



UNIFIED COUNCIL

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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION (UPDATED)

CLASS - 6


Question Paper Code : UN465

KEY

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

SOLUTIONS

MATHEMATICS

- (A) $37 \times 43 = 1591$
∴ The place value of prime is 500
- (B) 
- (C) Between 45° & 90°
- (A) $6 \times 15 \neq 7.5 \times 3$
⇒ The given ratios are not in proportion
- (D) Area of bigger rectangle
 $= 28 \text{ cm} \times (12 + 8) \text{ cm} = 560 \text{ cm}^2$
Area of smaller rectangle = $8 \text{ cm} \times (28 \text{ cm} - 9 \text{ cm} - 5 \text{ cm})$

$$= 8 \text{ cm} \times 14 \text{ cm} = 112 \text{ cm}^2$$

$$\text{Area of shaded region} = 560 \text{ cm}^2 - 112 \text{ cm}^2 = 448 \text{ cm}^2$$

- 6: (A) Given lines are concurrent lines.

$$7: (D) \frac{223}{71} = 3.1408$$

$$\frac{6287}{2000} = 3.1435$$

$$\frac{22}{7} = 3.1428$$

$$\therefore 3.1408 < 3.1428 < 3.1435$$

$$\therefore \frac{223}{71} < \frac{22}{7} < \frac{6287}{2000}$$

8: (B, C) $63 = 7 \times 9$ and $9 - 7 = 2$, $88 = 11 \times 8$ and $11 - 8 = 3$

$$90 = 9 \times 10 \text{ and } 10 - 9 = 1$$

$$90 = 2 \times 45 \text{ and } 45 - 2 = 43$$

$$90 = 15 \times 6 \text{ and } 15 - 6 = 7$$

$$35 = 7 \times 5 \text{ and } 7 - 5 = 2$$

9, 6 are the factors of 90

\therefore difference of 9 and 6 is 3

9: (C) $(15 \times -4) = -60$

$$-15 \times -4 = 60$$

$\therefore -60 < 60 \Rightarrow (15 \times -4) < (-15 \times -4)$

10: (C) If $x = y$ then commutative law of subtraction is true for whole numbers

11: (A) Yet to complete the home work

$$= 1 - \frac{1}{5} - \frac{3}{4} = \frac{20 - 4 - 15}{20} = \frac{1}{20}$$

12: (D) Number of 3 digit numbers = Biggest 3 digit number – biggest 2 digit number

$$= 999 - 99 = 900$$

13: (B) CD || AB

14: (D) Percentage of allowance spent on food

$$= 15\% = \frac{15}{100} = 0.15$$

15: (A) Let 'k' be added to y to get x

$$\therefore y + k = x$$

$$k = x - y$$

16: (C) A regular pentagon has '5' lines of symmetry

17: (C) Every natural number is a whole number

18: (A) $100 - 4[25 + \{5 + 3\}] = 100 - 4(33)$

$$= 100 - 132$$

$$= -32$$

19: (C) Six parts are shaded out of 10 parts

$$\therefore \text{Decimal fraction of shaded part} = \frac{6}{10}$$

$$= 0.6$$

20: (D) Side of square = $\frac{48 \text{ cm}}{4} = 12 \text{ cm}$

$$\text{Area of square} = a^2 = (12 \text{ cm})^2 = 144 \text{ cm}^2$$

$$\text{Given } \frac{1}{2} \times 2x \times 48 \text{ cm}^2 = 144 \text{ cm}^2$$

$$x = \frac{144 \text{ cm}^2}{48 \text{ cm}} = 3 \text{ cm}$$

21: (C) $\frac{0.00024}{0.008} = \frac{0.24}{8} = 0.03$

22: (A) $c = 6 \Rightarrow b + c = 8$

$$\therefore b = 2$$

$$3a + 2(2) + 6 = 22$$

$$3a = 22 - 4 - 6$$

$$a = \frac{12}{3} = 4$$

$$a + b + c = 4 + 2 + 6 = 12$$

23: (D) LHS = $\frac{2}{3}y^3 - \frac{1}{3}y^2 + \frac{5}{6}y + 7 + \frac{4}{3}y^3 - \frac{2}{3}y^2 - \frac{1}{3}y + 3$

$$\frac{2}{3}y^3 + \frac{4}{3}y^3 + \left(-\frac{1}{3}y^2 - \frac{2}{3}y^2\right) + \left(\frac{5}{6}y - \frac{1}{3}y\right) + (7+3)$$

$$\frac{2y^3 + 4y^3}{3} + \left(\frac{-y^2 - 2y^2}{3}\right) + \left(\frac{5y - 2y}{6}\right) + 10$$

$$= \frac{6y^3}{3} - \frac{3y^2}{3} + \frac{3y}{6} + 10$$

$$= 2y^3 - y^2 + \frac{y}{2} + 10$$

24: (B) $35 \text{ cm} = \frac{35}{100} \text{ m} = 0.35 \text{ m}$

25: (A) New radius (R) = $3r$

$$\text{New circumference} = 2\pi R = 2\pi(3r) = 3(2\pi r) = 3c$$

PHYSICS

26. (B) Copper has high electrical conductivity, and hence it is used to make electrical wires.
27. (B) Rotatory motion is not always oscillatory. In rotatory motion, a body moves in a circular path whereas in oscillatory motion, a body moves back and forth or oscillates to and fro.
28. (A) Chair is an opaque object. Opaque objects completely stop light from passing through them. When light falls on a wooden chair, a part of the light gets reflected from the chair and enters our eyes.
29. (A) The filament of an electric bulb is usually made up of a thin wire with many coils.
30. (C) Statements (A), (B) and (D) are true.
The motion of the ball in football game is both rectilinear and curvilinear.
31. (D) The shadow of the ring is bigger. Thus, object P that is nearest to the torch light has the shape of a ring.
The shadow of the rectangle is smaller. Thus, object Q that is further away from the torch light than object P has the shape of a rectangle.
The shadow of the circle cannot be seen on the screen. Thus, object R that is farthest away from the torch light has the shape of a circle.
32. (A) Only switch L must be closed for only Bulb I to light up.
33. (C) A spinning top undergoes rotatory motion.
34. (D) Statements (A) and (B) are correct.
35. (C) The symbols of electrical components used in the construction of the given circuit are X-Battery, Y-Switch, Z-Bulb.

CHEMISTRY

36. (D) Stone is insoluble in water whereas salt is soluble in water.
37. (D) The drying of wet clothes and desalination of sea water are desirable changes.
38. (C) When sunlight falls on water bodies, water evaporates to form water vapour. Water vapour becomes light as it goes up. Small droplets of water join together and condense to form bigger drops in the clouds. Once the clouds become heavy, they fall as rain.
39. (D) Carbon is not a plastic. It is a non-metallic element.
Option A: Pottery is ceramic.
Option B: Terylene is a fibre.
Option C: Steel is a metal (alloy of a metal with carbon).
40. (A) The soluble solid will dissolve in the water and the insoluble solid can be separated from the solution by filtration. The resulting filtrate on evaporation will give the insoluble solid.
41. (D) If two substances interact to produce a change, they will do so only if the interaction is under the right conditions.
42. (D) Leather handbag is not grouped correctly.
43. (D) Sea water has plenty of dissolved salts in it. It is unfit for human use like drinking, cooking, washing etc. It cannot be used in agriculture for growing crops as sea water makes the soil acidic.
44. (D) Only winnowing needs air for the process of separation. Threshing and sieving do not need air when they are separated.
45. (C) All the given articles are bad conductors of electricity. The next article she is going to pick up is rubber gloves which is also a bad conductor of electricity.

BIOLOGY

46. (B) (i) - growth; (ii) - movement; (iii) - reproduction; (iv) - photosynthesis.

All living things need energy to carry out life processes like growth, movement and reproduction. Plants use energy from the sun to make food.

47. (B) Cotton bolls are fruits of a cotton plant.

48. (D) Sweet potato is a root part and ginger is an underground stem.

49. (B) Deficiency of iodine causes goitre.

50. (D) A bath towel that is torn can be reused for cleaning or sent for recycling.

Trousers that are too small to wear can be resued 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 chair with a broken leg can be sent for recycling. It cannot be reused unless the broken leg is replaced with a good one.

51. (A) Invertebrates have exoskeleton. Scorpion is an arthropod. It is an invertebrate.

52. (B, D) Option (B) shows a group of penguins. A group of organism or the same species living in the same area is called population. A community comprises several populations living together in the same environment. Option (A) show a pond community with different organism while option (D) shows a tree community. Option (C) shows a plant which is an organism.

53. (B) Animal Q is a fennec fox which is able to survive in the desert because it has large ears to help it lose excess body heat.

Animal P is a goat while animal R is a giraffe. They will be unable to survive the harsh conditions of the desert.

54. (D) Water, sunlight and carbondioxide are the materials used in photosynthesis.

55. (D) Plants that cling onto supports to grow as high as possible have structural adaptations such as tendrils, hooks or clasping roots to help them climb to get as much sunlight as possible.

Money plants have clasping roots and vines have tendrils. The clasping roots and tendrils help these plants to climb on other tall plants or supports in order to get enough sunlight for making food.

Plants have roots to absorb water and minerals.

Plants have the green pigment called chlorophyll to capture sunlight for making food.

CRITICAL THINKING

- 56: (A) Height → Heel → Heavy → Heal → Hazy
→ Hat-trick → Harvest → Half time

- 57: (C) 5

3 of them have eaten 9 cookies means
 $3 + B + C = 9$

$$B + C = 9 - 3 = 6$$

if $B=4, C=2$ then $D=2$ (this condition not satisfied)

if $B=5, C=1$ then $D=2$ (this condition is satisfied)

∴ Highest no. of cookies eaten by one brother is 5.

- 58: (A)



59: (D) The rule that unites items (2), (4), (5), and (6) is that the number of green dots in each diagonal line matches the number of squares.

In each item there is an additional dot, but since it is identical in all the items, it is a distraction.

Item (1) is different because it has two more green dots in the diagonal line than there are squares behind it - 6 dots and only 4 squares.

Item (3), on the other hand, is missing one green dot in the line - it only has 4 dots to 5 squares.

60: (B) If he combine all the bundles, then he will have a single bundle of wood.

THE END
