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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION (UPDATED)

CLASS - 5

Question Paper Code : UN497

KEY

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

SOLUTIONS

MATHEMATICS

01. (A) The total temperature for 5 days
= 18 + 20 + 22 + 19 + 21 = 100°C
Average temperature for 7 days = 20°C
So total for 7 days = 20 × 7 = 140°C.
Total for Saturday and Sunday
= 140°C – 100°C = 40°C

02. (A) Original speed
= 300 km ÷ 5 hours = 60 km/h.
Reduced speed
= 60 km/h – 10 km/h = 50 km/h.
Time taken at reduced speed
= 300 km ÷ 50 km/h = 6 hours.

03. (C) Using the SI formula
SI = P × R × T/100
So, 160 = 1000 × 4 × T/100
This gives T = 4 years

04. (B) For the first hat :
Cost Price = Selling Price – Profit
= ₹ 125 – ₹ 25 = ₹ 100.
For the second hat :
Cost Price = Selling Price + Loss
= ₹ 75 + ₹ 25 = ₹ 100.
Total spent = ₹ 100 + ₹ 100 = ₹ 200.
Total earned from selling both hats
= ₹ 125 + ₹ 75 = ₹ 200.

As the amount spent equals the amount earned, there is no profit or loss.

05. (D) 40% = 80

$1\% = \frac{80}{40} = 2$

100% = 2 × 100 = 200 (Total)

∴ There are total 200 students.

06. (C) 250 ml × 7 = 1750 ml = 1.75 l

07. (D) 40000 + 1400 + 320 = 41720

08. (D) 5569, 5604, 5581, 5633 numbers from the box rounded to 5600

09. (B) 45 - The factors are 1, 3, 5, 9, 15 and 45.

10. (A) $2 \times \boxed{?} = \frac{2}{5} \times \frac{1}{13}$

$2 \times \boxed{?} = \frac{2}{65}$

$\boxed{?} = \frac{2}{65} \div 2$

$\boxed{?} = \frac{2}{65} \times \frac{1}{2}$

$\boxed{?} = \frac{1}{65}$

∴ The missing fraction in the box is $\frac{1}{65}$

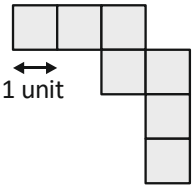
11. (D) Volume of cube = 4 unit × 4 unit × 4 unit

= 64 unit^3

Volume of cuboid should also same

∴ 4 unit × 8 unit × 2 unit = 64 unit^3

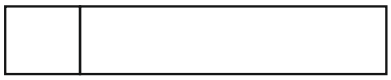
12. (C)



13. (D) RS is the line parallel to PQ.

14. (D) 9.08 l = 9080 ml

15. (A)



one piece + one piece + 20 cm = 50 cm

2 pieces + 20 cm = 50 cm

2 pieces = 50 cm – 20 cm

2 pieces = 30 cm

1 piece = $\frac{\cancel{30}^{15}\ \text{cm}}{\cancel{2}} = 15\text{cm}$

16. (B) $B = \frac{8 \times 9}{6} = \frac{72}{6} = 12$

17. (D) Mass of 1 sack of sand

= 6.8 + 7.25 = 14.05 kg

Mass of 25 sacks of cement

= 6.8 × 25 = 170 kg

Mass of 25 sacks of san

= 14.05 × 25 = 351.25 kg

Total mass = 170 + 351.25 = 521.25 kg

521.25 ÷ 200 = 2.60625

Number of trips needed = 3

18. (A) In 24 hr clock format, 3:00 p.m. is represented as 15:00 hrs, where 15 represents the hour after noon (3 p.m.)

19. (D) Shaded parts = 10

Total parts = 16

Fraction of shaded part $= \frac{10}{16} = \frac{5}{8}$

changing into decimal = $\frac{5}{8}$

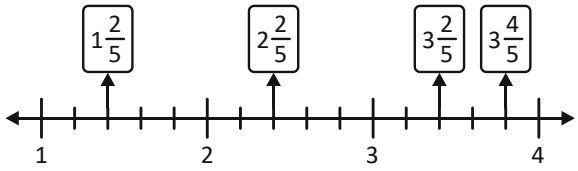
$$\begin{array}{r} 8\overline{)\ 50\ (0.625} \\ \underline{48} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

20. (C) Fourth multiple of 6 = 24

Lowest multiple of 20 = 20

Highest factor of 15 = 15

21. (B) $P \div Q = 2\frac{2}{5} \div 3\frac{4}{5} = \frac{12}{5} \times \frac{5}{19} = \frac{12}{19}$



22. (B) 10 crores = 100 millions

23. (B) M = L. C. M. of 18, 24, 40 = 360

N = H. C. F of 60, 180, 360 = 60

$\therefore$ 2M + 15N = 1620

$\therefore$ The digit in thousands place is 1

24. (C) $3(\text{Number}) - \frac{2}{3}(\text{Number}) = 49$

$$\text{Number} = \cancel{49}^{7} \times \frac{3}{\cancel{7}} = 21$$

25. (D) 8 kg 80 g = (8000 + 80) g

= 8080 g

= 8.08 kg

$\neq$ 8.008 kg

GENERAL SCIENCE

26. (D) Pigeon has body covering of feathers while bat has body covering of hair.

27. (B) Loamy soil can hold nutrients and moisture in adequate amount so is best suited for plant growth.

28. (C) The medulla controls all our involuntary activities such as heartbeat, breathing etc.

29. (B) Diarrhoea , typhoid and cholera spread by infected food and water. Malaria and plague are transmitted by insect bites. Flu spreads by air. Chicken pox and measles spread through direct contact.

30. (C) Rani is suffering from scurvy that occurs due to deficiency of vitamin C, so she should take citrus fruits that are rich in vitamin C. Mary is suffering from night blindness which occurs due to deficiency of vitamin A, so she should take fruits like papaya, mango etc that are rich in vitamin A

31. (A) In Bryophyllum, leaves have buds in their marginal notches. When these leaves detach from plant come in contact with moist soil their buds give rise to new plant.

32. (C) Ginger reproduces by the stem buds. In the given figure. X, Y and Z are potato, turnip and onion respectively. Potato and onion reproduce in the same way as the ginger plant.

33. (D) Carbon dioxide constitutes 0.03% of atmospheric air .

34. (A) Igneous rock are formed by cooling of magma below Earth surface or lava on Earth surface.

35. (B) Vehicular transport is powered by petrol and diesel. These are fossil fuels obtained from deep down the Earth. It is a non-renewable source of energy and will soon get exhausted. This is because it will take millions of years to regenerate.

36. (C) P $\rightarrow$ 3 ; Q $\rightarrow$ 1 ; R $\rightarrow$ 5 ; S $\rightarrow$ 2 ; T $\rightarrow$ 4

37. (A) A lunar eclipse occurs when the Earth comes between the Sun and the Moon. The earth casts a shadow on the Moon. When the Moon is completely hidden by the shadow of the Earth, it is a total lunar eclipse. It occurs on the night of a Full Moon.

38. (B) Changing of solid into liquid is called Melting.

39. (D) Wheel and axle arrangement is found in bicycle, sewing machine, and screw driver.

40. (A) Scissors is first order lever.

41. (A) Coal is a sedimentary rock.

42. (B) Tortoise and turtle are reptiles.

43. (A) Air is a bad conductor of heat. In winter we feel cold because the surrounding air and things are cold when compared to us and our body loses heat. So, clothes made of wool will have lot of air spaces in them that slow down the flow of heat of our body and keep us warm.

44. (C) Skull protects the brain.

45. (B) Heat stroke is the most serious form of heat injury and is considered a medical emergency. It can kill or cause damage to brain and other internal organs. It results from prolonged exposure to high temperatures usually in combination with dehydration which leads to failure of the body's temperature control system. In case of heat stroke, one should immediately rehydrate the person with a solution of salt, sugar and lime juice or juice of an unripe mango. This will replenish salt and water that the person has lost through sweating.

46. (B) Cerebrum is the largest part of the brain.

47. (A) 1-iii; 2-iv; 3-i; 4-ii

48. (B) Buoyant force is the upward force produced by the surrounding liquid in which an object is immersed.

49. (D) Deficiency of iodine leads to Goitre.

50. (D) Shoulder and hip joint are ball and socket joints.

51. (C) When seen in light, air shows some suspended particles floating in it. These are the particles of dust.

52. (D) Brain, spinal cord and nerves are parts of the nervous system.

53. (A) Inclined plane uses a slanted surface that connects a lower level to a higher level.

54. (B) 1-iii; 2-iv; 3-ii; 4-i

Touching a hot pot - burns.

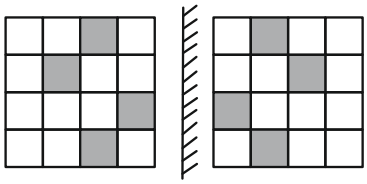
Electric shock is due to putting finger in an electric socket.

Pushing each other while playing - wounds and injury.

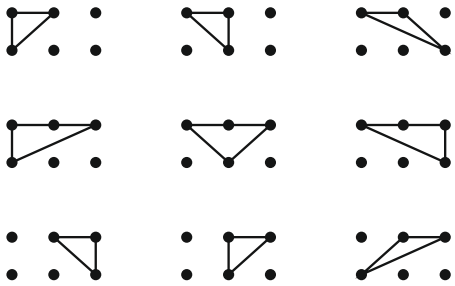
Using sharp knife - cuts.

55. (D) Ligament, tough fibrous band of connective tissue that serves to support the internal organs and hold bones together in proper articulation at the joints.

CRITICAL THINKING

56. (C) 

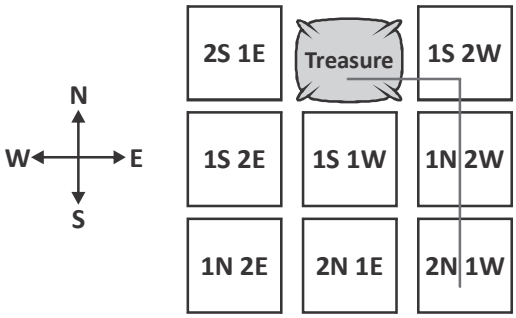
57. (A) Since there are 9 ways for using the top row as base, 9 × 2 = 18



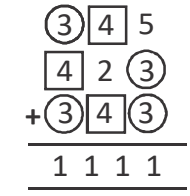
18 triangles can be drawn.

58. (D) There are 5 different kinds of tiles.

59. (D)



60. (C)



$\therefore$ ○ = 3

□ = 4

○ + □ = 3 + 4 = 7