



UNIFIED COUNCIL

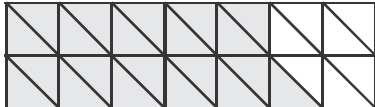
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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION - 2013

SOLUTIONS FOR CLASS : 4

Mathematics

1. (D) 
Number of unshaded triangles = 7
Total number of triangles = 28

Hence, the required fraction is $= \frac{7}{28} = \frac{1}{4}$
2. (B) Sixteenth flagpost is at a distance of $15 \times 7 = 105$ m
Second flagpost is at a distance of $1 \times 7 = 7$ m
Difference = $105 \text{ m} - 7 \text{ m} = 98 \text{ m}$
3. (C) ₹ $12 \times 8 \times 5 = ₹ 480$
4. (C) The next time that the watch shows time using the digits 0, 1, 1, 2 in some order is 21:01. This is 50 minutes later.
5. (D) Using only the given digits 689 is the largest 3 - digit odd number between 200 and 800.
6. (B) The largest three - digit number whose digits add up to 8 is 800 and the smallest is 107. Their sum is 907.
7. (C) 14 (15) 16 (17) 18 (19)
There are three odd numbers.
8. (C) $\frac{18 \times 479}{6} = 479 \times 3 = 1437$.
9. (D) 
2 pairs of equal sides $\rightarrow AB = DC$ and $AD = BC$. 4 pairs of perpendicular lines $\rightarrow AD \perp AB, AB \perp BC, BC \perp DC, DC \perp AD$.
10. (A) Multiples of 10 : 10, 20, 30, 40, 50, (60), 70,
Multiples of 12 : 12, 24, 36, 48, (60), 72, 84,
The required smallest whole number is 60.

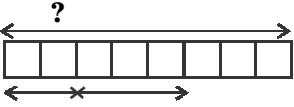
11. (A)



12. (B) $\frac{2013 + 3}{3} = \frac{2015}{3}$
2015 is not exactly divisible by 3.
13. (C) $\frac{16}{18}, \frac{7}{8}, \frac{10}{12}$ and $\frac{3}{4}$ are in descending order.
14. (B) Number of pencils remained unshared
 $= \text{Remainder of } 6735 \div 35 = 15$
 \therefore 15 pencils remained unshared.
15. (D)
$$\begin{array}{r} 2 \ 1 \ 3 \ 9 \\ 8 \ 7 \ 1 \ 9 \\ 4 \ 1 \ 6 \ 3 \\ \hline 1 \ 5 \ 0 \ 2 \ 1 \end{array}$$

5 is in the thousands place. Hence, it stands for 5000.
16. (B)
$$\begin{array}{r} 3 \ 9 \ 6 \times 9 \\ 3 \ 5 \ 6 \ 4 \\ - 1 \ 6 \ 8 \ 5 \\ \hline 1 \ 8 \ 7 \ 9 \end{array}$$
17. (C) 0.864 has the greatest value among the given numbers.
18. (C) Capacity of jug $= 405 \times 4$
 $= 1620 \text{ ml}$
 $= 1 \text{ l } 620 \text{ ml}$
19. (B) Number of teachers
 $= 400 - [132 + (132 + 21)]$
 $= 400 - 285 = 115$
Difference in the number of girls and teachers $= 153 - 115 = 38$
20. (D) CD and LM are the only two lines satisfying the given condition.

21. (D) 1021 is the smallest number but has one digit repeated. 1023 is the required smallest number in which the four digits are different.

22. (C) 
 $\frac{1}{4} = \frac{2}{8}$ and $\frac{3}{8}$ are eaten.

$$1 - \frac{1}{4} - \frac{3}{8} = \frac{3}{8}$$

3 units \rightarrow 36

$$1 \text{ unit} \rightarrow \frac{36}{3} = 12$$

$$8 \text{ units} \rightarrow 12 \times 8 = 96$$

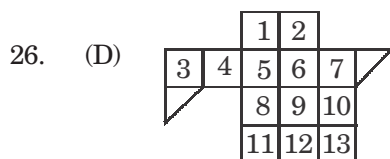
23. (A) There exists no right angle in the figure in option (A).

24. (D)

$$\begin{array}{r} 5428 \\ (+) 936 \\ \hline 6364 \end{array}$$

25. (A) $\frac{\square}{5} = 6 \Rightarrow \text{Number} = 30$

$$\therefore \frac{30}{30} = 1$$



There are 14 unit squares in option (D)

27. (D)

$$\begin{array}{r} 8 \overline{) 5428} \quad (678 \\ \underline{48} \\ 62 \\ \underline{56} \\ 68 \\ \underline{64} \\ 4 \end{array}$$

28. (C) The mass of Tarun's sister = $(75 - 22)$ kg
 $= 53$ kg

Total mass of Tarun and his sister

$$\begin{array}{r} = 75 \text{ kg} \\ + 53 \text{ kg} \\ \hline 128 \text{ kg} \end{array}$$

29. (B)

T.Th	Th.	H	T	U
2	3	7	3	9

30. (B) Only 1 prime number, since the numbers except 3, i.e. 33, 333 and 3333 have a factor 3 other than 1 and itself.

31. (C) The number of circles is equivalent to the numbers in the multiplication table of 3.

$$\text{Hence, } \frac{36}{3} = 12.$$

32. (D) $18 + x + 22 = 19 + 26$
 $x = 45 - 40$
 $x = 5$

33. (C) $\frac{8}{9} - \frac{2}{3} = \frac{8-6}{9} = \frac{2}{9}$

34. (C) $24 \times 3 = ₹ 72$

They had ₹ 72 in total at first.

35. (A) If 10 biscuits are transferred from box B to Box A, then the number of biscuits in Box A = 100 and Box B = 200 = 2 (Box A)

36. (D) 11 is a factor of 1331.

37. (B) $\frac{7}{10} \div 5 = \frac{7}{10} \times \frac{1}{5} = \frac{7}{50} \text{ m}$

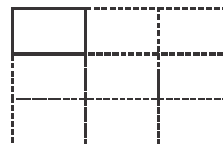
38. (B) The total mass = $(500 + 500 + 250 + 250 + 100)$ g
 $= 1600$ g

Mass of fruit = 1300 g

Mass of four balls = $(1600 - 1300) = 300$ g

$$\text{Mass of each ball} = \frac{300}{4} = 75 \text{ g.}$$

39. (D) Only the figure in option (D) can be tessellated.



40. (B) Among the given options the smallest possible number that gives 23500 when rounded off to the nearest ten is 23495.

41. (A) $1203 - 817 = 386$
 $386 \times 37 = 14282$

42. (B) $1 - \frac{7}{12} = \frac{12-7}{12} = \frac{5}{12}$

43. (D) $25 = 5 \times 5$

So, 25 has exactly 1 factor (5) other than 1 and itself.

44. (B) $14 \times 3 = 42$ m

45. (B) Multiples of 6 : 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, ...

Multiples of 9 : 9, 18, 27, 36, 45, 54,

The first three common multiples of 6 and 9 are 18, 36 and 54.

$$\therefore \text{Their sum} = 18 + 36 + 54 = 108.$$

General Science

46. (C) Premolars are called cracking teeth. These are the broad teeth next to the canines. They act like nut crackers. There are four premolars in each jaw.
47. (D) Low temperatures are maintained in refrigerator and cold storages. Due to low temperatures food like meat, eggs or milk does not get spoiled. So, food is preserved.
48. (C) A turtle is an egg-laying animal. A baby turtle hatches from an egg and grows into an adult.
49. (B) In the given figures, option (B) is a protozoan. Protozoa are one-celled micro-organisms. Microorganisms are tiny living beings. They can be seen only through a microscope.
50. (D) The sun, the moon and the planets form a solar system. A pole star is not a part of the solar system.
51. (B) Carbon dioxide is in the gaseous state. Y in the given table represents gas. Gases have no definite shape and volume.
52. (D) The given diagram shows the classification of animals based on how they reproduce. Animals like elephants, whales, cows and cats give birth to young ones. Frogs, moth, eagles and snakes reproduce by laying eggs.
53. (B) Prickly pear is a desert plant. To prevent the loss of water, leaves are reduced to spines and stem is modified to thick fleshy part. Fleshy stems are green, which make food and store it.
54. (D) Fibre adds mass to the undigested food and it is very useful in the movements of removing undigested food from the body.
55. (C) The mother bird sits on the eggs to keep them warm and help them hatch.
56. (D) The given items like woollen sweater, cotton frock and leather shoes are obtained from living things like sheep, cotton plant and animals.
57. (C) The leaves of a plant prepare food with the help of chlorophyll and sunlight using carbon dioxide, water and minerals. The process of food preparation by green plants is known as photosynthesis.
58. (B) The hump of the camel contains stored fat. The stored fat is used when food and water become scarce in the desert.
59. (C) Dolphins and fish are aquatic animals. Dolphins give birth to babies and fish reproduce by laying eggs. Respiratory organs in dolphin are lungs and gills, in fish.
60. (B) Turtle is a reptile. It lays eggs on the ground in sand. The eggs are warmed by the heat of the sun and not protected by the parents.
61. (D) The main cause for tooth decay is the tiny bits of food particles left in between the teeth. When these food particles are not removed in time, they invite germs. The germs (bacteria) cause decay in the teeth.
62. (D) The bedsheet labelled as S is hung under the shade takes longer time to dry because water evaporates quickly when there is more heat and wind. When the exposed surface is large the bed sheet gets dried quickly.
63. (A) The given figure shows the change of water vapour into water on cooling. The process is called condensation. The tiny drops of water in the steam cool down become big and heavy and fall down when it strikes the cool surface of the bottle. This is how rain, mist, fog, dew, frost and snow are formed under similar conditions.
64. (B) Water is the solvent and sugar is the solute. Their combination is the sugar solution.
65. (B) The sun is very big and very far from the earth but the moon is much nearer to the earth. Hence, the moon appears to look as big as the sun.
66. (C) Carbohydrates are energy giving foods, proteins are body building foods and vitamins and minerals are protective foods.
67. (B) Mechanical energy is the energy of objects that can do work with movement such as spring of watch.
68. (A) Silk and wool are the fibres obtained from animals. 'X' in the given figure represents animal source i.e., silkworm and sheep.
69. (A) The given table shows the classification of matter as, P – solid, Q – liquid and R – gas.
70. (D) A cockroach has three stages in the life cycle. It lays its eggs in dark and damp places. The mosquito lays eggs in water and it has four-stage life cycle.
71. (D) Animals move from place to place to escape from danger, search for food and for shelter.
72. (A) The young one of a cockroach is the nymph. Tadpole is the young one of frog.
73. (A) The energy that we get from the sun is called solar energy. This solar energy is changed into electrical and heat energy.
74. (B) Heating changes matter from liquid to gases and solids to liquid state.
75. (C) Elastic force is used to pull a catapult.
76. (D) Lever, wheel and axle, inclined plane, pulley and screw are all simple machines.
77. (C) Through a system of tubes, the stem transports food and water to all parts of the plant.
78. (D) Polar bear, penguin and sheep have a thick fur and layer of fat under their skin, that keeps them warm and helps them survive in cold habitats.

79. (B) Heat from the sun changes water into water vapour and the process is called evaporation.
80. (B) Mushroom is a non-green plant called the fungus. Fungi cannot make their food. They get their food from dead and decaying plants and animals.
81. (B) The given figure shows the process of photosynthesis in a leaf. Green plants take in carbon dioxide from air and water from soil through roots and in the presence of sunlight and chlorophyll pigment, synthesise their food.
82. (A) Rabbit, goat and deer are herbivores or plant eating animals.
83. (C) The given figure is of a nepenthes plant. It grow in mineral deficient soil. To get its mineral nutrition, it traps and eat insects.
84. (C) Yeast is a fungus. It helps in the making of bread and wine by fermentation.
85. (A) The object is the sun. The sun is present at the centre of the solar system.
86. (C) Canines are sharp and pointed teeth. They help in the tearing of food.
87. (C) The earth has only one natural satellite that is the moon.
88. (D) The structure labelled as 'P' are the roots of mangrove tree called breathing roots. Mangroves grow in marshy places. To get sufficient air these roots grow out.
89. (C) Tools are simple machines. They make our work easier. Some increase the speed of work and some change the direction of the force used.
90. (D) Cotton, wool, silk and jute are natural fibres obtained from plants and animals. Cotton – the fruit of cotton plant. Wool – fleece of sheep, silk – silkworm, jute – jute stem.

