1. To understand individual differences in development it is important
   (1) to look at the environmental factors that affect individuals.
   (2) to consider maturation of the body and the brain.
   (3) to consider both inherited characteristics as well as environmental factors and their interplay.
   (4) to look at the inherited characteristics that give each person a special start in life.

2. Which of the following is not a principle of development?
   (1) Development is relatively orderly.
   (2) Development takes place gradually over a period of time.
   (3) Exact course and nature of development is determined at the time of birth itself.
   (4) Individuals develop at different rates.

3. Several research studies show that teachers have more overall interaction with boys than girls. What is the correct explanation for this?
   (1) Boys need more attention than girls.
   (2) This is an example of gender bias in teaching.
   (3) Boys are easier to manage than girls in the classroom.
   (4) Boys have much more academic capabilities than girls.

4. Which of the following is central to the concept of progressive education?
   (1) Belief in the capability and potential of every child
   (2) Standard instruction and assessment
   (3) Extrinsic motivation and uniform assessment parameters
   (4) Textbook centric learning

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1. विकास में वैज्ञानिक विभिन्नता को समझने के लिए क्या महत्वपूर्ण है?
   (1) पश्चिमी विश्व के प्राचीन समय जो लोगों को प्रभावित करते थे ।
   (2) गर्भीय एवं प्रभाव जीवन के परिपक्व के बीच का समय ।
   (3) विश्व विश्वसों के साथ-साथ परवर्ती समय व कार्य के उनकी परस्परिक क्रिया पर विचार करना ।
   (4) विश्व विश्वसों पर विचार करना जो प्रथम व्यक्ति को जीवन में विशेष नुकसान देती है ।

2. निम्नलिखित में से कौन सा विकास का सिद्धांत नहीं है?
   (1) विकास तुलनात्मक तरीके से क्रमिक होता है।
   (2) विकास समय के साथ धीरे-धीरे घटता होता है।
   (3) विकास की सतीक गति एवं प्रकृति जन्म के समय ही निर्धारित हो जाती है।
   (4) व्यक्ति अलग-अलग गति से विकास करते हैं।

3. अनेक शोध अध्ययनों से पता चलता है कि शिक्षक लड़कियों की अपेक्षा लड़कों को अधिक परामर्शिक क्रिया करते हैं। इसका क्या विवेचन क्या है?
   (1) लड़कियों की तुलना में लड़कों को अधिक अवधारणा की आवश्यकता उत्पन्न होती है।
   (2) यह शिक्षण में लिंग पश्चात्त का एक उदाहरण है।
   (3) कला में लड़कियों की तुलना में लड़कों को अधिक आसानी से निर्दिष्ट किया जा सकता है।
   (4) लड़कियों की तुलना में लड़कों में शैक्षिक क्षमता से काफी अधिक होती है।

4. निम्नलिखित में से कौन सा अवधारणा शिक्षा की अवधारणा के बारे में प्रमुख है?
   (1) प्रथम व्यक्ति की क्षमता एवं समझना में विवाह करना।
   (2) मात्रक विवरण एवं मूल्यांकन
   (3) बाहर वक्ता एवं एकत्रित भूमिकाओं मानदंड
   (4) पाठ्यपुस्तक केंद्रीय अधिग्रह
5. What instructional adaptations should a teacher make while working with students who are 'Visually Challenged'?
   (1) Use a variety of visual presentations.
   (2) Orient herself so that the students can watch her closely.
   (3) Focus on a variety of written tasks especially worksheets.
   (4) Speak clearly and use a lot of touch and feel materials.

   (1) should be actively discouraged
   (2) should be occasionally used
   (3) should not be used
   (4) should be actively promoted

7. Which of the following is most important in an inclusive classroom?
   (1) Standardized testing
   (2) Promoting competitive learning
   (3) Individualized education plan
   (4) Uniform instruction

8. Which of the following is a correctly matched pair of learners and their primary characteristics?
   (1) 'Dyslexic' learners – Lack reading and writing fluency
   (2) Creative learners – Hyperactive; slow in completing work
   (3) Attention deficit learners – High motivation; can sustain attention for long periods of time.
   (4) Hearing impaired learners – Cannot comprehend visual information

9. The ability to come up with original and divergent solutions to a problem is a primary characteristic of
   (1) Impaired children
   (2) Creative children
   (3) Children with learning disability
   (4) Egocentric children

10. 'दूरस्थ रूप से बाधित' विद्यार्थियों के साथ कार्य करते समय एक शिक्षक को किस प्रकार के अनुदेश अनुसूचित करने चाहिए?
    (1) कई प्रकार की दूरस्थ प्रौद्योगिकियों का प्रयोग करना।
    (2) स्वयं अभिव्यक्ति करना ताकि विद्यार्थी उसे ध्यान से रख सके।
    (3) अनेक प्रकार के लिखित कार्य, विशेष रूप से वेबसाइटों पर ध्यान केंद्रित करना।
    (4) स्वयं रूप से बोलना तथा छुटकारा महसूस करने वाली सामग्रियों का अधिक मात्रा में प्रयोग करना।

11. सहयोगी अधिग्रह एवं हमस्त्र साइटों के द्वारा शिक्षण का एक समावेशी कक्षा में किस प्रकार से उपयोग करना चाहिए?
    (1) सहकार्य रूप से हल्केहलाहत करना चाहिए।
    (2) कभी-कभी प्रयोग करना चाहिए।
    (3) प्रयोग नहीं करना चाहिए।
    (4) सहकार्य रूप से आगे बढ़ना चाहिए।

12. निम्नलिखित में से कौन सा समावेशी कक्षा में सबसे अधिक महत्त्वपूर्ण है?
    (1) मानकीकृत परीक्षा
    (2) प्रतियोगी अधिग्रह को बढ़ावा देना
    (3) बिना शिक्षा योजना
    (4) एकक रूप निर्देश

13. अधिग्रहकर्ताओं एवं उनकी प्राथमिक विशेषज्ञताओं के मिलान युगों में से निम्नलिखित में से कौन सा सही है?
    (1) 'पदन-अशक्त' अधिग्रहकर्ता धारा प्रवाह पढ़ने एवं लिखने में कमी है।
    (2) सुधित अधिग्रहकर्ता अदिशिक्षित; कार्य को पूरा करने में धीमे हैं।
    (3) अधिग्रहकर्ता कभी-कभी अधिग्रहकर्ता उच्च अभिप्रेरणा, लघु समय तक अधिग्रह बनाए रख सकते हैं।
    (4) बच्चे कंप्यूटर अधिग्रहकर्ता दूरस्थ सूचनाओं को समझ नहीं सकते हैं।

14. एक समस्या को मूल तथा अपर्याप्त समाधानों के साथ करने की योजना निम्नलिखित में से किसकी एक प्राथमिक विशेषता है?
    (1) व्यक्तिगत बच्चों की
    (2) सुधित अधिग्रहकर्ता की
    (3) अधिग्रहकर्ता कार्य की
    (4) अधिग्रहकर्ता की
10. Which of the following would not be consistent with a constructivist environment?

(1) Students work collaboratively and are given support to engage in task-oriented dialogue with each other.

(2) Teachers elicit students’ ideas and experiences in relationship to key topics and plant teaching-learning to elaborate or restructure their current knowledge.

(3) Teachers employ specific end of the term assessment strategies and give feedback on products rather than processes.

(4) Students are given frequent opportunities to engage in complex, meaningful, problem-based activities.

11. A teacher should encourage students to set ___________ rather than ___________.

(1) performance goals; learning goals

(2) failure avoiding goals; marks seeking goals

(3) marks seeking goals; failure avoiding goals

(4) learning goals; performance goals

12. Which of the following does not result in meaningful facilitation of learning?

(1) Promoting repetition and recall

(2) Use of examples and non-examples

(3) Encouraging multiple ways of looking at a problem

(4) Connecting new knowledge to pre-existing knowledge
13. Which of these is an example of extrinsic motivation?
   (1) “I learn so much when I do my homework.”
   (2) “Doing homework makes me understand my concepts better.”
   (3) “I complete my homework because the teacher gives us marks for each assignment.”
   (4) “I enjoy doing my homework because it is so much fun.”

14. In a primary classroom a teacher should
   (1) give only non-examples
   (2) give both examples and non-examples
   (3) not give any examples and non-examples
   (4) give only examples

15. Which of the following strategies would promote meaning-making in children?
   (1) Transmission of information
   (2) Using punitive measures
   (3) Uniform and standardized testing
   (4) Exploration and discussion

16. Which of the following are examples of effective learning strategies?
   (i) Setting goals and time tables
   (ii) Making organizational charts and concept maps
   (iii) Thinking of examples and non-examples
   (iv) Explaining to a peer
   (v) Self-questioning
   (1) (i), (iv), (v)
   (2) (i), (ii), (iii), (v)
   (3) (i), (ii), (iii), (iv), (v)
   (4) (i), (ii), (iii)

13. इनमें से कौन सा बाद्ध अभिप्रेरणा का एक उदाहरण है?
   (1) “मैं बहुत अधिक सीखती हूँ जब मैं अपना गृहकार्य करती हूँ।”
   (2) “गृहकार्य करने से मैं अपनी अवधारणाओं को अच्छी तरह से समझ पाती हूँ।”
   (3) “मैं अपना गृहकार्य पूरा करती हूँ क्योंकि शिक्षक प्रत्येक नियत कार्य के लिए हमें अंक देते हैं।”
   (4) “मैं अपना गृहकार्य करना पसंद करती हूँ क्योंकि यह बहुत आनन्ददायक है।”

14. एक प्राथमिक कक्षाकार में एक शिक्षक को क्या करना चाहिए?
   (1) केवल गैर-उदाहरण दें चाहिए।
   (2) उदाहरण एवं गैर-उदाहरण दें चाहिए।
   (3) उदाहरण या गैर-उदाहरण दें नहीं दें चाहिए।
   (4) केवल उदाहरण दें चाहिए।

15. निम्नलिखित रणनीतियों में से कौन सी बच्चों में अर्थ निर्माण का बढ़ावा देगी?
   (1) सूचनाओं का संचरण
   (2) दंशकात्मक साहचर्य का प्रयोग करना
   (3) एकृतत्व एवं मानकीकृत परीक्षण
   (4) अन्वेषण एवं परिचय

16. निम्नलिखित में से कौन प्रभावी अधिग्रह रणनीतियों के उदाहरण हैं?
   (i) लक्ष्य एवं समय-सारणी निर्धारित करना।
   (ii) संगठनात्मक चाटू एवं अवधारणात्मक नक्शा बनाना।
   (iii) उदाहरण एवं गैर-उदाहरण के बारे में सोचना।
   (iv) हमेशा साधी को समझाना।
   (v) स्वयं से प्रयत्न करना।
   (1) (i), (iv), (v)
   (2) (i), (ii), (iii), (v)
   (3) (i), (ii), (iii), (iv), (v)
   (4) (i), (ii), (iii)
17. In the constructivist frame child is viewed as

(1) ‘tabula rasa’ or ‘blank slate’ whose life is shaped entirely by experience.
(2) a ‘passive being’ who can be shaped and molded into any form through conditioning.
(3) a ‘problem solver’ and a ‘scientific investigator’.
(4) ‘miniature adult’ who is less than adult in all aspects such as size, cognition, emotions.

18. A teacher’s role while using cooperative learning in her class –

(1) is to leave the class and let children work on their own.
(2) is to be supportive and monitor each group.
(3) is to support the group which has the ‘bright’ and ‘talented’ children.
(4) is to be a silent spectator and let children do what they want.

19. Children’s errors and misconceptions –

(1) are a hindrance and obstacle to the teaching-learning process.
(2) should be ignored in the teaching-learning process.
(3) signify that children’s capabilities are far inferior than that of adults.
(4) are a significant step in the teaching-learning process.
20. According to Piaget, specific psychological structures (organized ways of making sense of experience) are called

(1) schemes
(2) images
(3) mental maps
(4) mental tools

21. "With an appropriate question / suggestion, the child’s understanding can be extended far beyond the point which she could have reached alone." Which construct does the above statement highlight?

(1) Equilibration
(2) Conservation
(3) Intelligence
(4) Zone of proximal development

22. According to Lev Vygotsky, basic mental capacities are transformed into higher cognitive processes primarily through

(1) social interaction
(2) stimulus-response association
(3) adaptation and organization
(4) rewards and punishment

23. Which of the following statements denotes the relationship between development and learning correctly?

(1) Learning takes place irrespective of development.
(2) Rate of learning far exceeds the rate of development.
(3) Development and learning are inter-related and inter-dependent.
(4) Development and learning are not related.
24. One of the major accomplishments of concrete operational stage is
   (1) Ability to conserve
   (2) Hypothetic - deductive reasoning
   (3) Secondary circular reactions
   (4) Animistic thinking

25. Constructivists such as Jean Piaget and Lev Vygotsky view learning as
   (1) conditioning of responses
   (2) passive repetitive process
   (3) process of meaning-making by active engagement
   (4) acquisition of skills

26. Selecting and presenting stories and clippings from newspaper that portray both men and women in non-traditional roles is an effective strategy to
   (1) promote gender constancy
   (2) encourage stereotypical gender roles
   (3) counter gender stereotypes
   (4) promote gender bias

27. Read the following description and identify the stage of moral reasoning of Kohlberg.
   Description:
   Right action is defined by self-chosen ethical principles of conscience that are valid for all humanity, regardless of law and social agreement.
   (1) The social - contract orientation
   (2) The social - order maintaining orientation
   (3) The universal ethical principle orientation
   (4) The instrumental purpose orientation

28. निम्नलिखित में से कौन सा मूल क्रियात्मक अवस्था के प्रमुख भौतिक क्रियालेख से एक है?
   (1) सूक्ष्मता रखने की योग्यता
   (2) पदार्थों का निर्माण तक्ते तक
   (3) दृष्टिबाध करती है प्रतिक्रियाएँ।
   (4) समृद्धि स्वरूप दिखाना

29. जीन पियास्जे एवं लेव वायगोस्ट्स्की कैसे संरचनावादी अधिग्रह को किस रूप में देखते हैं?
   (1) प्रतिक्रियाओं का अनुसंधान
   (2) निमित्त आधुनिक प्रक्रिया
   (3) रूढियां विचारों से अर्थ-निर्माण की प्रक्रिया
   (4) कौशलों का अर्जन

30. समाचार-पत्रों से कहानियों एवं कल्पना का चयन करना एवं प्रस्तुत करना जो पुरुष एवं महिलाओं
    दोनों का गैर-परस्पर संबंध भूमिकाओं में दिखाई देते हैं, निम्नलिखित में से किसके लिए एक
    प्रभावी रणनीति है?
   (1) लेखक/ंजैंडर स्थितांत को बढ़ाने के लिए।
   (2) रूढिवादी लेखक/ंजैंडर भूमिकाओं को प्रोत्साहन देने के लिए।
   (3) लेखक/ंजैंडर रूढियां का सामना करने के लिए।
   (4) लेखक/ंजैंडर प्रश्नांत को बढ़ाने के लिए।
28. As per Howard Gardner’s theory of multiple intelligence, how would the intelligence of a person with the following characteristics be categorized?

Characteristics:
“Ability to detect and respond appropriately to the moods, temperaments, motivations and, intentions of others.”
(1) Intrapersonal
(2) Interpersonal
(3) Therapeutic
(4) Naturalistic

29. Which of the following should be the reasons for assessment of children?
(i) To separate and label children into ‘non-achievers’, ‘low-achievers’, ‘average’ and ‘high-achievers’.
(ii) To improve teaching-learning processes in the classroom.
(iii) To find out what changes and progress in learning that takes place in the child over a period of time.
(iv) To discuss the capabilities, potential, strengths and challenging areas of the child with the parents.

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(1) (i), (ii), (iii)
(2) (ii), (iii), (iv)
(3) (ii), (iv)
(4) (i), (ii), (iii), (iv)

30. Which of the following play an important role in a child’s socialization?
(i) Media
(ii) School
(iii) Family
(iv) Neighbourhood

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(1) (i), (ii), (iii)
(2) (i), (iii), (iv)
(3) (i), (ii), (iii), (iv)
(4) (iii), (i)
Directions: Answer the following questions by selecting the correct/most appropriate options.

31. The total surface area of a cuboid is 194 m². If its length is 8 m and breadth is 6 m, then what is its volume (in m³)?
   (1) 126
   (2) 168
   (3) 224
   (4) 112

32. The area of a trapezium is 105 cm² and its height is 7 cm. If one of the parallel sides is longer than the other by 6 cm, then the length of the longer side, in cm, is
   (1) 16
   (2) 15
   (3) 12
   (4) 18

33. The curved surface area of a right circular cylinder of base radius 3 cm is 94.2 cm². The volume (in cm³) of the cylinder is (Take π = 3.14)
   (1) 141.3
   (2) 125.6
   (3) 113.04
   (4) 138.6

31. किसी घनाक का कुल पृष्ठीय क्षेत्रफल 194 m² है। यदि इसकी लंबाई 8 m तथा चौड़ाई 6 m है, तो इसका आयतन (m³ में) है?
   (1) 126
   (2) 168
   (3) 224
   (4) 112

32. किसी समलंब का क्षेत्रफल 105 cm² है और उसका शीर्षलंब 7 cm है। यदि समलंब के शीर्ष एवं आधार के दो समान्तर रेखांक द्वारा सीमित क्षेत्र में से एक स्थल दूरी से 6 cm अधिक लंबा है, तो लंबाई रेखा का लंबाई, cm में है?
   (1) 16
   (2) 15
   (3) 12
   (4) 18

33. आधार की 3 cm विशेषता वाले एक लंब वृत्तीय बेलन का वक्र पृष्ठीय क्षेत्रफल 94.2 cm² है। बेलन का आयतन (cm³ में) है (π = 3.14 लीखिए जय)
   (1) 141.3
   (2) 125.6
   (3) 113.04
   (4) 138.6
34. If \( x \) is added to each of 14, 12, 34 and 30, the numbers so obtained, in this order, are in proportion. What is the value of \( \sqrt{12x + 9} \)?

(1) 9
(2) 11
(3) 13
(4) 8

35. Which one of the following statements is true?

(1) A regular polygon of 10 sides has 10 lines of symmetry.
(2) A circle has no line of symmetry.
(3) An angle has two lines of symmetry.
(4) A regular hexagon has only 4 lines of symmetry.

36. The value of \( x \) which satisfies the equation

\[
10(x + 6) + 8(x - 3) = 5(5x - 4)
\]

also satisfies the equation

(1) \( 3(3x - 5) = 2x + 1 \)
(2) \( 2(x + 3) = 5(x - 5) + 4 \)
(3) \( 5(x - 5) = 2(x - 3) + 5 \)
(4) \( 5(x - 3) = x + 5 \)

37. What should be subtracted from \( 5y - 13x - 8a \) to obtain \( 11x - 16y + 7a \)?

(1) \( 21y - 5x - a \)
(2) \( 21y - 24x - 15a \)
(3) \( 24x - 21y + a \)
(4) \( 6x + 21y + 15a \)
38. Which of the following statements is correct regarding children coming to school from rural areas in the context of Mathematics?

(1) They may have rich oral mathematical traditions and knowledge.
(2) They do not know any mathematics.
(3) They have poor communication skills in mathematics.
(4) They need not learn formal mathematics as it is of no use to them.

39. Read the following statements:
A. Axioms are propositions which are assumed.
B. Axioms are special theorems.
C. Axioms are definitions.
D. Axioms, when proved becomes theorems.

Which of the following statement(s) is correct?

(1) A and D
(2) Only B
(3) Only A
(4) A and C
40. Which of the following statements does not reflect contemporary view of students' errors in mathematics?
   (1) They are a part of learning.
   (2) They are a rich source of information.
   (3) They can guide the teacher in planning her classes.
   (4) They should be overlooked.

41. Which of the following statement(s) regarding Mathematics is true?
   A. Mathematics is a tool.
   B. Mathematics is a form of art.
   C. Mathematics is a language.
   (1) B & C
   (2) only A
   (3) A, B & C
   (4) A & B

42. To prove that $\sqrt{2}$ is an irrational number, a teacher begins by assuming that it is a rational number and then proceeds to show how this assumption is not feasible. This is an example of proof by
   (1) Deduction
   (2) Contradiction
   (3) Verification
   (4) Induction
43. Which of the following statements reflects a desirable assessment practice in the context of mathematics learning?

(1) Holding conversations and one to one discussion with children can also be helpful in assessing them.

(2) Assessment should be product oriented and focus on the right answer of the child.

(3) Incorrect answers of children should largely be ignored because we need to focus on children’s strengths.

(4) Only paper-pencil tasks are suited to assess students because they require precise answers.

44. Which of the following statements is true of learning mathematics?

(1) Girls need extra attention because they are weaker in mathematics.

(2) Mathematics is a specialized subject meant for a select few.

(3) Informal algorithms are inferior to formal mathematics.

(4) Everyone can learn and succeed in mathematics.

43. निम्नलिखित में से कौन सा कहने गणितीय अभिगम के बारे में ज्ञान का अभ्यास पर प्रकाश डालता है?

(1) विद्यार्थियों का आकलन करने के लिए बातचीत करना और एक उचित विचार-विचारण करना भी लाभदायक हो सकता है।

(2) आकलन, उत्पादन के अनुसूची और विद्यार्थी के उत्तर पर केंद्रित होना चाहिए।

(3) विद्यार्थियों के अनुसूचित उत्तरों की अधिकांशता उपेक्षा कर देनी चाहिए क्योंकि उनमें विद्यार्थियों की शान्ति पर केंद्र करना चाहिए।

(4) विद्यार्थियों का आकलन करने के लिए केवल कल्पना-कलम बाला कार्य उपयुक्त है, क्योंकि उनमें सही उत्तर की आवश्यकता होती है।

44. गणितीय अभिगम के लिए निम्नलिखित में से कौन सा कहने सही है?

(1) लक्षितों पर गणित में अधिक ध्यान देने की आवश्यकता होती है क्योंकि वे उसमें कमजोर होती हैं।

(2) गणित एक विशेष विषय है जो कि विषिद कुछ लोगों के लिए ही है।

(3) अनौपचारिक ऐतिहासिक, औपचारिक गणित से निकृष्ट है।

(4) प्रत्येक व्यक्ति गणित सीख सकता है और उसमें सफल हो सकता है।
45. The role of proportional reasoning in understanding the concept related to ratio and proportion was highlighted by
   (1) Zoltan Dienes
   (2) Jean Piaget
   (3) Lev Vygotsky
   (4) Van Hiele

46. A student is not able to solve those word problems which involve transposition in algebra. The best remedial strategy is to
   (1) give lot of practise questions of word problems in another language.
   (2) explain him/her word problem in simple language.
   (3) explain concept of equality using alternate method.
   (4) give lot of practise questions on transposition of numbers.

47. Contemporary understanding of Mathematics Pedagogy encourages teachers to do all of the following, except:
   (1) Introduce computation of problems before development of conceptual understanding.
   (2) Create opportunities for students to guess-and-verify the solutions to problems.
   (3) Develop the skill of systematic reasoning in students.
   (4) Encourage the ability to approximate solutions.

45. अनुपात और समानुपात प्रत्यक्ष को समझने के लिए अनुपातिक विवेचन की मूल्यात्मक का उजागर किया था
   (1) जोस्लैट्ट डाइनेज
   (2) जेन पिएज
   (3) लेव व्यगोस्की
   (4) वैन हील

46. एक विद्यार्थी की बीमारता की उन शास्त्रीय समस्याओं को हल नहीं कर सकता है जिनमें स्थानांतरण सम्बद्ध होता है। सर्वोत्तम
   उपचारात्मक योजना है
   (1) अन्य भाषाओं की शास्त्रीय समस्याओं के अभ्यास के लिए अधिक प्रयास देना।
   (2) छात्र को शास्त्रीय समस्या का अर्थ आसान भाषा में समझाना।
   (3) मल्टिप्ल विधि से समानांतर प्रत्यक्ष को समझाना।
   (4) संख्याओं के स्थानांतरण के अभ्यास के लिए अधिक प्रयास देना।

47. गणित अभ्यास की समस्याविशिष्ट समझ अभ्यासों को निरीक्षित सभी को करने को प्रोत्साहित करती है, केवल इसके छोटे
   (1) समस्याओं के परिक्षण का परिचय उसकी समक्षपत्रात्मक समझ से पहले देना।
   (2) विद्यार्थियों के लिए ऐसे सुझाव उपलब्ध कराने कि वे समस्याओं के हल का अनुभव और स्थानांतर कर सकें।
   (3) विद्यार्थियों में सुख्यविधित सरकार करने के कीसाल का विकसित करना।
   (4) सरकार हल प्राप्त करने की क्षमता को प्रोत्साहित करना।
48. The value of
\[ [(-4) + 2] \times (-3) - (-3) \times (-3) - (-7) - 8 \]
\[ + 4 \times (-48) + 6 \]
is
(1) -11
(2) 13
(3) -16
(4) 9

49. The fractions \( \frac{44}{49}, \frac{33}{38}, \frac{22}{25} \) and \( \frac{24}{29} \) are written in descending order as

(1) \( \frac{22}{25}, \frac{24}{29}, \frac{33}{38}, \frac{44}{49} \)
(2) \( \frac{33}{38}, \frac{22}{25}, \frac{24}{29}, \frac{44}{49} \)
(3) \( \frac{44}{49}, \frac{33}{38}, \frac{22}{25}, \frac{24}{29} \)
(4) \( \frac{24}{29}, \frac{33}{38}, \frac{22}{25}, \frac{44}{49} \)

50. Which one of the following statements is not true for integers?
(1) Division is commutative.
(2) 1 is the multiplicative identity.
(3) Subtraction is not commutative.
(4) Multiplication is associative.
51. If \( x = 2^3 \times 3^3 \times 5^3 \times 7^3 \) 
\( y = 2^2 \times 3^3 \times 5^4 \times 7^3 \), and 
\( z = 2^4 \times 3^4 \times 5^2 \times 7^5 \),
then H.C.F. of \( x \), \( y \) and \( z \) is

(1) \( (15)^3 \times 7^4 \)
(2) \( (30)^3 \times 7^3 \)
(3) \( 30 \times 7^5 \)
(4) \( (30)^2 \times 7^3 \)

52. If \( 52272 = p^2 \times q^3 \times r^4 \),
where \( p \), \( q \) and \( r \) are prime numbers,
then the value of \( (2p + q - r) \) is

(1) 22
(2) 23
(3) 29
(4) 21

53. If the 7-digit number 1345x8y is divisible by 72, then the value of \( (2x + y) \) is

(1) 7
(2) 8
(3) 9
(4) 6
54. Which of the following is not a Pythagorean triplet?
   (1) 8, 15, 17
   (2) 11, 60, 63
   (3) 13, 84, 85
   (4) 7, 24, 25

55. The measure of an angle for which the measure of the supplement is four times the measure of the complement is
   (1) 45°
   (2) 60°
   (3) 75°
   (4) 30°

56. If the angles, in degrees, of a triangle are \(x\), \(3x + 20\) and \(6x\), the triangle must be
   (1) Acute
   (2) Right
   (3) Isosceles
   (4) Obtuse

57. In triangles ABC and DEF, \(\angle C = \angle F\), \(AC = DF\), and \(BC = EF\). If \(AB = 2x - 1\) and \(DE = 5x - 4\), then the value of \(x\) is
   (1) 2
   (2) 3
   (3) 4
   (4) 1
58. One side of a triangle is 5 cm and the other side is 10 cm and its perimeter is P cm, where P is an integer. The least and the greatest possible values of P are respectively
(1) 20 and 28
(2) 21 and 29
(3) 22 and 27
(4) 19 and 29

59. Let x be the median of the data
13, 8, 15, 14, 17, 9, 14, 16, 13, 17, 14, 15, 16, 15, 14.
If 8 is replaced by 18, then the median of the data is y. What is the sum of the values of x and y?
(1) 28
(2) 29
(3) 30
(4) 27

60. A bag contains 3 white, 2 blue and 5 red balls. One ball is drawn at random from the bag. What is the probability that the ball drawn is not red?
(1) \(\frac{3}{10}\)
(2) \(\frac{1}{5}\)
(3) \(\frac{1}{2}\)
(4) \(\frac{4}{5}\)
Directions: Answer the following questions by selecting the correct/most appropriate options.

61. Which of the following nutrients are present in milk?
   (1) Protein, Vitamin C, Vitamin A
   (2) Carbohydrates, Vitamin C, Iron
   (3) Protein, Iron, Vitamin D
   (4) Protein, Calcium, Vitamin D

62. The non-metal used in the purple coloured solution applied on wounds as antiseptic is
   (1) Iodine
   (2) Bromine
   (3) Sulphur
   (4) Chlorine

63. Which of the following statements regarding ‘Air’ is incorrect?
   (1) Air is not present in soil.
   (2) Air plays important role in water cycle.
   (3) Air occupies space.
   (4) Air has weight.

64. Which of the following represents correct matching of the organs of digestive system in Column A with the function in Column B?

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Liver</td>
<td>i. where protein digestion starts</td>
</tr>
<tr>
<td>b. Stomach</td>
<td>ii. where bile juice is stored</td>
</tr>
<tr>
<td>c. Gall bladder</td>
<td>iii. releases digestive juice into small intestine</td>
</tr>
<tr>
<td>d. Pancreas</td>
<td>iv. largest gland</td>
</tr>
</tbody>
</table>

   (1) iv i ii iii
   (2) i iii ii iv
   (3) iii iv ii i
   (4) i ii iv iii
65. Which of the following statement about cells is true?
   (1) Cells of a tissue have similar structure.
   (2) Size of cells is same in a well-organized organism.
   (3) All the cells have nucleus.
   (4) All cells are round in shape.

66. Which of the following are correctly matched with their mode of reproduction?

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Yeast</td>
</tr>
<tr>
<td>b.</td>
<td>Potato</td>
</tr>
<tr>
<td>c.</td>
<td>Algae</td>
</tr>
<tr>
<td>d.</td>
<td>Fungi</td>
</tr>
<tr>
<td>i.</td>
<td>vegetative propagation</td>
</tr>
<tr>
<td>ii.</td>
<td>spore formation</td>
</tr>
<tr>
<td>iii.</td>
<td>fragmentation</td>
</tr>
<tr>
<td>iv.</td>
<td>budding</td>
</tr>
</tbody>
</table>

   (1) a i; b ii; c iii; d iv
   (2) a i; b iii; c ii; d iv
   (3) a ii; b i; c iv; d iii
   (4) a iv; b iii; c i; d ii

67. Which of the following pollutants are responsible for depletion of ozone layer?
   (1) Chlorofluoro carbons
   (2) Acid rain
   (3) Methane and carbon dioxide
   (4) Carbon dioxide and carbon monoxide

68. Which of the following set represents communicable diseases?
   (1) Typhoid, Malaria, Anaemia, Swine flu
   (2) Typhoid, Swine flu, Malaria, Polio
   (3) Diabetes, Typhoid, Malaria, Anaemia
   (4) Anaemia, Scurvy, Diarrhoea, Cholera
69. Which one of the following is not true of the nature of science?
A. Science is always tentative.
B. Science promotes scepticism.
C. Science is a process of constructing knowledge.
D. Science is static in nature.

(1) B  
(2) C  
(3) A  
(4) D  

70. Which of the following is/are developed by Science?
A. Equity 
B. Scientific attitude 
C. Scientific temper 
D. Static mind set 

(1) B, C and D 
(2) A, B and C 
(3) C and D 
(4) A and D 

71. The role of a science teacher should be to
(1) provide product based teaching-learning environment to learners. 
(2) guide learners to practice the memorization of the creative ideas. 
(3) encourage all learners to frame questions of high cognitive abilities. 
(4) provide rich variety of learning experiences to learners. 

70. नियमितता में से किसका विकास विज्ञान के द्वारा होता है?
A. नियमितता 
B. वैज्ञानिक दृष्टिकोण 
C. वैज्ञानिक स्वभाव 
D. स्थायी मानस प्रकृति 

(1) B, C और D 
(2) A, B और C 
(3) C और D 
(4) A और D 

71. एक विज्ञान शिक्षक की पूर्णता होनी चाहिए
(1) छात्रों को उत्पाद आधारित शिक्षण-अधिगम पर्यावरण प्रदान करना। 
(2) सर्जनात्मक विचारों को रचने के अभ्यास में छात्र का मार्गदर्शन करना। 
(3) उच्च संज्ञानतत्क्षेत्रक्षेत्रों वाले प्रश्नों के निर्माण के लिए सभी छात्रों को प्रोत्साहित करना। 
(4) छात्रों को प्रश्न-विचारन सोचने के अनुभव प्रदान करना।
72. As per NCF-2005, good science education should be
A. True to the learner
B. True to the environment of the learner
C. True to the teacher
D. True to science
(1) B and C only
(2) A, B and C
(3) D only
(4) A, B and D

73. "Conducting a survey on the awareness of people about sources of air pollution in learners localities." Which of the following cognitive process will be most associated with the above learning objective having action verb conducting?
(1) Understanding
(2) Creating
(3) Applying
(4) Remembering

74. Which of the following strategy can be the most appropriate for involving learners in the teaching learning of science?
(1) Clarifying the hard spots of learners
(2) Working on engaging the learners first
(3) Encouraging learners to do group assessment
(4) Reading a science book
75. By which of the following strategy meaningful clarification on the concept of reflection of light can be given?

(1) Chart showing the reflection of light.
(2) Observing reflection of light on white paper screen by the learners and drawing conclusions.
(3) Asking closed ended questions related to the concept.
(4) Animated video on the concept.

76. Why are field visits important in science?

(1) It is easy to conduct.
(2) It collects the information of science.
(3) It develops habit of hardwork among learners.
(4) It provides hands on experiences to the learners.

77. Which of the following tool is for learner centered assessment?
A. Portfolio
B. Concept mapping
C. Paper-pencil test
D. Journal writing
(1) A, B and D
(2) A and C only
(3) B, C and D
(4) C only

78. Assessment as learning in Science means ____________.
(1) Summative assessment
(2) Self assessment
(3) Term assessment
(4) Formative assessment
79. Amrita is trying to set-up an electric circuit. She runs short of connecting wires. Which of the following materials can she use to complete the circuit?

(1) steel wire  
(2) glass rod  
(3) rubber pipe  
(4) thick thread

80. Identify the correct statement.

(1) A concave mirror forms an erect as well as inverted image.  
(2) A convex mirror always forms an inverted image.  
(3) A convex mirror forms erect as well as inverted image.  
(4) A concave mirror always forms an erect image.

81. Which of the following acids is found in ant's sting?

(1) Formic acid  
(2) Oxalic acid  
(3) Acetic acid  
(4) Ascorbic acid

82. 3.7 kg of a fuel is completely burnt to give off $1.665 \times 10^8$ joules of energy. The calorific value of the fuel in standard unit is

(1) 22222  
(2) 61605  
(3) 25000  
(4) 45000
83. Myra cycles to a friend’s house 5 km away to deliver a packet. She goes at a speed of 12 km/hour and returns at a speed of 8 km/h. Her average speed during the whole trip is—

1. 9.6 km/h
2. 10 km/h
3. 5 m/s
4. 20 km/h

84. Which of the following sets contains only the units of measuring distance?

1. cubit, year, light year
2. cubit, metre, light year
3. metre, hertz, cubit
4. metre, light year, hertz

85. Sameer rolls his marble on three different surfaces spread out on floor—taut cellophane sheet, carpet and newspaper. The force of friction acting on the marble in the increasing order is

1. Newspaper, Carpet, Cellophane sheet
2. Cellophane sheet, Newspaper, Carpet
3. Cellophane sheet, Carpet, Newspaper
4. Newspaper, Cellophane sheet, Carpet

86. An object is moving linearly with a uniform velocity. If time is represented along X-axis then which of the following statements is correct?

1. The velocity-time graph of the motion will be a straight line parallel to Y-axis.
2. The distance-time graph of the motion will be a straight line parallel to Y-axis.
3. The velocity-time graph of the motion will be a straight line parallel to X-axis.
4. The distance-time graph of the motion will be a straight line parallel to X-axis.
87. Which of the following is not a byproduct of petroleum?
(1) Coke
(2) Bitumen
(3) Lubricating oil
(4) Paraffin wax

88. Aman keeps a plastic bottle, a wooden spoon and a metallic spoon in a closed room overnight. The room temperature is 30 °C. In the morning he records the temperatures of the three objects as $T_1$, $T_2$ and $T_3$. Which of the following most likely represents the relation between them?
(1) $T_3 > T_2 > T_1$
(2) $T_1 = T_2 < T_3$
(3) $T_1 > T_2 > T_3$
(4) $T_1 = T_2 = T_3$

89. Which of the following organisms can prepare their own food by Photosynthesis?
(1) Fungi
(2) Rhizobium
(3) Virus
(4) Algae

90. Which of the following features help polar bears adapt in extreme cold conditions?
(1) white fur, long curved sharp claws, fat under skin
(2) white fur, flat feet, layers of fur
(3) strong smell, flat feet, layers of fur
(4) white fur, flat feet, fat under skin

87. निम्नलिखित में से कौन पेट्रोलियम का उपयोग नहीं है?
(1) कोक
(2) बिटुमेन
(3) ल्युबरकेटिंग ऑइल
(4) पेराफिन मोय

88. अमन किसी बदन कमरे में एक प्लास्टिक की बोतल, एक लकड़ी का चमच और एक धातु का चमच रख रखता है। कक्ष ताप 30 °C है। सुबह होने पर वह इन तीनों वस्तुओं के ताप किकार बनाता है जो $T_1$, $T_2$ और $T_3$ हैं। निम्नलिखित में से किस संबंध द्वारा इन तापों के निरूपण की सबसे अधिक संभावना हो सकती है?
(1) $T_3 > T_2 > T_1$
(2) $T_1 = T_2 < T_3$
(3) $T_1 > T_2 > T_3$
(4) $T_1 = T_2 = T_3$

89. निम्नलिखित जीवों में से कौन अक्रान्त-संसर्गश्रोत द्वारा अपना भोजन बना सकता है?
(1) कंजूक
(2) राज्योबियम
(3) वायरस (विकायु)
(4) सैबाल

90. निम्नलिखित में से कौन से लक्षण धूलीव भालू को चम रहते अवस्थाओं के अनुकूल बनाने में सहायता करते हैं?
(1) संस्फेर बाल (फर), पुहुँच हुए लगभग और पते तथा के नीचे बसने की पतर
(2) संस्फेर बाल (फर), चपेट पैर, बालों की पतर
(3) सुधुमा की तीन शक्ति, चपेट पैर, बालों की पतर
(4) संस्फेर बाल (फर), चपेट पैर, तथा के नीचे बसने की पतर
Directions: Answer the following questions by selecting the correct/most appropriate options.

31. Assertion (A): It will be 7:30 p.m. in India, when it is 2:00 p.m. in London.
   Reason (R): India is located east of Greenwich at 82°30'E.
   Select the correct option from the given alternatives.
   (1) (A) is false, but (R) is true.
   (2) Both (A) and (R) are true and (R) is the correct explanation of (A).
   (3) Both (A) and (R) are true, but (R) is not a correct explanation of (A).
   (4) (A) is true, but (R) is false.

32. Consider the statements A, B, C on time zone and choose the correct answer:
   A. Some countries have a great longitudinal extent and so they adopted more than one standard time.
   B. The earth has been divided into twenty-four time zones of one hour each.
   C. Each time zone covers 15° of longitude.
   (1) A and C are correct and B is incorrect.
   (2) B and C are correct and A is incorrect.
   (3) A, B, C all are correct.
   (4) A and B are correct and C is incorrect.
33. Choose the correct arrangement of atmosphere's layers beginning from earth's surface:
(1) Troposphere, Stratosphere, Mesosphere, Thermosphere, Exosphere
(2) Exosphere, Stratosphere, Mesosphere, Troposphere, Thermosphere.
(3) Mesosphere, Troposphere, Exosphere, Stratosphere, Thermosphere.
(4) Stratosphere, Mesosphere, Thermosphere, Exosphere, Troposphere.

34. Seasons occur due to which of the following reasons?
(1) Tropic of Capricorn receives direct rays of the sun, falling vertically at 23°26' S.
(2) Revolution of the Earth and inclination of its axis in the same direction.
(3) Circle of illumination caused due to rotation of the earth around its axis.
(4) Axis of the Earth makes an angle of 66°34' with its orbital plane.

35. The major constituents of earth's atmosphere by percentage is:
(1) Carbon dioxide
(2) Nitrogen
(3) Helium
(4) Oxygen

36. Which of the following statements about ocean currents is/are correct?
A. The cold currents carry water from polar or higher latitudes to tropical or lower latitudes.
B. Labrador is a warm current.
C. Areas where warm and cold currents meet provide world's best fishing grounds.
(1) A and C are correct.
(2) B and C are correct.
(3) Only A is correct.
(4) A and B are correct.
37. **The depositional feature of a glacier is called:**
   (1) Moraine  
   (2) Loess  
   (3) Levees  
   (4) Sea cave

38. **Statements A and B describe the features of which of the following vegetations?**
   A. This vegetation is found in the higher latitudes (50° - 70°) of Northern Hemisphere.
   B. It is also called as Taiga.
   (1) Temperate Deciduous Forests.  
   (2) Coniferous Forests.  
   (3) Mediterranean Vegetation.  
   (4) Temperate Grasslands.

39. **Which of the following is not a feature of the Ganga-Brahmaputra Basin?**
   (1) The density of population of plain area is very high.  
   (2) The delta area is covered with Mangrove forests.  
   (3) Slash and Burn agriculture is practiced in this area for land cultivation.  
   (4) Ox-Bow lakes dot the plain area.

40. **Swimmers can float in Dead Sea because:**
   (1) More warm currents than cold currents originate in the sea.  
   (2) The sea experiences more high tides than low tides.  
   (3) The increased salt content makes the sea dense.  
   (4) Winds blow at a very high speed over the surface of sea water.