^2 - \frac{63}{x^2} + 9 \\ \text{Constant term} &= -21 + 9 \\ &= -12\end{aligned}$$

40. After giving a discount of 15% on the marked price of an article, a shopkeeper still gains 19%. By what percent is the marked price above the cost price?

- (a) 30% (b) 35%
(c) 38% (d) 40%

Ans. (d) :

Discount = 15%
Profit = 19%
Let cost price (CP) = 100
Marked price (MP) = $\left(\frac{100 + \text{gain}\%}{100 - \text{Discount}\%}\right) \times \text{CP}$
 $= \frac{100 + 19}{100 - 15} \times 100$
 $= \frac{119}{85} \times 100$
MP = 140
Required percentage = $\frac{140 - 100}{100} \times 100$
 $= 40\%$

41. If F, V and E represent the number of faces, number of vertices and the number of edges, respectively of a pyramid whose base is a pentagon, then what is the value of $(2V - 3F + E)$?

- (a) 3 (b) 4
(c) 5 (d) 6

Ans. (b) : A pentagonal pyramid has a base in the shape of a pentagon and triangular faces formed at side of the base.

Number of faces, F = 6

Number of vertices, V = 6

Number of edges, E = 10

$$\begin{aligned}2V - 3F + E &= 2 \times 6 - 3 \times 6 + 10 \\ &= 12 - 18 + 10 \\ &= 22 - 18 \\ &= 4\end{aligned}$$

42. The length of the diagonals of a rhombus are 24cm and 70cm. What is the length of a side of the rhombus?

- (a) 28 cm (b) 35 cm
(c) 37 cm (d) 47 cm

Ans. (c) : The length of side of Rhombus

$$\begin{aligned}&= \sqrt{\left(\frac{24}{2}\right)^2 + \left(\frac{70}{2}\right)^2} \\ &= \sqrt{12^2 + 35^2} \\ &= \sqrt{144 + 1225} \\ &= \sqrt{1369} \\ &= 37\text{cm}\end{aligned}$$

43. The interior angle of a regular polygon exceeds its exterior angle by 108° . The number of sides of the polygon is

- (a) 8 (b) 9
(c) 10 (d) 12

Ans. (c) : Let interior angle and Exterior angles are I & E respectively

$$I + E = 180^\circ$$

$$I - E = 108$$

$$2I = 288$$

$$I = \frac{288}{2} = 144^\circ$$

\therefore Interior angle of polygon

$$I = \frac{(n-2) \times 180}{n}$$

Where n = number of sides of polygon

$$\frac{(n-2) \times 180}{n} = 144$$

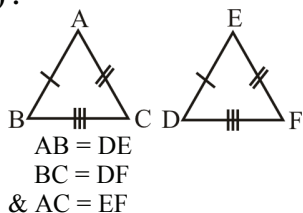
$$\boxed{n=10}$$

44. In $\triangle ABC$ and $\triangle DEF$, if $AB=DE$, $AC=EF$ and $BC=DF$

Then which of the following is correct?

- (a) $\triangle ABC \cong \triangle EFD$ (b) $\triangle ABC \cong \triangle DEF$
(c) $\triangle ABC \cong \triangle EDF$ (d) $\triangle ABC \cong \triangle FDE$

Ans. (c) :

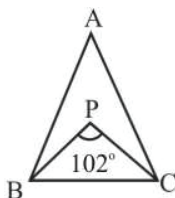


Hence by SSS congruency rule (if three sides of a triangle are equal to three side of another triangle) $\triangle ABC \cong \triangle EDF$

45. In $\triangle ABC$, the bisectors of $\angle B$ and $\angle C$ meet at a point P. If $\angle BPC = 102^\circ$, then what is the measure of $\angle A$?

- (a) 22° (b) 24°
(c) 28° (d) 32°

Ans. (b) :



Given,

$$\angle BPC = 102^\circ$$

$$\angle PBC = \angle PCB \quad (\text{BP \& CP are bisectors of } \angle B \text{ \& } \angle C)$$

$$\angle P + \angle PBC + \angle PCB = 180^\circ$$

$$\angle P + 2\angle PBC = 180^\circ$$

$$102 + 2\angle PBC = 180^\circ$$

$$\angle PBC = \frac{180 - 102}{2} = 39^\circ$$

$$\angle B = 2\angle PBC \quad \angle C = 2\angle PCB$$

$$= 2 \times 39^\circ \quad = 2 \times 39^\circ$$

$$\angle B = 78^\circ \quad \angle C = 78^\circ$$

$$\angle A = 180^\circ - (\angle B + \angle C)$$

$$= 180^\circ - (78 + 78)$$

$$= 180^\circ - 156^\circ$$

$$\boxed{\angle A = 24^\circ}$$

Shortcut-

$$\angle BPC = 90^\circ + \frac{\angle A}{2}$$

$$102^\circ = 90^\circ + \frac{\angle A}{2}$$

$$12^\circ = \frac{\angle A}{2}$$

$$\boxed{\angle A = 24^\circ}$$

46. The sum of mean, median and mode of the data:

11, 14, 9, 30, 35, 17, 19, 28, 23, 48, 36, 30 is

- (a) 80.5 (b) 78.5
(c) 76 (d) 75

Ans. (a) : Given data,

11, 14, 9, 30, 35, 17, 19, 28, 23, 48, 36, 30

arrange them in ascending order

9, 11, 14, 17, 19, 23, 28, 30, 30, 35, 36, 48

$$\text{Mean} = \frac{9+11+14+17+19+23+28+30+30+35+36+48}{12}$$

$$= \frac{300}{12}$$

$$= 25$$

$$\text{Median} = \frac{1}{2} \left\{ \left(\frac{12}{2} \right)^{\text{th}} \text{ term} + \left(\frac{12+2}{2} \right)^{\text{th}} \text{ term} \right\}$$

$$= \left[6^{\text{th}} \text{ term} + 7^{\text{th}} \text{ term} \right] \times \frac{1}{2}$$

$$= \frac{23+28}{2}$$

$$= 25.5$$

$$\text{Mode} = 30 \text{ (most repeating number)}$$

$$\text{Sum of mean, median \& mode} = 25 + 25.5 + 30 = 80.5$$

47. A box contains cards on which numbers 31, 32, 33,.....,69 and 70 are written (only one number on one card). A card is drawn from the box without looking into the box. What is the probability that the number on the card drawn is NOT a prime number?

- (a) $\frac{9}{40}$ (b) $\frac{19}{20}$
(c) $\frac{1}{5}$ (d) $\frac{31}{40}$

Ans. (d): Prime numbers between 31 & 70

31, 37, 41, 43, 47, 53, 59, 61, 67 = 9 numbers

Total numbers between 31 & 70 = 40

Probability that the number on card drawn is

$$\text{prime} = \frac{9}{40}$$

Probability that the number on card drawn is not

$$\text{prime} = 1 - \frac{9}{40}$$

$$= \frac{31}{40}$$

48. A wire is in the shape of a circle of area 154 cm^2 . If it is bent in the form of a square, then what is the area of the square?

$$\text{(Take } \pi = \frac{22}{7} \text{)}$$

- (a) 144 cm^2 (b) 169 cm^2
(c) 100 cm^2 (d) 121 cm^2

Ans. (d) : Given,

area of circle = 154 cm^2

$$\pi r^2 = 154$$

$$\frac{22}{7} \times r^2 = 154$$

$$r^2 = \frac{154 \times 7}{22}$$

$$r = 7 \text{ cm}$$

It is bent further in form of square,
circumference of circle = circumference of square

$$2\pi r = 4 \times a$$

$$2\pi \times 7 = 4 \times a$$

$$a = \frac{14\pi}{4}$$

$$\begin{aligned} \text{Area of square} &= a^2 = \left(\frac{14\pi}{4}\right)^2 \\ &= \left(\frac{14 \times 22}{7 \times 4}\right)^2 \\ &= 11^2 \\ &= 121 \text{ cm}^2 \end{aligned}$$

49. The length, breadth and height of a cuboidal box are in the ratio 6 : 4 : 3 and its volume is 4608 cm³. Its lateral surface area (in cm²) is
- (a) 1152 (b) 1246
(c) 1104 (d) 960

Ans. (d) : Given,

$$\ell : b : h = 6 : 4 : 3$$

$$\text{Let, } \ell = 6x, b = 4x, h = 3x$$

$$\text{Given, volume} = 4608 \text{ cm}^3$$

$$\ell \times b \times h = 4608$$

$$6x \times 4x \times 3x = 4608$$

$$72x^3 = 4608$$

$$x^3 = \frac{4608}{72} = 64$$

$$x = \sqrt[3]{64} = 4$$

$$\text{Lateral surface area} = 2(\ell h + bh)$$

$$\ell = 6x = 6 \times 4 = 24$$

$$b = 4x = 4 \times 4 = 16$$

$$h = 3x = 3 \times 4 = 12$$

$$= 2(\ell h + bh)$$

$$= 2h(\ell + b)$$

$$= 2 \times 12 \times (24 + 16)$$

$$= 960 \text{ cm}^2$$

50. The volume of a right circular cylinder is 396 cm³ and its height is 14cm. What is its curved surface area (in cm²)? (Take $\pi = \frac{22}{7}$)
- (a) 242 (b) 264
(c) 279 (d) 294

Ans. (b) : Given,

$$\text{Volume of cylinder} = 396 \text{ cm}^3$$

$$\pi r^2 h = 396$$

$$\pi \times r^2 \times 14 = 396$$

$$r^2 = \frac{396}{14 \times \pi} = \frac{396}{14 \times \frac{22}{7}} = \frac{396}{2 \times 22} = 9$$

$$r = \sqrt{9} = 3 \text{ cm}$$

$$\text{Area of curved surface} = 2\pi rh$$

$$= 2\pi \times 3 \times 14$$

$$= 2 \times \frac{22}{7} \times 3 \times 14$$

$$= 2 \times 22 \times 3 \times 2$$

$$= 264 \text{ cm}^2$$

51. Which of the following teaching learning resources in mathematics cannot be used for visually challenged students?

- (a) Taylor's abacus (b) Tangram
(c) Geoboard (d) Geo-gebra

Ans. (d) : Geo-gebra can not be used for visually challenged students while Taylor's abacus, Tangram, Geoboard can be used for visually challenged students.

• Geo-gebra is one of the most innovative, open-code math software. It is an interactive geometry, algebra, statistics & calculus application. It uses an exploratory approach to teach concepts of geometry.

52. Which of the following is an example of teaching arithmetic using heuristics method according to National Curriculum Framework (2005)?

- (a) Finding the sum of three or more digit numbers by column method of addition
(b) Rounding off numbers to the nearest multiples of ten in order to add, subtract or multiply etc.
(c) Teaching the use of electronic calculator to students
(d) Making students memorize multiplication tables for multiplying large numbers

Ans. (b) : A heuristic approach is a problem solving method that uses a practical method or various shortcuts in order to produce solutions that ease cognitive load of making a decision. According to NCF 2005 it includes examples like using trial and error, a rule of thumb, subtract or multiply rounding off numbers etc.

53. Which of the following methods/approaches is **NOT** regarding mathematics teaching?

- (a) Analysis-Synthesis
(b) Rote Memorization
(c) Problem solving
(d) Deductive-Inductive

Ans. (b) : Teaching methods of mathematics include lecture, inductive, deductive, heuristic or discovery, problem solving, analytic, synthetic, laboratory & project method.

• Rote memorization method is not a method regarding mathematics teaching. It is used in subjects that needs memorization.

54. Which of the following is the best description of ideas of value based mathematics education?

- (a) Mathematics education cannot be value free
(b) Mathematics education is the most valuable
(c) Value based mathematics education acknowledges and incorporates social,

cultural and political values in teaching learning processes

- (d) In mathematics examination, asking a value based question in the end develops moral values in students

Ans. (c) : Value based mathematics education acknowledges & incorporates social, cultural & political values in teaching learning process. Also the values of mathematics education are practical value, intellectual values, social values, moral values, disciplinary values, cultural values, international values, aesthetic values, vocational values & psychological values.

55. Which of the following sequence is correct for mathematical modeling?

- (a) The mathematical model—Real life problem—The mathematical solution – The solution in real world
(b) Real life problem—The mathematical model –The mathematical solution—The solution in real world
(c) The mathematical model—Real life problem—The solution in real world—The mathematical solution
(d) The mathematical model—Real life problem—The mathematical solution—The solution in real world

Ans. (b) : Mathematical modelling is the process of describing a real world problem in mathematical terms, usually in the form of equations, & then using these equations both to help understand the original problem, and also to discover new features about the problem.

Sequence for mathematical modeling:-

Real life problem → The mathematical model → The mathematical solution → The solution in real world

56. After the completion of topic “Parallelograms” in a mathematics class, a student says, “A square is also a rectangle and that a rectangle is also a special type of parallelogram”. The student is at which level of geometric reasoning according to Van Hiele’s theory of geometrical development?

- (a) Level 0 (Visualization/Recognition)
(b) Level 1 (Analysis)
(c) Level 2 (Relationships)
(d) Level 4 (Axiomatics)

Ans. (c) : According to Van Hiele’s theory of geometrical development, the student is at Level 2 (Relationships) of geometric reasoning.

Level 2 (Relationships)

- The students will be able to understand the relationships between the properties & figures.
- They can take part in informal deductive discussions & can discuss the different characteristics of figures which helps them in creating meaningful definitions.

57. Which of the following data sets cannot be represented using a pie chart?

- (a) A record of change in temperature in a day
(b) Percentage of marks obtained by students in a class of ‘n’ number of students

(c) Ratio of number of students belonging to different states in a classroom

(d) Monthly expenditure of a family in various sectors

Ans. (a) : A pie chart is a circle divided into sectors that represent data as proportions of a whole. It encodes a category and a fractional quantity. A record of change in temperature in a day is not a fractional quantity hence it can not be represented on a pie chart.

58. Which of the following involves generalization from numbers and computation with the use of meaningful symbols?

- (a) Geometric thinking (b) Algebraic thinking
(c) Statistical thinking (d) Numerical thinking

Ans. (b) : Algebraic thinking includes recognizing and analyzing patterns, studying & representing relationships, **making generalizations**, and analyzing how things change.

- Geometric thinking is the way in which students understand the spatial relationship between and within objects.
- Statistical thinking is the ability to understand a situation by accurately assessing probabilities, understanding variation and dealing effectively with uncertainty.
- Numerical thinking or reasoning focuses on students ability to think mathematically and apply his complex skills.

59. Which of the following is NOT an example of proportionality?

- (a) 4 candies cost Rs.5, and so 10 candies cost Rs. 12.50
(b) Ravi’s mother’s age is two times that of Ravi’s age at present, so when Ravi will be 30 years old, his mother will be 60 years old.
(c) A car covers 8km in 3 hours at a constant speed, it will cover 12 km in $4\frac{1}{2}$ hours.
(d) The ratio of number of teachers to that of students in a school has to be 2:30, so for 300 students, there has to be 20 teachers.

Ans. (b) : The term proportionality describes the relationship among variables that are in the same ratio. Among the given option in option (b) the relationship among ages are not proportional.

60. According to National Curriculum Framework (2005), which of the following is LEAST effective to enhance mathematics learning in the classroom?

1. Connecting concepts to real-life situations
 2. Giving frequent tests
 3. Using mathematical games and puzzles
 4. Creating competition amongst learners
- (a) 1 and 3 (b) 2 and 4
(c) 1, 3 and 4 (d) Only 3

Ans. (b) : NCF-2005, stated that the main goal of Mathematics education in schools is the mathematization of the child’s thought processes.

Some specific aims of mathematics education:-

- Connecting concepts to real-life situations.
- Using mathematical games & puzzle.
- To apply mathematics in other subjects
- To prepare them for the learning mathematics of higher classes.

61. Match the items given in column A with that in column B

Column A (Deficiency of vitamin/mineral)	Column B (Deficiency disease/disorder)
A. Vitamin-A	(I) Goitre
B. Vitamin-B	(II) Anaemia
C. Vitamin-C	(III) Scurvy
D. Iron	(IV) Loss of vision
	(V) Beri-Beri
	(VI) Rickets

(a) A - IV, B - VI, C - V, D - II

(b) A - IV, B - V, C - III, D - II

(c) A - VI, B - V, C - III, D - I

(d) A - IV, B - I, C - III, D - II

Ans. (b) :

Deficiency of Vitamins/mineral	Deficiency disease/disorder
A. Vitamin A	(iv) Loss of vision.
B. Vitamin B	(v) Beri-Beri.
C. Vitamin C	(iii) Scurvy.
D. Iron	(ii) Anaemia.
E. Vitamin D	(vi) Rickets.
F. Iodine	(i) Goitre.

62. Incomplete combustion of fuels produces a gas which is poisonous and reduces the oxygen carrying capacity of the blood. This gas is

- (a) Carbon dioxide (b) Carbon monoxide
(c) Nitrogen oxide (d) Sulphur dioxide

Ans. (b) : During incomplete combustion of fuels the carbon is not completely oxidized so it will produce carbon monoxide (CO). Incomplete combustion of fuels are inefficiently and the carbon monoxide produced is health hazard.

Carbon monoxide is a very poisonous gas that reduces the oxygen-carrying capacity of the blood.

63. An object of mass 200 kg is sliding on a smooth horizontal frictionless surface with a constant velocity of 5m/s. The force required to keep the object moving with the same velocity is

- (a) 10000 Newtons (b) 1000 Newtons
(c) 100 Newtons (d) Zero Newtons

Ans. (d) : Newton's first law states that if a body is at rest or moving at a constant velocity in a straight line. It will remain at rest or keep moving in a straight line at constant velocity unless an external force is applied to it. Since body is moving on frictionless surface so friction force will be zero. Hence, force required to keep object moving with same velocity is zero.

64. Consider the following statements about a rainbow

1. It appears usually after the rains
2. At the time of rainbow the sun is high in the sky
3. To observe a rainbow the observer's back should be towards the sun.
4. In the formation of a rainbow the water droplets in the atmosphere act as a prism.

The correct statements are -

- (a) 1, 2 and 3 (b) 1, 3 and 4
(c) 2, 3, 4 (d) 1, 2, 4

Ans. (b) : Rainbow-A rainbow is a meteorological phenomenon that is caused by reflection, total internal reflection and dispersion of light due to water droplets resulting in a spectrum of light appearing in the sky.

- It appears usually after the rains
- To observe a rainbow the observer's back should be towards the sun.
- In the formation of a rainbow the water droplets in the atmosphere act as a prism.
- Rainbows can only be seen in the sky when the sun is behind us.

65. Match the items of column I with that of column II

Column I	Column II
A. Algae	I. Chlamydomonas
B. Bacteria	II. Amoeba
C. Fungi	III. Omicron
D. Protozoa	IV. Aspergillus
	V. Lactobacillus

- (a) A - I, B - V, C - IV, D - II
(b) A - I, B - III, C - IV, D - II
(c) A - IV, B - V, C - III, D - I
(d) A - I, B - V, C - III, D - II

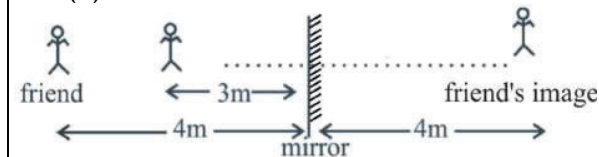
Ans. (a) : The correct match is as follows-

Chlamydomonas	- Algae
Aspergillus	- Fungi
Lacto bacillus	- Bacteria
Amoeba	- Protozoa
Omicron	- Virus

66. Suppose you are standing in front of plane mirror fixed on the wall of a gallery. You are at a distance of 3m and your friend is at a distance of 4m from the mirror. What is the distance between you and the image of your friends?

- (a) 8 m (b) 7 m
(c) 6 m (d) 4 m

Ans. (b) :



Distance between you & image of your friend = 3 + 4 = 7m.

67. Select from the following, a planet of solar system which has highly tilted rotational axis as a result of which in its orbital motion appears to roll on its side.

- (a) Mercury (b) Neptune
(c) Saturn (d) Uranus

Ans. (d) : Uranus is outer most planet of solar system rotates from east to west and it is tipped over on its side with an axial tilt of 98 degrees. So it has a highly tilted rotational axis, as a result of which in its orbital motion appears to roll on its side.

68. The speed of sound in air is 320 m/s. If the wavelength of a sound wave is 640 cm, its time period is

- (a) 5 second (b) 2 second
(c) 0.5 second (d) 0.02 second

Ans. (d) : Given, $v = 320 \text{ m/s}$
 $\lambda = 640 \text{ cm} = 6.40 \text{ m}$
Wavelength (λ) = speed of sound (v) \times Time period (T)
 $6.40 = 320 \times T \quad \left\{ \because n = \frac{1}{T} \right\}$
 $T = \frac{6.40}{320} = 0.02 \text{ second}$

69. Aqueous solution of which one of the following oxides will turn blue litmus solution to red

- (a) Copper oxide (b) Calcium oxide
(c) Sulphur dioxide (d) Magnesium oxide

Ans. (c) : • Acids turn blue litmus paper to red.
• Bases turn litmus paper from red to blue.
• Sulphur dioxide is non-metallic acidic oxide so, sulphur dioxide will turn blue litmus to red. Because non-metallic oxides are acidic in nature.

70. Which of the statement is false in the context of chromium plating?

Chromium is used for electroplating because

- (a) It has a dull appearance
(b) It does not corrode
(c) It resists scratches
(d) It is expensive to make the whole object out of it

Ans. (a) : Chromium metal has a shiny appearance and it does not corrode.

• Chromium metal is quite expensive and hence it is not economical to make whole object out of chromium.
• Chromium plating is done on many objects made of iron metal such as bicycle, handle bars, wheel rims, motorcycle parts etc.
• Chromium resists scratches.
Hence, the statement (a) is false in the context of chromium plating.

71. Match the following processes of crop cultivation in column A with the statement in column B

Column A	Column B
(a) Harvesting	(i) Water falls drop by drop directly near the roots

(b) Threshing	(ii) Growing different crops alternately
(c) Crop rotation	(iii) Cutting of crops after its maturation
(d) Drip system	(iv) Grain seeds separated from chaff

- (a) (a)–(iv), (b)–(iii), (c)–(i), (d)–(ii)
(b) (a)–(iii), (b)–(ii), (c)–(iv), (d)–(i)
(c) (a)–(iii), (b)–(iv), (c)–(ii), (d)–(i)
(d) (a)–(ii), (b)–(iv), (c)–(iii), (d)–(i)

Ans. (c) : Harvesting- Cutting of crops after its maturation.

Threshing- Grain seeds separated from chaff.

Crop rotation- Growing different crops alternately.

Drip system- Water falls drop by drop directly near the roots.

72. When human beings inhale oxygen during respiration, which of the following movement does **NOT** take place?

- (a) The air is drawn in through the nostrils
(b) Ribs move out
(c) Diaphragm moves up
(d) Lungs expand

Ans. (c) : When human being inhale oxygen during respiration then following movements occurs–

- (1) The air is drawn in through the nostrils
(2) Ribs move out
(3) Diaphragm moves downward towards the abdomen
(4) Lungs expand.

73. Choose the incorrect statement about xylem.

- (a) It is a tissue.
(b) It is a pipe-like vessel.
(c) It transports food and nutrient from leaves to other parts.
(d) Transpiration produces suction pull in it.

Ans. (c) : Xylem is a specialized type of vascular tissues (pipe like vessel) created in vascular plants to transport water and nutrients from the roots of plants to the tip of leaves. In it, transpiration produces suction pull.

74. You have made a pinhole camera and you obtain the image of a distance building on its screen. The image formed on the screen is always:

- (a) Real, inverted, coloured and highly diminished
(b) Real, erect, coloured and highly diminished
(c) Real, laterally inverted, coloured and diminished
(d) Virtual, erect, coloured and diminished

Ans. (a) : A pinhole camera is a simple camera that does not have any lens but with a tiny aperture effectively light proof box with a small hole in one side. Light from an object passes through the aperture and projects an inverted image on the opposite side of the box, The size of image depends on the distance between the object and the pinhole.

The image formed on screen is always real, inverted, coloured and highly diminished.

75. Select from the following, a metal which reacts with dil. H_2SO_4 but does not react with dil. HCl even on heating.

- (a) Calcium (b) Iron
(c) Copper (d) Magnesium

Ans. (c) : Copper does not react with dilute hydrochloric acid (HCl) even on heating but reacts with dilute sulphuric acid (H_2SO_4). Copper has more reduction potential than hydrogen which means that copper is less reactive than hydrogen. Hence it can not displace hydrogen from non oxidizing HCl.

76. Consider the following statements about arteries

1. Arteries are the blood vessels which carry oxygen rich blood from the heart to all parts of the body at a high pressure
2. To ensure that the blood flows only from the heart to other body parts, the arteries have valves
3. The walls of the arteries are comparatively thin

The correct statement is/are

- (a) Only 1 (b) Only 2
(c) 1 and 2 (d) 1 and 3

Ans. (a) : Arteries are blood vessels which carry oxygen rich blood from heart to all parts of body at high pressure.

- Usually arteries do not have valves but two arteries originating from right and left ventricles have valves to prevent back flow of blood i.e. to ensure that the blood flows only from the heart to other parts of body.
- Arteries have relatively thick muscular walls because blood pressure in them is high and they must adjust their diameter to maintain blood pressure and to control blood flow.

77. Consider the following characteristics of plants

1. Broad and flat leaves
2. Photosynthesis carried out by stems
3. Roots going very deep
4. Very little loss of water through transpiration
5. Cone shaped plants with sloping branches

The characteristics normally found in desert plants are

- (a) 1, 2, 4 and 5 (b) 2, 3 and 4
(c) 1, 3 and 4 (d) 2, 3, 4 and 5

Ans. (b) : Characteristics of Desert Plants:-

- Leaves are very small or reduce to spines and hence they loss very little water through transpiration.
- Their roots grow very deep into the soil for absorbing water.
- In desert plants the leaves are reduced to spines so the process of photosynthesis is carried out by the stem.

Note:- The trees in mountain habitat are usually cone-shaped having sloping branches because of this shape the mountain trees make the rain water and snow slide off easily without damaging the branches and leaves.

78. Consider the following statements

1. In photosynthesis solar energy is converted into chemical energy.
2. In photosynthesis CO_2 and water are used.
3. In photosynthesis CO_2 is released and O_2 is consumed.
4. In photosynthesis O_2 is released and CO_2 is consumed.
5. Photosynthesis takes place both during day and night.

The correct statements are

- (a) 1, 2 and 3 (b) 2, 3 and 4
(c) 1, 4 and 5 (d) 1, 2 and 4

Ans. (d) : Photosynthesis is the process in which solar energy is converted to chemical energy in the form of glucose.

- In Photosynthesis solar energy is converted into chemical energy.
- During Photosynthesis in green plants, light energy (solar) is captured and used to convert water, CO_2 , and minerals into oxygen and energy-rich compounds like glucose.
- In Photosynthesis CO_2 is consumed and O_2 is released.
- Photosynthesis occur only during the day when there is the sunlight but plant respire through out the day and night.

79. Consider the following statements.

1. The small intestine is highly coiled and shorter than the large intestine.
2. Small intestine receives secretions from the liver and the pancreas.
3. Liver is the largest gland in the body which secretes bile juice.
4. The pancreatic juice acts on vitamins and change them into simpler forms

The correct statements are

- (a) 1 and 2 (b) 2 and 3
(c) 4 and 1 (d) 1, 2 and 3

Ans. (b) : The small intestine is highly coiled and longer than the large intestine.

- Small intestine receives secretions from the liver and pancreas.
- Liver is the largest gland in the body which secretes bile juice.
- Pancreatic juice contains digestive enzymes that help to break down of carbohydrates, proteins and lipids in the chyme.

Hence, statement 2, and 3 are correct.

80. Match the items of column I with that of column II

- Column I
- A. Penicillin
 - B. Small pox vaccine
 - C. Fermentation
 - D. Bacillus Anthracis

- Column II
- I. Robert Koch
 - II. Gregor Mendel
 - III. Louis Pasteur
 - IV. Alexander Fleming
 - V. Edward Jenner

- (a) A – IV, B – V, C – III, D – I
 (b) A – IV, B – V, C – II, D – I
 (c) A – IV, B – II, C – III, D – I
 (d) A – V, B – IV, C – I, D – III

Ans. (a):

- A. Penicillin - (iv) Alexander Fleming
 B. Small pox vaccine - (v) Edward Jenner
 C. Fermentation - (iii) Louis Pasteur
 D. Bacillus Anthracis - (i) Robert Koch.

81. Which of the following statement (s) is/are individually true in respect of both magnetic lines of force and rays of light?

- A. They are theoretical constructs.**
B. They are visual representations that help in understanding physical phenomena.

- (a) Only A (b) A and B
 (c) Only B (d) Neither A nor B

Ans. (b) : Magnetic field lines are a visual representation of the invisible lines of force for a magnetic field.

Magnetic field lines always begin from the north pole & end at the south pole.

- Both magnetic lines of force & rays of light are hypothetical constructs.
- The light emitted by a small localized source is represented by a collection of rays pointing radially outward from an idealized "point source".

82. Which of the following best explains the concept of cognitive validity of a science curriculum

- (a) Focus on hands-on activities in curriculum
 (b) Age-appropriateness of curricular materials
 (c) Focus on continuous assessment
 (d) Respect for constitutional value in curriculum

Ans. (b) : Cognitive validity of a science curriculum requires the content, process, language and pedagogical practices of the curriculum are age appropriate, and within the cognitive reach of the child.

83. Which of the following should be the hall-marks of a science curriculum at upper primary stage as per NCF-2005.

- (a) Science should be introduced as separate disciplines like physics, chemistry and biology.
 (b) Science content should be regarded as a diluted version of a secondary stage science.
 (c) There should be a strict separation between academic and vocational streams.
 (d) Scientific concepts should be arrived at mainly from activities and experiments.

Ans. (d) : Hall-marks of a science curriculum at upper primary stage as per NCF-2005 are to Engage learners in learning activities, science fairs, experiments and project work, learners' science congress, co-curricular activities etc to promote curiosity, inquisitiveness & creativity.

84. Which of the following strategies will NOT be helpful in bridging the rural-urban divide in Science Education?

- (a) Reflecting rural life- styles in curriculum
 (b) Dealing with issues like 'food' in the context of an agrarian economy.
 (c) Organising science camps and exhibitions at cluster and block level.
 (d) Basing rural school curriculum on relatively simpler concepts.

Ans. (d) : Simpler concept doesn't help out in filling the gap of rural-urban divide instead there should be inclusive curriculum for students in which they learn the same thing/concepts.

85. A teacher along with her class VII students is trying to understand how plants grow. They planted a number of tomato seeds at various depths and at various places in their school garden and took care of them. After some time, they observed that a few seeds began to develop as plants while others died out. The teacher asked the students to use their observations and think of the factors to due to which some seeds could not develop. Which process skill is likely to be developed through this exercise?

- (a) Hypothesising (b) Predicting
 (c) Classifying (d) Measuring

Ans. (a) : Hypothesising is an empirically testable proposition about some fact, behavior, relationship, or the like, usually based on theory, that states an expected outcome resulting from specific conditions or assumptions. The above mentioned situation depicts the same definition.

86. Read the following paragraph

In 1822, a man named Alexis St. Martin was badly hit by a shot-gun. The bullet had seriously damaged the chest wall and made a hole in his stomach. He was brought to an American army doctor William Beaumont who saved the patient but could not close the hole properly and left it bandaged. He used this as opportunity to see the inside of the stomach to some gain an understanding about the process of digestion?

Which of the following understanding (s) about development of scientific knowledge is conveyed in this paragraph

1. Science proceeds systematically according to pre-determined steps
2. Science requires careful observation and creative response to situations

- (a) Only 1 (b) Only 2
 (c) 1 and 2 (d) Neither 1 nor 2

Ans. (b) : According to this appropriate passage, the understanding conveyed about the development of scientific knowledge is that 'Science requires careful observation & creative response to situations'. Scientific knowledge is subject to revision and refinement as new data, or new ways to interpret existing data.

87. Which of the following is NOT a desirable practice in the context of teaching & learning of science?

- (a) Examples and insights from other subjects are liberally used wherever required.
- (b) Focus should be on getting the right answers from students and not on their incorrect responses.
- (c) Free-play and open-investigations should be given due importance.
- (d) Local context should be used for enhancing conceptual clarity.

Ans. (b) : Establishing & maintaining classroom environments that are learner centered-identifying, confronting, and resolving preconceptions, and beginning instruction with what students know are some of the desirable practices of for science teaching.

- Focusing on getting the right or wrong answer is in context of memorization of subjects.

88. A teacher gives the example of flow of water from high pressure in a water tank to low pressure to explain the concept of potential difference to her students. Which pedagogic device is she using?

- (a) argumentation
- (b) analogy
- (c) real artefact
- (d) open-ended questioning

Ans. (b) : Teaching with Analogy is a learning model that provides guidelines to build linkages between something is already known and something new to learn or learn abstract concept through other concept that have learned before or daily life context.

89. A teacher is trying to introduce her class VII students to different kinds of soil. She begins by introducing the names of three kinds of soil i.e. sandy soils, clayey soil and loamy soil. She explains the properties of each soil in term of its particulate nature. She then demonstrates one sample of each kind of soil and shows the students the difference in percolation rate of an examples. How would you evaluate this approach from an inquiry oriented perspective?

- (a) It is an effective approach that encourage inquiry.
- (b) Demonstrating more soil samples would make the approach inquiry-oriented.
- (c) It is not an effective approach for encouraging inquiry.
- (d) Asking questions in the end would make the approach inquiry- oriented.

Ans. (c) : The given situation is not an effective approach for encouraging inquiry. It is teaching approach in which teacher his giving some particular information to students to learn about soil. It is a demonstration type of teaching.

90. 'A burning candle gets put out after some time of being covered with a glass jar.' Which of the following inference can be drawn from the above observation?

- 1. Air is required for the burning of candle.

2. Oxygen is required for the burning of candles.

- (a) Only 1
- (b) Only 2
- (c) Both 1 & 2
- (d) Neither 1 nor 2

Ans. (a) : CO₂ molecules are heavier than air. Because of this, they push the oxygen & other molecules in the air out of the way as they sink down over the flame & candle. When oxygen is pushed away from the wick, it can't react with the wax anymore. This makes the flame go out.

PART-III LANGUAGE-I : ENGLISH

(Question Numbers : 91 to 99)

Read the passage given below and answer the questions/complete the statements that follow by choosing the most appropriate options out of the given ones.

1. The term 'multitasking' originated as computer jargon for the situation when the central processing unit switches back and forth between different programs. While the human capacity for simultaneously handling multiple tasks has been discussed and studied for centuries, the book is for from closed on how well we can or can't do it.

2. Let us look at a fairly common workplace scenario; writing an email to one colleague, while talking on the phone to another. As you are talking, you have temporarily, put the skills needed to type (spelling, grammar, manipulating your fingers across the keyboard) on hold. When you turn your attention back to the computer, you then suspended the etiquette of conversation (which may leave your co-worker ask, "Are you still there?"). So we are not really doing these things another," says Pierre Jolicoeur, the research Chairperson in Experimental Cognitive Science at the University of Montreal, Canada, who studies how the human brain handles multiple tasks. "Task switching" is probably a more accurate description, and though the switch may occur in a fraction of second, there is an associated task-switch cost, the amount of time lost with each switch.

3. As we try to do more and more things in less and less time, 'often error creeps in, we call that a speed accuracy trade-off', says Jolicoeur.

91. The term "Multitasking means :

- (a) a skill to do a number of different tasks simultaneously
- (b) a skill investing money in different profitable shares
- (c) a job in which you are posted at different stations.
- (d) difficulty faced by an individual in moving from one task to another simultaneously

Ans. (a) : The term 'Multitasking' means a skill to do a number of different task simultaneously as it was mentioned in the first stanza of the passage.
Hence option (a) is correct.

92. 'The book is far from closed implies :

- (a) The debate is over
- (b) the debate is meaning less
- (c) the discussion is still ongoing
- (d) the results of the discussion is still pending

Ans. (c) : The book is far from closed implies discussion is still ongoing. It was mentioned in the last line of the first stanza.
Hence option (c) is correct.

93. Your co-worker is forced to ask, "Are you still there?"

- (a) Networking issue
- (b) Multi-tasking issue
- (c) Lack of etiquette
- (d) Lack of interest

Ans. (b) : Your co-worker is forced to ask, "Are you still there?" is a multitasking issue. It was mentioned in the second stanza of the passage.
Hence option (b) is correct.

94. What, according to Pierre Jolicoeur, is 'multitasking'?

- (a) doing many different tasks within a very short span of time
- (b) accomplishing many different tasks within a very short span of time.
- (c) many people working on a particular task simultaneously
- (d) doing one task and then another almost immediately

Ans. (a) : According to Pierre Jolicoeur, 'multitasking' is doing many different tasks within a very short span of time. It was mentioned in the second stanza of the passage.
Hence option (a) is correct.

95. Read the following statements. Errors creep in when

- (A) We do more things in less time because the information which goes to our brain gets all mixed up.
 - (B) The information which goes to our brain queues up to be processed within the fraction of a second
- (a) (A) is true and (B) false
 - (b) (A) is false and (B) true
 - (c) both (A) and (B) are true
 - (d) both (A) and (B) are false

Ans. (b) : According to the passage, statement (A) 'We do more things in less time because the information which goes to our brain gets all mixed up' is false while statement (B) 'The information which goes to our brain queues up to be processed within the fraction of a second' is true as it was mentioned in the last lines of the second stanza of the passage.
Hence option (b) is correct.

96. In 'cognitive science' the word cognitive is used as a/an

- (a) adjective
- (b) adverb
- (c) noun
- (d) verb

Ans. (a) : In 'cognitive science' the word cognitive is used as an 'Adjective'. It means connected with the processes of understanding (मेब%eeveelckeâ).
Hence option (a) is correct.

97. 'Switch cost' in para 2 means

- (a) time loss in each switch over process
- (b) time gained in each switch over process
- (c) calculation of cost of each switch
- (d) process of multitasking

Ans. (a) : 'Switch cost' in para 2 means time loss in each switch over process.

Switching costs are the costs a consumer pays as a result of switching brands or products.

Hence option (a) is correct.

98. The word 'jargon' in para 1 means :

- (a) magic
- (b) mystery
- (c) idiom
- (d) explanation

Ans. (c) : The word 'jargon' in para 1 means idiom.

Jargon is used as a noun for some special or technical words that are used by a particular group of people in a particular profession and that other people do not understand (शब्दजाल).

Hence option (c) is correct.

99. 'put on hold' in para 2 implies

- (a) turn your attention
- (b) suspend
- (c) handle
- (d) manipulate

Ans. (b) : 'Put on hold' in para 2 implies 'suspend'. 'Put on hold' means to decide not to do change, or deal with something now, but to leave it until later.

Hence option (b) is correct.

Question Number : (100 to 105)

Read the extract given below and answer the questions/ complete the statements that follow by choosing the most appropriate options out of the given ones.

Baraj says with hands clasped, Master our days are gone—

New men have come now, new styles and customs in the world.

Don't ask anymore to listen to me now, I beg you at your feet, my lord.

The singer alone does not make a song, there has to be someone who hears;

One man opens his throat to sing, the other sings in his mind.

Only when waves fall in the shore, do they make a harmonious sound.

Only when breezes shake the woods do we hear a rustling in the leaves.

Only from a marriage of two forces does music arise in the world.

100. Who is Baraj?

- (a) a singer
- (b) a courtier
- (c) a court singer
- (d) a minister

Ans. (c) : Baraj is a court singer as it can be easily understood from the text.

Hence option (c) is correct.

101. 'Our days are gone'. The speaker means to say that:

- (a) he has become old
- (b) new people have come
- (c) his listener have become old
- (d) there are new fashions in singing now

Ans. (d) : 'Our days are gone' the speaker means to say that these are new fashions in singing now. It was mentioned in the first and second line of the text. Hence option (d) is correct.

102. Study the following statements :

- (A) In olden day Baraj had many admirers
 - (B) Now people have developed new tasks
 - (C) A singer sings and listeners only listen
- (a) (A) is right and (B) is wrong
 - (b) (B) is right and (C) is wrong
 - (c) (C) is right and (A) is wrong
 - (d) Both (A) and (B) are wrong

Ans. (b) : According to the text, statement (B) 'Now people have developed new tasks' is right and statement (C) 'A singer sings and listeners only listen' is wrong. Hence option (b) is correct.

103. Match the following

- | | |
|-------------|----------------|
| (a) breezes | (i) shore |
| (b) waves | (ii) listeners |
| (c) singer | (iii) woods |
- (a) (a) - (i), (b) - (ii), (c) - (iii)
 - (b) (a) - (ii), (b) - (iii), (c) - (i)
 - (c) (a) - (iii), (b) - (ii), (c) - (i)
 - (d) (a) - (iii), (b) - (i), (c) - (ii)

Ans. (d) :
(a) Breezes – (iii) woods
(b) Waves – (i) shore
(c) Singer – (ii) listeners
It was mentioned in the last line of the text. Hence option (d) is correct.

104. 'from a marriage of two forces'

The figure of speech use here is ;

- (a) Simile
- (b) Metaphor
- (c) Personification
- (d) Symbol

Ans. (b) : The figure of speech used in the line 'from a marriage of two forces' is metaphor. Metaphor is a figure of speech that, for rhetorical effect, directly refers to one thing by mentioning another. It may provide clarity or identify hidden similarities between two different ideas. Hence option (b) is correct.

105. Study the following statements :

- (A) A king can persuade his courtiers to enjoy a song
 - (B) Cordial relationship must exist between a singer and his listeners.
- (a) (A) is right and (B) is wrong
 - (b) (B) is right and (A) is wrong
 - (c) Both (A) and (B) are right
 - (d) Both (A) and (B) are wrong

Ans. (b) : According to the text, statement (B) 'Cordial relationship must exist between a singer and his listeners' is right while statement (A) 'A king can persuade his courtiers to enjoy a song' is wrong. Hence option (b) is correct.

106. Productive vocabulary are _____

- (a) words which we use when we listen to them and read them
- (b) words which we use when we listen to others
- (c) words which we use when we read a text
- (d) words which we use when we speak or write

Ans. (d) : Productive vocabulary are words which we use when we speak or write. Productive vocabulary/an individuals vocabulary as defined by the words that he or she regularly uses, as opposed to those that he or she can understand when used by others. It is also called active vocabulary. Hence option (d) is correct.

107. What is India's language-in-school education policy known as?

- (a) Official language policy
- (b) Multilingual education
- (c) Mother tongue based multilingual education
- (d) Three language formula

Ans. (d) : India's language in school education policy is known as three language formula. The three language learned by children will be the choices of states, regions and of course the students themselves. However, at least two of the three language should be nature to India, one of which is most likely to be the local/regional language. The rule will apply to both private and public schools. Hence option (d) is correct.

108. Drilling as a strategy for internalizing the pattern is advocated by _____

- (a) Communicating Language Teaching
- (b) Audiolingualism
- (c) Total physical response
- (d) Constructivist language teaching

Ans. (b) : Drilling as a strategy for internalizing the pattern is advocated by audiolingualism. Audiolingualism is a method of language teaching inspired by behaviourism and based around the repetition of correct sentences. In audiolingualism, drills are used to faster the formation of positive habits and focus mainly on the presentation and practice of grammatical structures. Hence option (b) is correct.

109. 'Scaffolding hypothesis' believes _____

- (a) that social interaction provides the substantive means by which learning occurs.
- (b) in teaching the same skill many times through various mean
- (c) that learning vocabulary is essential for language learning
- (d) that interaction leads to developing grammatical competence and language learning