



UNIFIED COUNCIL
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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION

Paper Code: UN 415

Solutions for Class : 4

Mathematics

1. (C) According to the problem

A	B	C	D	E	F
1	3	4	6	8	9

$$\begin{aligned}
 F \times B &= 9 \times 3 = 27 \\
 &= 24 + 3 \\
 &= (4 \times 6) + 3 \\
 &= (C \times D) + B
 \end{aligned}$$

2. (D) The number of one thirds in 72 = $72 \times 3 = 216$.

3. (D) $P = 347 \times 73 + 963$
 $= 25331 + 963$
 $= 26294$

26294 rounded off to the nearest 10 is 26290.

4. (C) Ascending order is V, XX, XXXVI

5. (D) The order of the addends does not alter the sum.

e.g., $3 + 5 = 5 + 3 = 8$

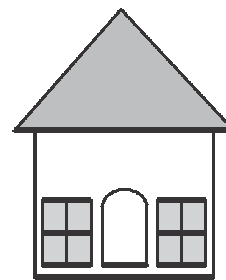
6. (A) The third multiple of 9 is 27, the fifth multiple of 4 is 20, the seventh multiple of 3 is 21 and the fourth multiple of 6 is 24.

27 is the greatest among the given numbers.

7. (C) A water tank has a capacity of 200 litres (approximately).

8. (C) The place values of the two 7's in 73071 are 70000 and 70.
 Their product = 4900000

9. (C) From the given figure, the number of horizontal lines is 9.



10. (B) Tickets sold by Varun = Tickets sold by Vihan.

Total tickets Varun sold on Monday and Tuesday = $17 + 30 = 47$

Tickets sold by Vihan on Tuesday = 22

\therefore Tickets sold by Vihan on Monday = $47 - 22 = 25$

11. (B) $72499 + 1 = 72500$

12. (C) For 8 \rightarrow

5 match sticks are required.

13. (B) $AC + DE + GJ = (2 + 1 + 3) \text{ cm} = 6 \text{ cm} = BH$

14. (B) The product of 684 and 43
 $= 684 \times 43$

$$\begin{array}{r}
 684 \\
 \times 43 \\
 \hline
 2052 \\
 + 2736 \times \\
 \hline
 29412
 \end{array}$$

29412 rounded to the nearest 100 is 29400.

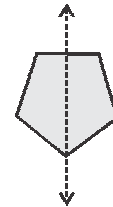
15. (C) Total number of guests = 75
No. of men = 45
 \therefore No. of women = $75 - 45 = 30$
 \therefore The required fraction = $\frac{30}{75} = \frac{2}{5}$
16. (C) When a shape is tessellated there should not be any gap between the unit shapes in the tessellation. So, option (C) is the shape that cannot be tessellated.
17. (A) A line of symmetry is a line that divides an object or a figure into two identical halves.
18. (B) The given digits are 7, 4, 9, 2 and 6.
The largest 5-digit odd number that can be formed using the given digits is 96427 and the smallest is 24679.
 $\therefore X = 96427$ and $Y = 24679$
 $\therefore X - Y = 71748$
19. (C) The number of marbles Giri and John had at different times is shown in the given table.

	Giri	John
1.	John + 90	John
2.	John + 90 - 15	John - 36
3.	John + 75 - 66	John - 36 + 66
4.	John + 9	John + 30

- \therefore John had $30 - 9 = 21$ marbles more than Giri.
20. (C) $14 = 7 \times 2$; $35 = 7 \times 5$;
 $49 = 7 \times 7$; $21 = 7 \times 3$;
 $63 = 7 \times 9$; $42 = 7 \times 6$ and $28 = 7 \times 4$
So, the given numbers are multiples of 7.
21. (C) $\frac{1}{3} + \frac{2}{9} = \frac{1 \times 3}{3 \times 3} + \frac{2}{9}$
 $= \frac{3}{9} + \frac{2}{9} = \frac{3+2}{9} = \frac{5}{9}$
 $= \frac{4+1}{4+5}$

Comparing the sum obtained with $\frac{N+1}{N+5}$,
we get $N = 4$.

22. (B) Distance from Mohit's place to his office = 3 km.
Distance covered by moving to and from directly = 2×3 km
Distance he covered in 5 days
 $= 2 \times 5 \times 3$ km
 $= 5 \times 6$ km
23. (C) The number formed by the digit 6 on each number card is 660660.
24. (C) If
 $\bigcirc = 9$, $\triangle = 6$,
 $\bigcirc + \triangle = 9 + 6 = 15$
 $\bigcirc \times \triangle = 9 \times 6 = 54$ are true.
25. (D) The figure in option (D) is symmetrical as shown.



26. (A) The given digits are 7, 6 and 8. The numbers that can be formed using each of them only once are 678, 687, 768, 786, 876 and 867, which are 6 in number.
27. (B) Cost of 2 pencils = ₹ 6
Cost of 1 pencil = ₹ $6 \div 2$
 $= ₹ 3$
 \therefore The cost of 9 pencils = $9 \times ₹ 3$
 $= ₹ 27$
28. (B) $250 \text{ g} - 50 \text{ g} = 200 \text{ g}$
29. (D) $\frac{27 \div 9}{90 \div 9} = \frac{3}{10}$
30. (C) $60 = 1 \times 60$
 2×30
 3×20
 4×15
 5×12
 6×10

In the given factors 12 is missing. Hence, the number P is 12.

31. (C) Area formula can be used for determining the amount of ground the bottom of the pool will cover.

$$\begin{array}{r} 37\boxed{?}03 \\ - 12168 \\ \hline 25235 \end{array}$$

To find the missing number in the minuend, add the difference and the subtrahend i.e.,

$$\begin{array}{r} 25235 \\ + 12168 \\ \hline 37\textcircled{4}03 \end{array}$$

So, clearly the missing number is 4.

33. (B) 1 week = 7 days

$$\begin{array}{r} 231 \\ 7 \overline{)1617} \\ \underline{14} \\ 21 \\ \underline{21} \\ 007 \\ \underline{-7} \\ 0 \end{array}$$

∴ No. of shoes manufactured in a day = 231

34. (D) 11 and 13 are prime numbers that differ by 2. So, they are twin primes.

35. (C) Fraction of money spent on toy car = $\frac{1}{3}$

Fraction of money spent on shirt = $\frac{4}{9}$

$$\begin{aligned} \text{Fraction of money left} &= 1 - \frac{1}{3} - \frac{4}{9} \\ &= \frac{9-3-4}{9} = \frac{2}{9} \end{aligned}$$

36. (B) Weight of the bag of flour = 13 kg 920 g
Number of packets = 4

$$\begin{aligned} \therefore \text{Weight of each packet} &= 13 \text{ kg } 920 \text{ g} \div 4 \\ &= 13920 \text{ g} \div 4 \\ &= 3480 \text{ g} \\ &= 3 \text{ kg } 480 \text{ g} \end{aligned}$$

37. (D) The letter 'S' has no line of symmetry.

38. (A) 1 litre = 1000 ml

$$\begin{aligned} \text{(i) } 705 \text{ ml} &= (705 \div 1000) \text{ l} \\ &= 0.705 \text{ l} \end{aligned}$$

$$\begin{aligned} \text{(ii) } 7050 \text{ ml} &= (7050 \div 1000) \text{ l} \\ &= 7.05 \text{ l} \end{aligned}$$

∴ 705 ml = 0.705 l is the correct statement.

39. (C) $5000 \times 32 = 160000$

$$6000 \times 45 = 270000$$

$$7000 \times 21 = 147000$$

$$8000 \times 12 = 96000$$

∴ The product of 7000 and 21 (i.e., 147000) lies between 145000 and 155000.

40. (D) Factors of 48 are 1, 2, 3, 4, 6, 8, 12, 16, 24 and 48, which are 10 in number.

41. (D) None of the given letters can be tessellated.

42. (C) 474996 when rounded off to nearest hundred becomes 475000.

43. (C) Three fourths of 28 months = $\frac{3}{4} \times 28$
= 21 months

⇒ 21 months = 1 year 9 months
(∵ 1 year = 12 months)

44. (D) P = 4.9 kg = 4900 g

$$Q = 3 \text{ kg} = 3000 \text{ g}$$

∴ Difference = 4900 g – 3000 g = 1900 g

45. (C) 108 is divisible by both 6 and 9 as $108 = 6 \times 18$ and $108 = 9 \times 12$

So, it is a multiple of 6 and 9.

General Science

46. (C) A leaf synthesises food for the plant.

47. (D) Ginger is a modified stem that stores extra food. 'S' includes modified stems.

48. (B) Monkey, lizard and squirrels are tree dwelling or arboreal animals.

49. (A) The nymph sheds its skin to transform itself into an adult. This process is called moulting.

50. (C) Organ X is the stomach. It is the muscular part of the digestive system.

51. (A) The microscope is used to observe microbes.

52. **(B)** 95% of the air constitutes of oxygen and nitrogen.
53. **(A)** Incisors help in cutting the food.
54. **(D)** In solids, the arrangement of molecules is tight.
55. **(B)** The force which pulls a body towards the earth is called gravity.
56. **(C)** Vitamins and minerals help us to fight disease causing germs and makes our body stronger.
57. **(D)** The leaves of desert plants are reduced to spines to prevent loss of water.
58. **(B)** Climber coils around the stems of other plants for support and to get sunlight to make its food.
59. **(D)** Goat is a herbivore.
60. **(D)** A tooth decay starts at the surface of the tooth and grows inward. When bacteria reaches the nerves within the pulp, it causes pain.
61. **(B)** Vitamins are needed in small quantities.
62. **(C)** An animal that hunts for its food is called predator.
63. **(B)** The main aim of giving first aid is to save life.
64. **(C)** In the given figure of solar system. Planet labelled R is the Jupiter.
65. **(C)** We should measure the temperature of water before and after the experiment.
66. **(D)** Digestion of food does not take place in large intestine.
67. **(C)** Herbivores feed on plants to obtain food. The plants prepare their own food by using solar energy.
68. **(C)** The organism is the virus.
69. **(B)** The tooth in the given figure is a canine.
70. **(A)** Wool is an animal fibre.
71. **(B)** The fleece of sheep, yak and camel is used to make wool.
72. **(A)** We get heat and light energy from the sun.
73. **(A)** A Mango tree is a produces that can make its own food.
74. **(C)** Kidney filter out waste material from the blood.
75. **(B)** Clouds are the non-living things that has no life.
76. **(D)** Snakes, birds and frogs are egg laying animals.
77. **(D)** Bolls or fruits of cotton are used to make cotton fibre.
78. **(B)** Air occupies space.
79. **(C)** Group of stars is called constellation.
80. **(D)** Kerosene is in the liquid state.
81. **(A)** The capacity to do work is called energy. Energy is available in different forms such as heat energy, light energy etc.
82. **(D)** The sun, its planets and their moons make the solar system.
83. **(C)** Cactus and camel live in desert habitat.
84. **(C)** Egg → Larva → Pupa → Butterfly is the life cycle of butterfly.
85. **(A)** A solids has a strongest force of attraction between its molecules.
86. **(C)** X represents heating.
87. **(C)** A tadpole is the larva of a frog, it resembles the fish.
88. **(C)** The given animal is a tern. It migrates over long distances to get protection from extreme weather conditions.
89. **(D)** Air, water and sunlight are the basic needs of the plant.
90. **(A)** Water lettuce is a floating aquatic plant and water lily is a fixed plant.

