



UNIFIED COUNCIL

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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION (UPDATED)

CLASS - 6

Question Paper Code : **UN449**

KEY

1. B	2. B	3. D	4. C	5. D	6. B	7. C	8. A	9. B	10. D
11. D	12. C	13. C	14. D	15. B	16. D	17. C	18. C	19. D	20. B
21. D	22. B	23. A	24. A	25. C	26. B	27. D	28. C	29. B	30. C
31. C	32. A	33. A	34. D	35. A	36. C	37. D	38. C	39. B	40. C
41. C	42. C	43. A	44. C	45. C	46. D	47. B	48. C	49. D	50. C
51. A	52. C	53. B	54. C	55. D	56. C	57. B	58. B	59. D	60. C

SOLUTIONS

MATHEMATICS

1. (B) $\frac{100}{25} \times 4 - 4 + 20 = 16 - 4 + 20 = 32$

2. (B) $228 \times 19 - 519 = 3813$

3. (D) Given $x + 3x = 90^\circ$

$$4x = 90^\circ$$

$$x = \frac{90^\circ}{4} = 22.5$$

$$3x = 67.5^\circ$$

4. (C) HCF of 56 & 104 is 8

$$\begin{array}{r} 56) 104 (1 \\ \underline{56} \\ 48) 56 (1 \\ \underline{48} \\ 08) 48 (6 \\ \underline{48} \\ 0 \end{array}$$

Given $K - 7 = 8$

$$K = 15$$

5. (D) Let 'p' to be subtracted

$$\therefore -5x^2 + 2x + 3 - P = x^2 - 3x - 1$$

$$-5x^2 + 2x + 3 - x^2 + 3x + 1 = P$$

$$-6x^2 + 5x + 4 = P$$

6. (B) $(x + 4)(x^2 - 4x + 16) = x^3 - 4x^2 + 16x + 4x^2 - 16x + 64 = x^3 + 64$

Similarity $(x + 3)(x^2 - 3x + 9) = x^3 + 27$

Required answer = $(x^3 + 64) - (x^3 + 27) = x^3 + 64 - x^3 - 27 = 37$.

7. (C) $\frac{-8 \times 27 \times 25}{3 - 30} = 200$

8. (A) $x = -12$ & $y = 20$, $x - y = -12 - 20 = -32$

9. (B) $\frac{x}{20} = \frac{-3}{20} - \frac{1}{5} = \frac{-3-4}{20} = \frac{-7}{20}$

10. (D) $C = 2\pi r = 2 \times 3.14 \times 25 \text{ m} = 157 \text{ mts}$

11. (D) $0.123456789 + 0.987654321 = 1.111111110$

12. (C) Area of pavement = $18^2 - (18-6)^2 = 18^2 - 12^2 = 180 \text{ sqm}$

13. (C) Square

14. (D) $p^3 + 3p^2q + 3pq^2 + q^3 = (-3)^3 + 3(-3)^2(-7) + 3(-3)(-7)^2 + (-7)^3$
 $= -27 - 189 - 441 - 343$
 $= -1000$

15. (B) 60°

16. (D) A triangle has 3 sides, 3 vertices & 3 angles

17. (C) Tetrahedron

18. (C) $5x - 3y = 16000$ &
 $4x - 2y = 1600$
 from (1) & (2) $5x - 3y = 4x - 2y$
 $x = y$

$\therefore 5x - 3y = 1600$

$5x - 3x = 1600$

$2x = 1600$

$x = 800$

$5x = 4000$

19. (D) A parallelogram has no line symmetry

20. (B) Trapezium

21. (D) LCM of 2, 9, 18, 27 is 54

$\frac{1}{2} = \frac{27}{54}, \frac{4}{9} = \frac{4}{9} \times \frac{6}{6} = \frac{24}{54}, \frac{5}{18} = \frac{5 \times 3}{18 \times 3} = \frac{15}{54}$

$\frac{7}{27} = \frac{7}{27} \times \frac{2}{2} = \frac{14}{54}$

$\therefore \frac{27}{54}, \frac{24}{54}, \frac{15}{54}, \frac{14}{54}$ is the descending order

$\frac{1}{2}, \frac{4}{9}, \frac{5}{18}, \frac{7}{27}$

22. (B) Given $\frac{7}{12}x = 315 \Rightarrow x = 315 \times \frac{12}{7} = 540$

\therefore Number of marbles of

$R = \frac{5}{12} \times 540 = 225$

23. (A) $x = 30^\circ$

24. (A) * is replaced by '2' so the given number is divisible by 11.

25. (C) Side of square = $\frac{x}{4} \text{ cm}$

Area = $\left(\frac{x}{4}\right)^2 = \frac{x^2}{16}$

PHYSICS

26. (B) Plastic, rubber and ebonite are insulators because electricity cannot conduct through them.

27. (D) None of the given options are correct.

28. (C) An aeroplane changes its motion from time to time.

29. (B) Wooden ruler is not a metal. Iron coin, silver cup and copper wire are made up of metals.

30. (C) Light rays incident on a plane mirror can be reflected. Statements (A), (B) and (D) are not correct.

31. (C) Let 'h' be the height of Harish.

The height of Ram = $(h + 50) \text{ cm}$

Height of Ram + height of Harish

= $2.8 \text{ m} = 280 \text{ cm}$

$\therefore (h + 50) + h = 280 \text{ cm}$

$\Rightarrow 2h + 50 = 280$

$\Rightarrow 2h = 280 - 50 = 230$

$\Rightarrow 2h = 230 \Rightarrow h = 115 \text{ cm}$

The height of Harish = 115 cm

The height of Ram = $115 + 50 = 165 \text{ cm}$

32. (A) The circuit shown in option (A) has only one bulb supplied with electrical energy of two cells in series. Hence, it will glow brightest.
33. (A) Rani can see her full image including her feet in a mirror due to reflection of light. Light rays from her feet incident on the mirror get reflected which enables to see her feet in the mirror.
34. (D) All the given statements are correct.
35. (A) Iron piece, a solid, salt water and mercury are liquids and they conduct electricity. Cotton thread is an insulator and when connected in the place of material X does not light up the bulb as no current flows through it.

CHEMISTRY

36. (C) Blooming of a flower, growth of a tree and formation of a fruit, all these are chemical, irreversible changes that occur in plants/trees. Growth of our nails is also a chemical, irreversible change that occurs in human beings.

We cannot get back a bud after it blooms as a flower, a seed after it forms a tree and a fruit. So, chemical changes given in options (A), (B) and (D) relate to plants/trees and the odd one out is growth of our nails that occurs in human beings.

37. (D) Ceramic can be used to make pots, tiles and plates. Ceramic is not flexible and cannot be used to make curtains.
38. (C) As few coloured glass pieces are big in size are mixed with sugar, the easiest way to separate them is to hand pick the glass pieces.
39. (B) Formation of clouds occurs due to condensation of water vapour in the atmosphere.
40. (C) Rubber is used for making tyres, kitchen gloves, shoes, gaskets, eraser etc.
41. (C) Sulphur, being a solid always dissolves in carbon disulphide, a solvent. It is a physical change and similar to salt

(solid) dissolving in water, a solvent. Iron filings are not given in the question.

42. (C) Grains are separated from husk by winnowing. Iron filings get attracted to a magnet leaving behind sand. Ammonium chloride on heating changes directly to gas. Common salt does not undergo sublimation.
43. (A) In water cycle process, water evaporates from all water bodies to form water vapour. In process P, ocean water evaporates and enters into the atmosphere as water vapour by evaporation.
44. (C) Plastics are waterproof and suitable for making raincoats.
45. (C) A bar of chocolate when placed in the sun for 2 hours absorbs heat from the sun and changes to liquid. Plastic bucket, metal spoon and rubber band absorb heat from the sun but this temperature is not sufficient for them to convert into liquid form.

BIOLOGY

46. (D) In the given figure fox is predator. Predator is the animal that hunts and kills other animals for its food.
47. (B) The ribcage is made up of pairs of curved bones in our chest and its connected to the backbone (Spine).
The ribcage protects the heart and the lungs.
The heart helps to pump blood.
48. (C) Camel have long eye lashes to keep the sand that is blowing around out of their eyes.
49. (D) Organic matter such as leftover food and bones can be decomposed by bacteria or fungi into simple substances that can be absorbed and used by plants for healthy growth.
50. (C) The leaves make food for the plant
51. (A) Iodine turns blue black when it is added to starch.

52. (C) A baby plant gets its food from the seed leaves until it is able to make its own food.
53. (B) Plants respond to stimulus. Hence it grows towards the light
54. (C) Bread is made from cereals like wheat and cereals are the best source of carbohydrates.
55. (D) A bath towel that is torn can be reused for cleaning purposes or sent for recycling.
- Pants that are too small to wear can be reused by others who can wear them or sent for recycling.
- An empty glass bottle can be reused to hold other things or sent for recycling.
- A metal chair with a broken leg can be sent for recycling. It cannot be reused unless the broken leg is replaced with a good one.

CRITICAL THINKING

56. (C) 4 × 100 Relay, 4 × 400 Relay, 20 km walk, Marathon.
57. (B) Because the first two statements are true, Manoj is the youngest of the three, so the third statement must be false.
58. (B) The girl is the daughter of the sister of Sandeep's father. Hence, the girl is the cousin or Sandeep in the cousin of the girl.
59. (D) Leli means yellow; broon means hat; pleka means flower; froti means garden; mix means salad. Therefore, lelipleka means yellow flower.
60. (C) The hands of a clock coincide 11 times in every 12 hours. (Since between 11 and 1, they coincide only once. i.e., at 12 o'clock).

THE END
