Class: XI   SCIENCE STREAM   Marks:100
Date: 26/11/2022   Time: 2 hrs

GENERAL INSTRUCTIONS:

Read the instructions carefully before answering
1. Please fill up your Roll No. and class in the box provided on the OMR sheet.
2. This question booklet contains 50 questions and 5 Tie Breaker questions. All questions including 'Tie Breaker Questions' are mandatory. Tie Breaker questions will be evaluated only in case of a Tie.
3. Each question carries 2 marks.
4. Each question has 4 answer choices a,b,c,d.
5. For each question, select the best/correct option and darken the bubble completely against the corresponding question in the OMR sheet provided.
6. Use a blue/black ball point pen to darken the bubble.
7. Darken only one bubble against each question.
8. There will be no negative marking.

Choose the correct answer from the options given.

1. Select the appropriate phrasal verb from the given options to fill the blank space and complete the sentence.
    Ten candidates ----------------- for the interview.
    a. turned up
    b. turned down
    c. turned over
    d. turned out

2. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.
    Had you/ not reached in time,/ we will have/ lost our lives.
    a. Had you
    b. lost our lives
    c. not reached in time
    d. d. we will have

3. One who eats human flesh
    a. Parasite
    b. Drover
    c. Narcissist
    d. Cannibal

4. What does the idiom "A pipe dream" mean?
    a. A hope or plan that is unlikely to happen
    b. To become quiet or quieter
    c. An unending dream
    d. A nightmare

5. "Death touched Miss. Caroline with its icy fingers" is the best example of which figure of speech?
   a. Oxymoron
   b. Antithesis
   c. Hyperbole
   d. Personification

6. The word Frugal is synonymous to:
   a. Economical
   b. Spiteful
   c. Relaxed
   d. Wasteful

7. Direction- In the following question, out of the four alternatives , choose the alternative which best expresses the meaning of the idiom/ phrase.
   Damocles sword
   a. Blunt sword
   b. A closely impending disaster
   c. A sword of Damocles
   d. A disputed sword

8. A lift is moving down with an acceleration of a. A man in the lift drops a ball inside the lift . The acceleration of the ball is as observed by a man in the lift and a man standing stationary in the ground are respectively,
   a. g, g
   b. a ,a
   c. (g-a), g
   d. a, g

9. The length of second hand of a watch is 1 cm. The change in velocity of its tip in 15 seconds in cm/s is
   a. Zero
   b. $\dfrac{\pi}{30\sqrt{2}}$
   c. $\dfrac{\pi}{30}$
   d. $\dfrac{2\pi}{30\sqrt{2}}$

10. The speed of a projectile at its maximum height is half of its initial speed. The angle of projection is
   1. $60°$
   2. $15°$
   3. $30°$
   4. $45°$

11. A particle of mass 0.3 Kg is subjected to a force F= -kx with k = 15 N/m. what will be its initial acceleration, if it is released from a point 20 cm away from origin.
   a. 15 m/s^2
   b. 3 m/s^2
   c. 10 m/s^2
   d. 5 m/s^2

12. The velocity of the body depends on time according to the equation, $v= 10 + 2t^2$. The body is undergoing _____
   a. Uniform acceleration
   b. Non-uniform acceleration
   c. Uniform retardation

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d. Zero acceleration

13. A bullet is fired vertically upwards from a rifle, with a velocity of 110 m/s, from the top of a 115m high tower. If g= 10 m/s², the velocity with which the bullet will strike the ground is
   a. 220 m/s
   b. 175 m/s
   c. 120 m/s
   d. 115m/s

14. An athlete finishes a round of circular track of radius R in 40 sec. What is his displacement at the end of 2 min 20 sec?
   a. 2R
   b. $2\pi R$
   c. $7\pi R$
   d. Zero

15. The first emission lines of the hydrogen atomic spectrum in the Balmer Series appear at;
   a. $5R/36 \ cm^{-1}$
   b. $3R/4 \ cm^{-1}$
   c. $7R/144 \ cm^{-1}$
   d. $9R/400 \ cm^{-1}$

16. The solubility of $Ca_3(PO_4)_2$ in water is y mol/L. Its solubility product is ---
   a. $6y^2$
   b. $36y^4$
   c. $64y^5$
   d. $108y^5$

17. One mole of a symmetrical alkene on ozonolysis gives two moles of an aldehyde having molecular mass 44u. The alkene is -----
   a. Propene
   b. 1- butene
   c. 2- butene
   d. Ethene

18. Two elements X (atomic weight = 75) and Y (atomic weight = 16) combine to give a compound having 75.8% of X. The formula of the compound is
   a. XY   b. X_2Y c. XY_2 d. X_2Y_3

19. Which of the following represents the correct order of increasing first ionization enthalpy for Ca, Ba, S, Se and Ar

   a. Ca<Ba<S<Se<Ar   c. S<Se<Ca<Ba<Ar

   b. Ca<S<Ba<Se<Ar   d. Ba<Ca<Se<S<Ar

20. The number of lone pairs of electrons on the central atoms of H_2O, $SnCl_2$, PCl_3 and XeF_2 respectively are

   a. 2,1,1,3   b. 2,2,1,3   c. 3,1,1,2   d. 2,1,2,3

21. 9.2 grams of N_2O_4 (g) is taken in a closed one litre vessel and heated till the following equilibrium is reached $N_2O_4 (g) \Leftrightarrow 2NO_2 (g)$
   At equilibrium 50 % N_2O_4 (g) is dissociated. What is the equilibrium constant (in mol L^{-1}) (molecular weight of $N_2O_4 = 92$)
   a. 0.1   b. 0.2   c. 0.4   d. 2

22. Entomology is the science that studies
    a. Behaviour of human beings
    b. b.Insects
    c. c.The origin and history of technical and scientific terms
    d. d.The formation of rocks
23. Which city will host Olympics 2024?
    a. New York
    b. Sydney
    c. Beijing
    d. Paris
24. Which rocket is launched by ISRO recently?
    a. LVM3
    b. b.CV
    c. JJ
    d. d.GH
25. Which countries' international calling code is + 94?
    a. India
    b. Sri Lanka
    c. Singapore
    b. Pakistan

26. What is the suggested name of children with special needs mentioned in NEP 2020?
    a. Divyang child
    b. Disabled Child
    c. Distinguished child
    d. Distorted and Gifted child
27. You have 150 cubic blocks . What is the minimum number that needs to be taken away in order to construct a solid cube with none left over
    a. 66
    b. 25
    c. 30
    d. 32
28. Rohit walked 25 metres towards South. Then he turned to his left and walked 20 metres. He then turned to his left and walked 25 metres. He again turned to his right and walked 15 metres. At what distance is he from the starting point and in which direction?
    a. 35metresEast
    b. 35metresNorth
    c. 40metresEast
    d. 60metresEast
29. How many cases do you need if you have to pack 112 pairs of shoes into cases that each hold 28 shoes?
    a. 6
    b. 7
    c. 8
    d. 9
30. P is to the North of Q and S is to the east of P, who is to the south of W.
    T is to the west of P. Who among the following is towards south of W and north of Q?
    a. T
    b. S
    c. P
    d. Q

31. 1 c 4 f 7 i 10 --- ? Identify the next letter .
   a.   K
   b.   L
   c.   M
   d.   N

32. Given below are the three statements followed by four alternatives. Select the alternative which follows logically, from given statement.
   i. Only boys can register for competition
   ii. Many of the competitors are toppers.
   iii. All the names of toppers are marked with green colour.
   a. All toppers are competitors.
   b. Some of the competitors are boys.
   c. Some of the competitors are marked with green colour
   d. Only the names of the boys are marked with green colour

33. Between 1960 and 1970, ivory poachers in the African nation of Zinbaku killed over 6,500 elephants. During that period, the total elephant population in Zinbaku fell from about 35,000 to just under 30,000. In 1970, new anti-poaching measures were implemented in Zinbaku, and between 1970 and 1980 over 800 poachers were arrested and expelled from the country. Nevertheless, by 1980, the elephant population in Zinbaku had fallen to about 21,000.
   Which of the following, if true, would best help to explain the apparent impossibility presented above?

   a.   The poachers arrested in Zinbaku between 1970 and 1980 were rarely sentenced to long prison terms
   b.   Because of highly publicized campaigns against the slaughter of elephants, demand for ivory fell between 1970 and 1980
   c.   The elephant population in neighbouring Mombasa rose slightly between 1970 and 1980
   d. In Zinbaku, between 1970 and 1980, thousands of acres of forest, the elephant's natural habitat, were cleared for farming

34. Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R

   Assertion A: The aim of education in ancient India was not just the acquisition of knowledge but preparation for life in this world beyond schooling.

   Reason R: Ancient Indian education emphasized complete realization and liberation of self.
   In light of the above statements, choose the most appropriate answer from the options given.

   a.   A is correct but R is not correct.
   b.   A is not correct but R is correct.
   c.   Both A and R are correct and R is the correct explanation of A.
   d.   Both A and R are correct but R is NOT the correct explanation of A.

35. Which of the following statements are mutually contradictory?
   (i)   All flowers are not fragrant
   (ii)   Most flowers are not fragrant
   (iii)   None of the flowers is fragrant
   (iv)   Most flowers are fragrant.
   Choose the correct answer from the code given below
      Code:
   a.   (i) and (ii)   b. (i) and (iii)   c. (ii) and (iii)   d. (iii) and (iv)

36. If the proposition 'All thieves are poor' is false. which of the following propositions can be claimed to be true?
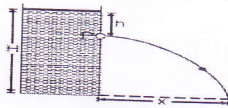
Propositions:

    a. Some thieves are poor
    b. Some thieves are not poor
    c. No thief is poor
    d. No poor person is a thief

TIE-BREAKER

1. 'Hold your horses' means _____
    a. Change your mind
    b. Really joyful
    c. Have doubts
    d. Wait a minute

2. A tank is filled with water upto a height H. Water is allowed to come out of a hole P in one of the walls at a depth h below the surface of water (see fig.) Express the horizontal distance X in terms H and h.

    a. $X = 2\sqrt{h(H-h)}$
    b. $X = \sqrt{h(H-h)}$
    c. (b) $X = 4\sqrt{h(H-h)}$
    d. $X = \sqrt{\frac{h}{2}(H-h)}$

3. Which is called the 'metal of the future'?
    a. Lead
    b. Titanium
    c. Platinum
    d. Mercury

4. Which is the first known animal of a human- engineered hybrid of two species?
    a. Kunga
    b. Camel
    c. Wild Ass
    b. Karakul Sheep

5. Two statements I and II are given. Read both statements and decide which of the following options correctly depicts the relationship between these two statements.

I - The school bus with teachers and students couldn't reach the school on time.

II - A major accident took place on the road blocking the traffic.

    e. If statement I is the cause, statement II could be its effect
    f. Both statements I and II could be the effects of some common cause.
    g. Both statements I and II are independent causes.
    h. If statement II is the cause, statement I could be its effect

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