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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION

CLASS - 4
Question Paper Code : UN484

KEY

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

SOLUTIONS

MATHEMATICS

01. (A) Amount spent by 9 of them = ₹ 2250

= ₹ 2250 ÷ 9 = ₹ 250

5 boys = ₹ 250 × 5 = ₹ 1250

4 girls = ₹ 250 × 4 = ₹ 1000

= ₹ 1125 + ₹ 1125 = ₹ 2250

Amount spent by 5 boys is 4 girls is same

Amount spent by each boy = ₹ 1125 ÷ ₹ 5

= ₹ 225

02. (B) $\dfrac{3}{6} = \dfrac{1}{2}, \ \dfrac{5}{10} = \dfrac{1}{2}, \ \dfrac{9}{18} = \dfrac{1}{2}$

Option A, C, D belongs to the given set except $\dfrac{42}{86}$

03. (A) $\dfrac{7}{12} + \dfrac{2}{3} = \dfrac{7}{12} + \dfrac{8}{12} = \dfrac{15}{12}$

$= \dfrac{5}{4} = 1\dfrac{1}{4}$

04. (C) Length = 12.5 cm

Breadth = 5 × 2 = 10 cm
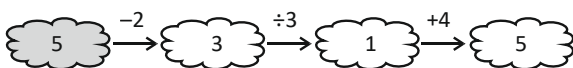
Perimeter of a given figure

= 2(l + b)

= 2(12.5 cm + 10 cm)

= 2(22.5 cm) = 45 cm

05. (B) 53 is the number greater than 50 but smaller than 59, which has only two factors, i.e., 1 & 53.

06. (A) 5

07. (C) The time 58 minutes before 5.34 pm is 5.34 pm − 58 min

= 4.94 pm − 58 min

= 4.36 pm

08. (D) Mass of full-glass of water = 400 grams

Mass of an empty glass = 100 gram

Mass of a half-glass of water

= 150 g + 100 g = 250 g

09. (C) 12 + 15 × 4 − 40 + 2

12 + 60 − 40 + 2

74 − 40 = 34

10. (A) Total no. of objects = 12

One third of the objects are pens

$= \dfrac{1}{3} \times 12 = 4$

One half of the objects are pencils

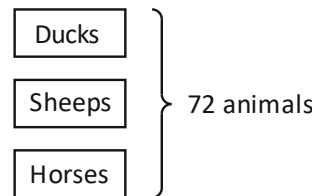$= \dfrac{1}{2} \times 12 = 6$

Rest of the objects are erasers

= 12 − 6 + 4 = 12 − 10 = 2

11. (D) Total no. of cars Nitya counted = 60

Number of cars in the given graph = 12

1 = 5 cars

No. of green cars = 3 = 5 × 3 = 15 cars

12. (C)

72 ÷ 4 = 18

Ducks = 18

Sheeps = 18

Horses are twice of ducks = 18 × 2 = 36

Total no. of legs = 18 × 2 + 18 × 4 + 36 × 4

= 36 + 72 + 144

= 252 legs

13. (B) 4 km 100 m − 2 km 520 m

= 3 km 1100 m − 2 km 520 m

= 1 km 580 m

14. (A) No. of apples in basket A = 130

No. of apples in basket B = 200

Total no. of apples = 200 + 130 = 330

Number of apples in each basket = 330 ÷ 2 = 165

No. of apples must be moved from basket B to basket A

= 200 − 165 = 35

15. (B) Total mass of 2 bottles and flour

= 1 kg 500 g

Mass of the flour = 1 kg

= 1 kg 500 g − 1 kg = 500 g

Mass of 2 bottles = 500 g

Mass of 1 bottle = 250 g

16. (C) 250 min = 240 min + 10 min

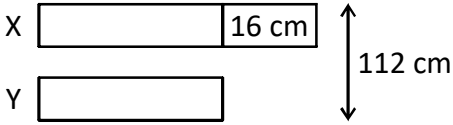= 4 h 10 min

There are 4 h 10 min in 250 min

17. (D) The distance apart between straight lines XY and GH is always the same (4 square units)

18. (C) 4001 ml − 251 ml = 3750 ml = 3 l 750 ml

19. (A)   (A)   516 < DCVI is correct

             DCVI = 500 + 100 + 5 + 1 = 606

        (B)   CCLVII = 100 + 100 + 50 + 5 + 1 + 1

             $= 257 \neq 256$

        (C)   CDVIII = (500 – 100) + 5 + 1 + 1

             = 400 + 8 = 408

        (D)   MD = 1500

20. (D)   P = 347 × 73 + 963

        = 25331 + 963

        = 26294

        Rounding off to the nearest ten

        2629<u>4</u> = 26290

21. (C)   Perimeter of A = 12

        Perimeter of B = 12

        Perimeter of C = 10

        Perimeter of D = 12

22. (C)

X [16 cm]

Y [   ]   112 cm

        2 units → 112 – 16 = 96 cm

        1 unit → 96 ÷ 2 = 48 cm

        Rod X, the longer rod, is 48 + 16 = 64 cm long

23. (C)   Capacity of a mug → 1500 ÷ 4 = 375 ml

        Volume of coffee in the jar = 3 × 375

        = 1125 ml

        = 1 l 125 ml

24. (D)   Note that we can have closed figures (like circles, orals, etc) which have no angles. They are made up of smooth curves. Only statement 'Q' is not true as a triangle cannot have more than (right angle).

25. (B)   Since 4 and 5 do not have a common factor, a number that is a common multiple of 4 and 5 is a multiple of (4 × 5).

        Multiples of 20 = 20, 40, 60, 80, 100, 120....

        Greatest 2-digit number that is a common multiple of 4 and 5 = 80.

GENERAL SCIENCE

26. (A)   Mars is a red planet, so red colour ball is right for planet mars.

27. (B)   Air contains nitrogen (78%), oxygen (21%) and carbon dioxide (0.03%). So, X, Y and Z could be nitrogen, oxygen and carbon dioxide respectively.

28. (C)   Mud from water is separated by filtration.

29. (D)   Hyena is a scavenger.

30. (C)   The given figure shows that the burning candle extinguishes after sometime after it has been covered, which proves that air is needed for burning.

31. (A)   Pine tree is an evergreen tree that grow in hilly areas. It is a tall and conical tree and has needle-shaped leaves.

32. (D)   The given animal is a bat. It is nocturnal animal as it is mostly active during the night. It can fly and it has hair on its body as it is a mammal. It reproduces by giving birth to young ones.

33. (B)   Water and mango juice are miscible with each other.

34. (B)   Apple falls down due to the gravitational force of the Earth.

35. (B)   A pulley is a simple machine that has a grooved wheel and a rope running between the groove of the wheel. It is used to lift heavier objects easily. In the given picture, the man is pulling a bucket full of water from the well with the help of a pulley.

36. (C)   Birds (sparrow) and mammals (rabbit) are warm blooded animal.

37. (C)   Mercury, Venus, Earth and Mars are inner planets. Venus is the called the evening star planet. Saturn has highest number of moon.

38. (A)   Applying brakes to stop a vehicle is an example of frictional force.

39. (C)   On winter mornings, we see droplets of water on plant and grass. It is formed when water vapour in air condense and become water droplets. These water droplets are called dew.

40. (C) All the given substances are liquids and molecules in liquids are less closely packed as compared to solids but more closely packed as compared to gases.

41. (B) In a hydropower station energy of moving water changes to electrical energy.

42. (D) Plant Y is insectivorous plant. It can make food.

43. (B) Rib cage protects lungs and heart.

44. (D) In the given figure P, Q, R and S represent belly, legs, tail and hump respectively of a camel. Hump stores fat which can be used during shortage of food.

45. (A) Fruits and vegetables are rich in vitamins and minerals which protect us from various diseases. So, Rohan should take fruits and vegetables to improve his immunity.

46. (D) Part labelled X is enamel.

47. (B) The plant part in the given figure is fruit of cotton plant also known as cotton boll. Cotton fibre is obtained from it. Cotton absorbs good amount of water.

48. (B) X - Food; Y - Water.

49. (B) Microorganism shown below is virus.

50. (A) R-mouth, P-stomach, Q-small intestine, S-large intestine.

51. (B) Revolution of moon around earth causes phases of moon.

52. (C) There are still some food that is undigested and some water that has not been removed. The food sample must be taken from the small intestine as most of the food is digested there.

53. (D) Leaves are called kitchen of the plant. The stomata on the leaves allow the exchange of gases to take place. Most of the stomata are found on the underside of leaves.

54. (C) Water retaining plants store water in their fleshy or succulent stems so that they are able to make food in dry climates.

55. (C) Insectivorous plants are found in areas where the soil is nutrient deficient. So, they catch and digest insects to fulfill their nutrient requirement.
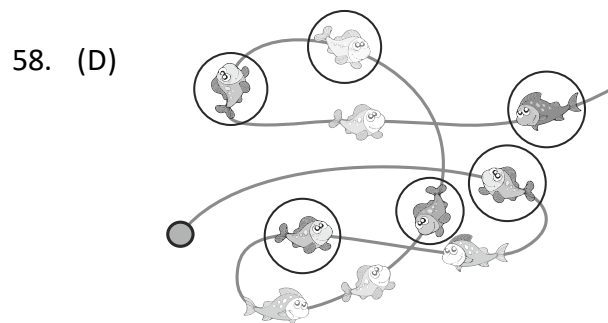
CRITICAL THINKING

56. (C)

⬠ = ○ ◇ (from second balance)

▨ = ▯▯ (from first balance)

From options ▨ ◸ = ▯▯▯

57. (B) Arjun cannot be the youngest.

Chaitanya is not the youngest.

It means that Bharath is the youngest.

58. (D)

59. (D) If I am not lighter than my friend, then either I am heavier than my friend or we have equal weights. So, it cannot be determined if I am heavier. Knowing my weight also cannot tell if I am heavier than my friend. The question cannot be answered using all the information.

60. (C)