6th All India RPS OLYMPIAD

2024-25

QUESTION PAPER (PHASE – I)

M.M:60   **CLASS - VIII**   **Time: 60 Minutes**

ENGLISH (15)

Choose the correct options:

Q1. It is <u>very</u> hot today.

    a) Adverb of frequency   b) Adverb of degree

    c) Adverb of manner   d) None of these

Q2. _____ friends came to meet me on Holi.

    a) Few   b) A few   c) Little   d) A little

Q3. <u>These</u> are the cookies I baked this morning.

    a) Demonstrative Adjective   b) Possessive Adjective

    c) Demonstrative Pronoun   d) Personal adjective

Q4. Identify the sentence which is in Passive voice:

    a) Let her help her grandmother.   b) Let me solve the question.

    c) Kindly do me a favour.   d) Let the flowers not be plucked.

Q5. Select the option that expresses the given sentence in Active Voice.

    He was crowned Prince.

    a) He crowned him Prince.   b) He was being crowned Prince.

    c) We crowned him Prince.   d) We crowned him to be a Prince.

Q6. I long _____ a good result.

    a) on   b) for   c) to   d) of

Q7. Azhan agreed _____ my birthday plans.

    a) on   b) with   c) to   d) for

Q8. We _____ obey the laws of our country.

a) should   b) must   c) ought to   d) could

Q9. His spectacles _____lying on the floor.

a) has   b) is   c) are   d) have

Q10. The manager, as well as executives,_____ responsible for the project.

a) are   b) were   c) is   d) has

Q11. You cannot get through the examination, _____ you work hard.

a) until   b) unless   c) so   d) as long as

Q12. The book was <u>full of interesting ideas</u>.

a) Verbal Phrase   b) Noun Phrase

c) Adjective Phrase   d) None of these

Q13. He _____ the house before the guests arrived.

a) left   b) had left   c) was leaving   d) was left

Q14. While we _____ dinner, the power went out.

a) were eating   b) eat   c) have eaten   d) are eating

Q15. We can't go any _____without a rest.
a) further   b) farther   c) next   d) latter

<u>MATHS (15)</u>

Q16. For a journey the cost of a child ticket is 1/3 of the cost of an adult ticket. If the cost of the tickets for 4 adults and 5 children is ₹85, the cost of a child ticket is_____.

a) ₹ 5   b) ₹ 6   c) ₹ 10   d) ₹ 15

Q17. The smallest angle of a triangle is equal to two - third the smallest angle of a quadrilateral. The ratio of the angles of the quadrilateral is 3:4:5:6. The largest angle of the triangle is twice its smallest angle. What is the sum of the second largest angle of the triangle and the largest angle of the quadrilateral?

a) 160°   b) 180°   c) 190°   d) 170°

Q18. ABCD is a rhombus in which altitude from point D to the side AB bisects AB. The angles of the rhombus are_____.

a) 150°, 30°, 150°, 30°   b) 135°, 45°, 135°, 45°

c) $116\frac{1}{3}°, 62\frac{2}{3}°, 116\frac{1}{3}°, 62\frac{2}{3}°$ d) 120°, 60°, 120°, 60°

Q19. Three containers A, B, C are having mixtures of milk and water in ratio 1:5, 3:5 and 5:7 respectively. If the capacities of the containers are in the ratio 5:4:5, then find the ratio of the milk to the water if the mixtures of all the three containers are mixed together.

  a) 51:115 b) 52:115 c) 53:115 d) 54:115

Q20. In an election, 10% of the people in the voter's list did not participate. 60 votes are declared invalid. There are only two candidates A and B. A defeated B by 308 votes. It was found that 47% of the people listed in the voter's list voted for A. Find the total number of votes polled.

  a) 6200 b) 5580 c) 6000 d) 7200

Q21. Factors of $8x^3 + 27 y^3$ are_____

  a) $(x+2) (x^2 -2x+4)$
  b) $(3x+4) (ax^2-12x+16)$
  c) $(2x+3y) (4x^2-6xy +9y^2)$
  d) $(x-1) (x^2 +4x+7)$

Q22. 120 persons can dig a well in 60 days. After they have worked for 15 days, how many more persons should be employed so as to complete the work in another 30 days?

  a) 60 b) 90 c) 180 d) 210

Q23. A cord in the form of a square encloses the area S cm^2. If the same cord is bent into the form of the circle, then area of the circle is _____.

  a) $\pi S^2 /4$ b) $4\pi S^2$ c) $S/ 4\pi$ d) $4 S/\pi$

Q24. The curved surface area of a cylindrical pillar is 264 m^2 and its volume is 924 m^3. The ratio of its diameter to its height is _____

  a) 3:7 b) 7:3 c) 6:7 d) 7:4

Q25. The value of $(x-a)^3 + (x-b)^3 + (x-c)^3-3 (x-a) (x-b) (x-c)$, when a+b+c= 3x is _____.

  a) 3 b) 2 c) 1 d) 0

Q26. Find the value of $(27)^{-2/3} + ((2^{-2/3})^{-5/3})^{-9/10}$

  a) 1/9 b) 2/9 c) 11/18 d) 1

Q27. Find the square root of a five digit number 49abc where a, b and c are non-zero digits such that $b = a^3 = 2c$

  a) 202 b) 122 c) 222 d) 242

Q28. $\sqrt{0.04 \times 0.4 \times a} = 0.004 \times 0.4 \times \sqrt{b}$ then a/b is _____.

  a) 16×10^{-3} b) 16×10^{-4} c) 16×10^{-5} d) 16×10^{-2}

Q29. The factors of $625 a^{12} – 81 b^{12}$ are_____.

  a) $(25a^6+ 9b^6) (5a^3-3b^3) (5a^3+ 3b^3)$
  b) $(5a^3+3b^3)^2 (5a^3-3b^3)^2$
  c) $(5a^3-3b^3)^4$
  d) $(25 a^6 -9b^6)^2$

Q30. Factorise (m +a) (n-b) – (m+b)(n-a)

  a) (a-b) (m-n)
  b) (a+b) (m-n)
  c) (a-b) (m+ n)
  d) (a-b) (m-n)

SCIENCE (15)

PHYSICS (5)

Q31. A bullet from a gun is fired on a rectangular wooden block with velocity u. When bullet travels 24cm through the block along its length horizontally, velocity of bullet becomes u/3. Then it further penetrates into the block in the same direction before coming to rest exactly at the other end of the block. The total length of the block is:

a) 24 cm   b) 28 cm   c) 30 cm   d) 27 cm

Q32. A beam of light from a source L is incident normally on a plane mirror fixed at a certain distance x from source. The beam is reflected back as a spot on a scale placed just above the source L. When the mirror is rotated through a small angle θ, the spot of the light is found to move through a distance y on the scale. The angle θ is given by:

a) y/2x   b) y/x   c) x/2y   d) x/y

Q33. Radhika stands 60m in front of a wall and clapping continuously with constant interval. She finds the time taken between one and 26th clap is 9 seconds. The speed of sound of the clap and echo coincides at:

a) 333.33 m/s   b) 300 m/s   c) 353.33 m/s   d) 233.33 m/s

Q34. A charged aluminum plate is touched to neutral metal sphere, then neutral metal sphere gets charged up. This happens due to which method of charging?

a) Charging by induction   b) Conduction

c) Friction   d) Both a) & b)

Q35. A block having mass 25kg is resting on a horizontal plane having coefficient of friction 0.2. A force of 200 N is required to pull the body horizontally. The acceleration developed by body is.

a) 0 m/s^{-2} b) 2 m/s^{-2} c) 4 m/s^{-2} d) 6 m/s^{-2}

CHEMISTRY (5)

Q36. Which of the following is not an example of a bio-mass energy source?

a) Wood   b) Gobar gas   c) Nuclear energy   d) Coal

Q37. The calorific value of a fuel is 330000 kJ/kg. 0.9634 kg of the fuel is taken for combustion. The total amount of heat energy (in kJ) produced during combustion is:

a) 317922   b) 215677   c) 3179.22   d) 317.922

Q38. Consider the statements S1 and S2:

S1: Conductivity always increases with decrease in the concentration of electrolyte.

S2: Molar conductivity always increases with decrease in the concentration of electrolyte. The correct option among the following is:

a) Both S1 and S2 are wrong.   b) Both S1 and S2 are correct.

c) S1 is wrong and S2 is correct.   d) S1 is correct and S2 is wrong.

Q39. Which of the following could act as a propellant for rockets?

    a) Liquid oxygen + liquid argon   b) Liquid hydrogen + liquid oxygen

    c) Liquid nitrogen + liquid oxygen   d) Liquid hydrogen + liquid nitrogen

Q40. Which material has the highest electrical conductivity?

    a) Steel   b) Silver   c) Aluminium   d) Lead

BIOLOGY (5)

Q41. Which of the following microorganisms is responsible for the formation of yoghurt?

    a) Saccharomyces cerevisiae   b) Lactobacillus bulgaricus

    c) Clostridium botulinum   d) Penicillium notatum

Q42. Which microorganism is utilized in the production of antibiotics like penicillin?

    a) Penicillium chrysogenum   b) Escherichia coli

    c) Staphylococcus aureus   d) Vibrio cholera

Q43. What is the role of the Sertoli cells in the male reproductive system?

    a) Production of testosterone

    b) Nourishment and support of developing sperm cells

    c) Secretion of seminal fluid

    d) Regulation of the menstrual cycle

Q44. In the process of bacterial conjugation, what is transferred from one bacterium to another?

    a) Mitochondria   b) Plasmid DNA

    c) Ribosomal RNA   d) Cellular organelles

Q45. Which hormone is known as the 'fight or flight' hormone?

    a) Norepinephrine   b) Thyroxine   c) Insulin   d) Melatonin

REASONING (15)

Q46. Find the wrong term:

    0, 7, 26, 65, 124, 215

    a) 124   b) 215   c) 26   d) 65

Q47. Find the missing number:

    0, 4, 18, 48, ?, 180

    a) 50   b) 100   c) 150   d) None of these

Q48. Out of 35 students, A is placed 7th from bottom whereas B is placed 9th from the top and C is placed exactly between these two. What is A's position from C ?

    a) 9th   b) 10th c) 11th   d) None of these

Q49. A pendulum of clock strikes once at 1 O'clock, twice at 2 O'clock, thrice at 3 O'clock and so on. How many times it will strike in 1st 48 hours?

    a) 312   b) 1176   c) 48   d) None of these

Q50. DENMARK : BGLOYTI : : FINLAND : ?

   a) DANLNIF   b) DKLYBNP   c) DKLNYPB   d) DKLYNBP

Q51. A × B means A is South of B, A + B means A is North of B. A% B means A is East of B, A – B means A is west of B. P% Q + R – S, Q is in which direction of S? (If all are equidistant)

   a) North West   b) South West   c) South East   d) None of these

Q52. EDUCATION is coded as 1005420402211183015, then COMMUNICATION will be coded as ?

   a) 2412131321140904021 1183015   b) 0330131342141804021 1183015

   c) 2413121321140904021 1183015   d) 0430141442151804021 1183015

Q53. How many times do we use knife to cut a large cube in 216 small cubes of same size ?

   a) 215   b) 216   c) 36   d) 15

Q54. Minimum number of colours required to paint a Cuboid such that no adjacent face have same colour.

   a) 6   b) 3   c) 4   d) 5

Q55. Human use oxygen for breathing and plants use_____ for breathing

   a) Carbondioxide   b) Oxygen   c) Nitrogen   d) None of these

Q56. Find odd one out:

   a) Vowels   b) Consonants   c) Alphabet   d) Alphabets

Q57. How many times do we use digit 1 while writing 1 to 1000 ?

   a) 301   b) 201   c) 302   d) None of these

Q58. Pointing to Veer, Veena says, "I am the daughter of the only son of his Grandfather". How is Veena related to Veer ?

   a) Niece   b) Daughter

   c) Sister   d) Mother

Q59. If * is written as 'x' '$' is written as '+' '#' is written as '÷' and '©' is written as '–', then what is the value of 288# 16 $ 65 * 5 © 146 ?

   a) 153   b) 242   c) 197   d) 185

Q60. Anmol walks 15m towards South and turns right and walks for 20m. Then he again turns right and walks for 25m. In which direction and how far is he now from his starting point?

   a) $10\sqrt{5}\ m\ South - East$ b) $30\sqrt{5}\ m\ North - East$

   c) $10\sqrt{5}\ m\ North - West$ d) $20\sqrt{5}\ m\ South - West$