



UNIFIED COUNCIL

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SLSTSE

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STATE LEVEL SCIENCE TALENT SEARCH EXAMINATION

CLASS - 6

Question Paper Code : US757

KEY

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

SOLUTIONS

MATHEMATICS

1. (C) Biggest 8 digit number = 9,99,99,999

Biggest 7 digit number = 99,99,999

∴ Number of 8 digit numbers
= 9,99,99,999 – 99,99,999
= 9,00,00,000

2. (A) $x = \frac{1}{4} = \frac{1}{4} \times \frac{5}{5} = \frac{5}{20}$

$y = \frac{2}{5} = \frac{2}{5} \times \frac{4}{4} = \frac{8}{20}$

$z = \frac{4}{5} = \frac{4}{5} \times \frac{4}{4} = \frac{16}{20}$

∴ $\frac{5}{20} < \frac{8}{20} < \frac{16}{20}$

∴ 'x' supplies better quality

3. (A) Apply distributive property

$8937 \times 648 + 8937 \times 122 + 8937$
 $\times 230 = 8937 \times (648 + 122 + 230)$
 $= 8937 \times 1000 = 8937000$

4. (C) $49 - 1 = 48, 74 - 2 = 72$

$123 - 3 = 120$

H.C.F of 48, 72, 120 = 24

∴ The required number = 24

5. (B) 

The points P, Q, R, S, T ... lying on line l are said to be collinear

NOTE: Infinite number of points lying on same line are considered as collinear

6. (C) $AC + CD = AD$

$$AC = AD - CD$$

7. (A) 9 triangles

8. (B) According to the given figure
 $\angle AOC = 90^\circ$, $\angle BOC = 134^\circ$ and
 $\angle AOB = \angle BOC - \angle AOC$
 $= 134^\circ - 90^\circ = 44^\circ$

9. (B) Smallest integer can not be determined

10. (C) Let female population be x

$$\text{Given } x + x + 678 = 1, 23, 456$$

$$2x = 1, 23, 456 - 678 = 1,22,778$$

$$x = \frac{1,22,778}{2} = 61,389$$

11. (C) $3\frac{1}{12} + \left[1\frac{3}{4} + \left\{ 2\frac{1}{2} - \left(1\frac{1}{2} - \frac{1}{3} \right) \right\} \right]$

$$= \frac{37}{12} + \left[\frac{7}{4} + \left\{ \frac{5}{2} - \left(\frac{3}{2} - \frac{1}{3} \right) \right\} \right]$$

$$= \frac{37}{12} + \left[\frac{7}{4} + \left\{ \frac{5}{2} - \left(\frac{9-2}{6} \right) \right\} \right]$$

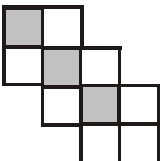
$$= \frac{37}{12} + \left[\frac{7}{4} + \left\{ \frac{5}{2} - \frac{7}{6} \right\} \right]$$

$$= \frac{37}{12} + \left[\frac{7}{4} + \left\{ \frac{15-7}{6} \right\} \right]$$

$$= \frac{37}{12} + \frac{7}{4} + \frac{8}{6} = \frac{37}{12} + \frac{7}{4} + \frac{4}{3}$$

$$= \frac{37+21+16}{12} = \frac{74}{12} = \frac{37}{6} = 6\frac{1}{6}$$

12. (B) Every mixed fraction can be written as improper fraction

13. (A)  $= \frac{3}{10} = 0.3$

14. (A) $0.35 \text{ m} + 1.27 \text{ m} + 3.27 \text{ m} + 5.63 \text{ m} = 10.52 \text{ m}$

15. (C) Total no. of pupils in all the 4 classes
 $= 20 \times 5 = 100$ pupils

16. (C) Given 9, x , x , 49 are in proportion

$$\Rightarrow 9 \times 49 = x \times x$$

$$\Rightarrow 3 \times 3 \times 7 \times 7 = x \times x$$

$$\Rightarrow (3 \times 7) \times (3 \times 7) = x \times x$$

$$\Rightarrow x = 3 \times 7 = 21$$

17. (A) $9y - x + 2x - y - 1 + 3x - 2 = (4x + 8y - 3) \text{ cm}$

18. (A) $x + y = 5$

$$y + z = 7$$

$$+ z + x = 12$$

$$\hline 2(x + y + z) = 24$$

$$\Rightarrow x + y + z = 12$$

19. (D) $-24 > -28 > -32$ (OR) $-32 < -28 < -24$

20. (D) Total score = $4 \times 3 + 6 \times (-1) + 1 (0)$

$$= 12 - 6 = 6$$

21. (C) $111111 \times 111111 = 12345654321$

22. (C) Two right angles are supplementary

23. (C) $x + \frac{x}{2} + 120^\circ = 180^\circ$

$$\frac{3x}{2} = 60^\circ$$

$$x = 40^\circ$$

24. (A) Area of shaded region

$$= \text{Total area} - \text{inner area}$$

$$= 100 \text{ m} \times 100 \text{ m} - 90 \text{ m} \times 90 \text{ m}$$

$$= 10,000 \text{ sq m} - 8,100 \text{ sqm}$$

$$= 1900 \text{ sqm}$$

25. (A) Perimeter of the plot = $2(l+b)$

$$= 2 (500 \text{ m} + 100 \text{ m})$$

$$= 1200 \text{ m}$$

$$\therefore \text{ wire used for 4 rounds} = 4 \times 1200 \text{ m}$$

$$= 4,800 \text{ m}$$

PHYSICS

26. (C) Volume of water displaced

$$= \text{Total volume of balls}$$

$$= 10 \times 3 \text{ cm}^3$$

$$= 30 \text{ cm}^3$$

27. **(D)** Isolated magnetic poles do not exist. On cutting a magnet into several pieces, each piece of a magnet behaves as an individual magnet.
28. **(A)** (i) Circuit in option (A) shows a closed circuit that allows electric current to flow through, so the bulb will light up.
 (ii) Circuit in option (B) shows a circuit without a source of electricity. The bulb will not light up.
 (iii) Circuits shown in options (C) and (D), the dry cells are not arranged properly in the circuits, so the bulbs will not light up.
29. **(D)** Iron core is the only magnetic material that can produce a strongest electro-magnet. The rest of the given materials are not magnetic materials.
30. **(B)** As per the given figure, the correct labelling of electric bulb is
 (i) Glass bulb
 (ii) Filament
 (iii) Tungsten
 (iv) Metal casing
 (i) The glass bulb encloses and protects the filament. It is made up of a transparent material so that light can pass through it.
 (ii) and (iii) The filament glows and gives out light and heat energy when electric current flows through it. It is usually made up of a metal called Tungsten.
 (iv) Metal casing is the lower part of an electric bulb that has two ends of filament separately sealed.
31. **(B)** 1 beaker is filled with 150 mL of water.
 5 beakers are filled with $5 \times 150 \text{ mL} = 750 \text{ mL}$ of water. So, 750 mL of water can be poured into 1 litre beaker of 1000 mL.
32. **(D)** Like poles repel and unlike poles attract. The set in option (D) has both magnets placed with opposite poles facing each other. Hence, they attract each other.
33. **(A)** A switch in a circuit enables us to switch the bulb on or off when necessary.

When the switch is turned on, the circuit is closed and the bulb lights up. When the switch is turned off, the circuit is open and the bulb does not light up.

A switch is usually connected to an electric circuit to open or close the circuit.

34. **(B)** The length of the book is equal to 6 paper clips.
35. **(C)** When a magnet is cut into two pieces, then each broken piece is a complete magnet i.e., each piece will have two poles. Monopole in a magnet does not exist.

CHEMISTRY

36. **(D)** Lighting a matchstick is a chemical change as it produces a new substance ash.
37. **(D)** To reduce the weight of powdered salt, a vendor mixed stone powder. Solubility of stone and salt in water helps to detect this malpractice as stone powder is insoluble in water whereas salt is soluble in water.
38. **(B)** The correct order of the separation process is to add water first to salt and sand mixture to dissolve the salt, then filter to obtain the sand and finally evaporate the filtrate to obtain the dissolved salt.
 Separation processes given in options (A), (C) and (D) are wrong to separate the given mixture.
39. **(D)** Container S (a flask) has the smallest surface area for water to evaporate into the atmosphere. Thus, the rate of evaporation will be the slowest in flask S.
40. **(C)** The objects given in group (P) are non-magnetic. Iron rod and steel spoon in group (Q) are magnetic and get attracted to a magnet.
41. **(C)** The rotation of the earth on its own axis and revolution of the earth around the sun respectively occur at regular intervals of time. The earth undergoes periodic change.
42. **(C)** A gas changes into a liquid by the process known as condensation.

43. **(D)** Metals are hard, lustrous and good conductors of electricity.
44. **(C)** The melting of wax is a physical and reversible change.
45. **(C)** Milk is a miscible solution in water. It cannot be separated by filtration.

BIOLOGY

46. **(A)** Euglena exhibits (mixotrophic) autotrophic and heterotrophic nutrition.
47. **(C)** Silk : Cocoon, wool : fleece of sheep.
48. **(A)** The given figure shows that our breath contains water vapour.
49. **(B)** The given figure shows ball and socket joint at shoulder and hip.
50. **(B)** Beans, peas, pulses and meat are rich in proteins.
51. **(D)** A plastic glass is non-biodegradable.
52. **(C)** X is herbivore.

53. **(D)** Hydrophytes have stems with light spongy and numerous air spaces.
54. **(B)** P – stigma, Q – style, R – Ovary, S – Ovule.
55. **(C)** Humus is formed from organic wastes.

CRITICAL THINKING

56. **(C)** $5 \times 4 + (3 \times 2 + 4) + 2 \times 5 = 41$
57. **(B)** $(1 - 10) = 2, (11 - 19) = 10, (21, 31, 41) = 3$
 $2 + 3 + 10 = 15$
58. **(D)**
59. **(C)** Number of intervals
= number of lamp posts – 1
= $16 - 1 = 15$
Since each interval is 10 m,
 $15 \times 10 \text{ m} = 150 \text{ m}$
the road is 150 m long
60. **(D)**

THE END
