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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION

Paper Code: **UN436 (UPDATED)**

Solutions for Class : 4

MATHEMATICS

1. (D) Expanded form of 45010 is
40000 + 5000 + 0 + 10 + 0
2. (D) Rectangle satisfies the given description
3. (A) Sum of the place values of 6's 600000 + 600 = 600600
4. (D) $8 + 16 + 24 + 32 + 40 = 120$
5. (A) Money left after buying hand bag

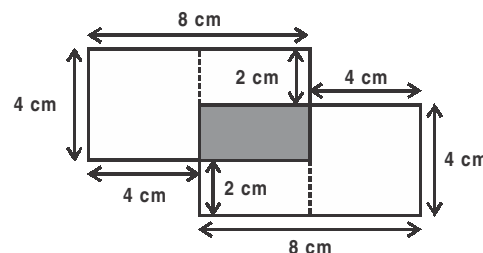
$$= 1 - \frac{2}{3}$$

$$= \frac{3 - 2}{3} = \frac{1}{3}$$
 Money spent on book = $\frac{1}{3} \times \frac{3}{4} = \frac{1}{4}$
 Remaining Part = $\frac{1}{3} - \frac{1}{4} = \frac{4 - 3}{12}$

$$= \frac{1}{12}$$
6. (B) $3982 + 6853 = 10835$, $35000 - 10835 = 24165$
7. (B) $\frac{4}{18} + \frac{4}{9} = \frac{4 + 8}{18} = \frac{12}{18} = \frac{2}{3}$
8. (C) R is having exactly two line symmetries.
9. (B) The difference between 12030 and 8107 multiplied by 37 is written as $(12030 - 8107) \times 37$

$$= 3923 \times 37 = (3900 + 23) \times (40 - 3)$$
10. (B) Cost of 8 bicycle = $8 \times 797 = ₹ 6376$
11. (B) 6 small triangles + 2 big triangles
 \therefore Number of triangles = 8

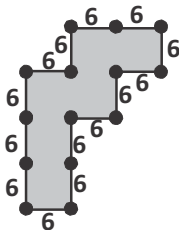
12. (A) Multiples of 4: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40...
 Multiples of 5: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50...
 The required sum = $40 + 20 = 60$
13. (C) Total liquid = $(270 \text{ ml} \times 5)$
 $+ (1,480 \text{ ml} \times 3)$
 $= 1350 \text{ ml} + 4440 \text{ ml}$
 $= 5790 \text{ ml}$
 $= 5.790 \text{ lts}$
14. (B) Perimeter of rectangle
 $= 2(18 + 8) \text{ cm} = (2 \times 26) \text{ cm} = 52 \text{ cm}$
 \therefore Perimeter of the square = $4 \times \text{side} = 52 \text{ cm}$
 \therefore Length of its side = $52 \text{ cm} \div 4 = 13 \text{ cm}$
15. (B)



- Perimeter of the unshaded part = $(8 + 2 + 4 + 4 + 8 + 2 + 4 + 4) \text{ cm} = 36 \text{ cm}$
16. (D) Numbers on a telephone keypad are 1,2,3,4,5,6,7,8,9,0.
 We, know that, any number multiplied by 0 is 0 itself.
 \therefore Product of all the numbers on a telephone keypad = $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 \times 0 = 0$
 17. (D) There are 52 weeks in a year.
 18. (D) $777 + 555 + 333 + 111 - 666 - 444 - 222 = 444$

19. (A) $25 + 14 = 39$
 $XXV + XIV = XXXIX$
 There are 7 X.
20. (C) $1 + 8 + 2 \boxed{?} = 17$
 as $8 + 6 + \textcircled{1} = 15$
 So, $2 \boxed{?} = 8$ which means each $\boxed{?} = 4$.
 Therefore, the missing number is 4.
21. (C) From statement I, among the given options, (A) and (B) are not even numbers.
 From statement II, options (C) and (D) both are multiples of 6 and 7.
 From Statement III, only 42 has total of 8 factors, i.e., 1, 2, 3, 6, 7, 14, 21, 42.
 Hence, option (C) is correct.

22. (D) From the diagram,



Perimeter = $(6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6)$
 $= 84 \text{ m}$

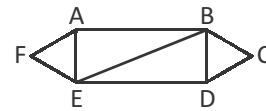
T.Th	Th	H	T	O
9	6	4	3	1

23. (A) In 96431, 6 is in the thousands place.
24. (C) Ascending order is V, XX, XXXVI
25. (C) If $\bigcirc = 9$, $\triangle = 6$,
 $\bigcirc + \triangle = 9 + 6 = 15$
 $\bigcirc \times \triangle = 9 \times 6 = 54$ are true
26. (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.

27. (B) The mass of a chair = 2 kg 650 g = 2650 g
 The mass of a table = 2 (the mass of a chair) = $2 \times 2650 \text{ g}$
 $= 5300 \text{ g} = 5 \text{ kg } 300 \text{ g}$
28. (B) The line segments in the given figure are AB, BC, CD, DE, FE, FA, AE, BD and EB which are 9 in number.




29. (C) Three years ago, age of Sonu = 10 years
 Present age of Sonu = $(10 + 3)$ years = 13 years
 Age of Tanya = $13 + 4 = 17$ years.
30. (C) 1 2 1
 1 2 3 2 1
 1 2 3 4 3 2 1
 1 2 3 4 5 4 3 2 1
 1 2 3 4 5 **6** 5 4 3 2 1
31. (C) The word **DAD** given in option (C), is not symmetrical along the dotted line.

32. (B) Total money spent by
 $\text{Aneesh} = \frac{3}{7} + \frac{1}{2} \times \left(1 - \frac{3}{7}\right) = \frac{3}{7} + \frac{2}{7} = \frac{5}{7}$
 Amount left with him = ₹ 23
 $\therefore \left(1 - \frac{5}{7}\right) = ₹ 23 \Rightarrow \frac{2}{7} = ₹ 23$
 $\Rightarrow \frac{2}{7} \times \frac{7}{2} = ₹ 23 \times \frac{7}{2} \Rightarrow 1 = ₹ \frac{161}{2}$
 \therefore Total money Aneesh had = ₹ $\frac{161}{2}$


- \therefore Amount he spent = $\frac{5}{7} \times ₹ \frac{161}{2}$
 $= ₹ \frac{5 \times 23}{2} = ₹ \frac{115}{2} = ₹ 57.50$
33. (C) 6 h 35 min + 35 min = **7 h 10 min**
34. (C) Total number of students = $120 + 120 + 80 + 180 = 500$
 No. of students who scored less than 70 marks = $120 + 120 = 240$
 \therefore The required fraction = $\frac{240}{500} = \frac{12}{25}$

35. (C) Time taken to clean 4 rooms
 = 1 h 52 min
 = 112 min
 \therefore Time taken to clean 1 room = $\frac{112}{4}$
 = 28 min
36. (C) Total length of the wire Ranjit had
 = $\left(2 \times \frac{7}{8} + 2 \times \frac{3}{5}\right)$ m
 = $2\left(\frac{7}{8} + \frac{3}{5}\right)$ m
 = $2\left(\frac{7 \times 5}{8 \times 5} + \frac{3 \times 8}{5 \times 8}\right)$ m
 = $2\left(\frac{35}{40} + \frac{24}{40}\right)$ m
 = $2 \times \frac{59}{40}$ m
 = $\frac{59}{20}$ m = $2 \frac{19}{20}$ m
37. (A) The number of hours the school functions for on a Saturday = 4
 The part of the circle graph that represents sports / games = $\frac{1}{4}$
 \therefore The time for which students can play at school on a Saturday = $\frac{1}{4} \times 4$ hours = 1 hour = **60 minutes**.
38. (C) $30 \times 40 \times 50 \times 60 \times 70 = 252000000$. There are '6' zeroes in the product.
39. (B) $\frac{2013+3}{3} = \frac{2015}{3}$
 2015 is not exactly divisible by 3.
 \therefore Answer is option (B).
40. (A) The arrangement of marbles clearly indicates $21 \div 5$ gives quotient 4 - and remainder 1.
41. (C) $1 + 2 + \dots + 98 + 99 + 100 = 5050$
 $1 + 2 + \dots + 99 = 5050 - 100$
 = 4950
 $1 + 2 + \dots + 99 - 100 = 4950 - 100 = 4850$

42. (B) $4375 - 20 = 4355$
 \therefore Number of phone cards in each group
 = $\frac{4355}{65} = 67$
43. (D) 
 First, multiply the kilograms;
 $4 \times 3 \text{ kg} = 12 \text{ kg}$
 Then, multiply the grams:
 $4 \times 480 \text{ g} = 1920 \text{ g} = 1 \text{ kg } 920 \text{ g}$
 $12 \text{ kg} + 1 \text{ kg } 920 \text{ g} = \mathbf{13 \text{ kg } 920 \text{ g}}$
 Leena has **13 kg 920 g** of flour altogether.
44. (D) $5 \times 5 = 25$
 $55 \times 5 = 275$
 $555 \times 5 = 2775$
 $5555 \times 5 = 27775$
45. (C) As per given clue option c is correct i.e 8888

GENERAL SCIENCE

46. (C) The given figure is of a pitcher. It is a part of nepenthes an insectivorous plant.
47. (C) Stripes on the bodies of tigers help them in mixing with their surroundings and to catch their prey.
48. (A) All the given animals are egg laying animals.
49. (B) Molar teeth are also called grinding teeth or chewing teeth.
50. (A) Moving air has energy. Since moving air can make a pin-wheel move, it has energy.
51. (B) Figure in Option (B) shows pushing force.
52. (D) Topsoil is rich in humus. Humus consists of organic material rich in nutrients.
53. (D) Green plants are called producers.
54. (D) Popcorn is made from the seeds of corn plant.
55. (C) Mouth contains salivary juice, stomach contain gastric juice and intestinal juices in intestine.
56. (D) Watervapour is formed by the condensation from the rising steam.
57. (A) The maximum area of the earth is covered with water hence it is called blue planet.

58. (D) The figure in option (D) shows dam it generates energy from water.
59. (B) The earth supports life and has air and water.
60. (C) Sweet potato or yam is a large sweet tasting fibrous root that contains root part of the plant or root vegetable so it is placed in the box R.
61. (C) The roots of plants absorbs water and mineral salts from the soil.
62. (C) Option in 'C' is paramecium. It is a protozoan.
63. (B) Climber coils around the stems of other plants for support and to get sunlight to make its food.
64. (D) A fungus is a decomposer.
65. (C) Steam, water vapour, carbon dioxide and oxygen are gaseous form of water.
66. (B) Canines are called tearing teeth. Canines help to tear away the pieces of chicken drumstick.
67. (C) Oxygen is given out of the leaf during photosynthesis. Carbon dioxide is taken in and glucose is made in leaves and transported to other parts of plant. The arrow marks should be pointed away from leaf and not towards the leaf
68. (C) Heterotrophs are the living things that depend on plants directly or indirectly for their food. In the given table Q-herbivores, R - carnivores and S-omnivores.
69. (D) Chameleon exhibits camouflage. It changes its colour according to its surroundings, it changes to brown to hide from its enemies on a neem tree trunk.
- 70 (D) Cockroach, snake and lizard undergo moulting.
71. (C) If we touch electrical appliances with wet hands. It may cause a electric shock.
72. (A) Precipitation is rain, snow, sleet, or hail – any kind of weather condition where something's falling from the sky. When water evaporates and goes up in the sky, it condenses and forms tiny water droplets after coming into the contact with the cold air. These tiny droplets form cloud and when they become heavy, the fall down in the form of rain, snow, hail or sleet. This process is called precipitation. Fog & Dew – These are formed as a result of condensation, but this process occurs on the lower level of atmosphere or on the surface of earth. Fog is formed when the water vapour comes into the contact with the dust particles on the lower level of atmosphere and condenses. Dew is formed as a result of condensation on the surface of leaves, cars, roofs etc. As fog and dew are not falling from the sky.
73. (A) Opuntia is a desert plant with needle like leaf.
74. (C) Green leaf when boiled and dipped in alcohol and then in iodine solution, turns to deep blue due the presence of starch.
75. (A) Grass is producer.
76. (B) Decomposers help in decomposing of dead matter and help to change them into useful nutrients.
77. (C) X is caterpillar. Caterpillar feeds on leaves.
78. (D) Mushroom is fungi that get food from dead and decayed organic matter.
79. (D) Tadpole and fish are aquatic animals that can swim and breathe through their gills.
80. (B) In the given pie chart X-Oxygen and Y-Nitrogen.
81. (D) Stomata are the tiny openings found in leaves.
82. (C) Figure in option (C)  is euglena.
83. (C) The salt solution had dried up and salt was left behind.

84. (C) Hot air becomes lighter when heated up.
85. (A) Solid : Ice : : Gas : Vapour
86. (A) Tomato is a dicot plant with tap root system.
87. (D) The flower becomes the fruit.
88. (C) Sugarcane plant is propagated by stem cutting.
89. (D) A - Precipitation; B - Evaporation; C - Condensation.
90. (B) Woollen clothes acts as good insulators and keep our body warm by preventing body heat to escape.

GENERAL AWARENESS

91. (A) 92. (D) 93. (D)
94. (B) 95. (B) 96. (A)
97. (C) 98. (B) 99. (B)
100. (B)