



# UNIFIED COUNCIL

An ISO 9001:2008 Certified Organisation



## STATE LEVEL SCIENCE TALENT SEARCH EXAMINATION - 2013

### SOLUTIONS FOR CLASS: 5

#### Mathematics

1. (D) The difference  $1575 = A \times 50 - A \times 15$  using the grouping concept of multiplication  
 $A \times 50 - A \times 15 = A \times 35$   
 $\Rightarrow A \times 35 = 1575$   
or  $A = 1575 \div 35 = 45$   
 $\Rightarrow A \times 5 + 5 = 45 \times 5 + 5 = 230$
2. (C)  $\left[ \left( \frac{\frac{2}{5}}{\frac{2\frac{6}{7}}{7}} \right) \times 100 \right] \% = \left( \frac{\frac{2}{5}}{\frac{20}{7}} \times 100 \right) \%$   
 $= \left( \frac{2}{5} \times \frac{7}{20} \times 100 \right) \% = 14\%$
3. (B)  $\frac{16}{2} \text{ m} = 8 \text{ m}$
4. (D)  $2x = 300 \text{ g} \Rightarrow x = 150 \text{ g}$   
 $\Rightarrow 7x = 7 \times 150 \text{ g} = 1050 \text{ g}$
5. (D) There will be a corresponding decrease in the radius as for the diameter.
6. (C)  $\frac{4}{5} \times 1000 \text{ g} = 4 \times 200 \text{ g} = 800 \text{ g}$
7. (C)  $G\% = \frac{\text{Gain}}{\text{C.P.}} \times 100 \%$   
 $= \frac{5}{5} \times 100 \% = 100 \%$
8. (A)  $\frac{8}{12 \times 3} = \frac{2}{3 \times 3} = \frac{2}{9}$
9. (A)  $P = ₹ 1800, A = ₹ 2700, T = 10 \text{ years}$   
 $I = A - P = ₹ 2700 - 1800 = ₹ 900$   
 $R = \frac{100 \times I}{P \times T} = \frac{100 \times 900}{1800 \times 10} = 5\%$
10. (A)  $9 \times 4 = 36$  oranges  
Number of oranges bought in the 4<sup>th</sup> week  
 $= 36 - 29 = 7$
11. (B)  $(12.750 + 38.250 + 50.500) \text{ kg} = 101.500 \text{ kg}$
12. (C)  $\frac{35}{35} = 1$
13. (C)  $0.001 < 0.011 < 0.101 < 0.111$
14. (C)  $\frac{1 \text{ kg } 400 \text{ g} + 2 \text{ kg} + 800 \text{ g} + 1 \text{ kg } 200 \text{ g}}{4}$   
 $= 1 \text{ kg } 350 \text{ g}$
15. (A) 1847525 Females  
+ 2305218 Males  


---

4152743  


---

 $\therefore$  Number of children  
 $= 51210913 - 4152743 = 47058170$
16. (B)  $\frac{78 + 90 + x}{3} = 84$   
 $\Rightarrow x = 252 - 168 = 84 \text{ cm}$
17. (A) 60% of A = 75% of B  
 $B = \frac{60}{75} A = \frac{4}{5} A$   
 $= \left( \frac{4}{5} \times 100 \right) \% \text{ of } A$   
 $= 80\% \text{ of } A$
18. (B) Factors of 72 are 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36 and 72. Factors of 120 are 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60 and 120. Common factors of 72 and 120 are 1, 2, 3, 4, 6, 8, 12 and 24. The biggest common factor, N is 24.  
 $\Rightarrow N \times 2 = 24 \times 2 = 48$

19. (B)  $\frac{30}{100} \times \frac{40}{100} \times \frac{2}{5} \times 2500 = 120$

20. (A) The largest value that X can take is 63549 since it gives 63500 when rounded off to the nearest hundreds.

The smallest value Y can take is 149500 since it gives 150000, when rounded off to the nearest thousands.

$$\begin{aligned}\text{Difference} \rightarrow Y - X &= 149500 - 63549 \\ &= 85951\end{aligned}$$

21. (D)  $\left(80 - 66\frac{2}{3}\right)\%$  of water = 2 litres

$$\Rightarrow 13\frac{1}{3} \% \text{ i.e., } \frac{40}{3} \% \text{ of water} = 2 \text{ litres}$$


∴ Capacity of bucket

$$= \left( \frac{2}{\left( \frac{40}{3} \right)} \times 100 = \frac{600}{40} \right)$$

$$= 15 \text{ litres}$$

22. (B)

$$\begin{array}{r} 9\,2\,7\,4\,3\,5 \\ + \quad 9\,9\,9\,9 \\ \hline 9\,3\,\boxed{7}\,4\,3\,4 \\ \hline \end{array}$$

 7000 or  $7 \times 1000$

23. (A)  $\frac{45 \times 15}{9} = 75$

24. (C)  $515050 = 505050 + 10000$

25. (A) ₹ 70 is shared in the ratio  $2 : 4 : 8 = 1 : 2 : 4$ . So, the shares are ₹ 10, ₹ 20, ₹ 40.

26.	(B)	<b>T.L</b>	<b>L</b>	<b>T.Th</b>	<b>Th</b>	<b>H</b>	<b>T</b>	<b>U</b>
		6	3	4	0	0	0	0

27. (A) The sum is 1 1 1 1 1 1 1 1 1 1 1 1 10.  
So, there is only one 0.

28. (C)  $\text{₹} \frac{84000}{4} \times 3 = \text{₹} 21000 \times 3 = \text{₹} 63000$

29. (D) Akbar : Amar : Anthony =  $1 : \frac{2}{3} : \frac{1}{2}$   
 $= 6 : 4 : 3$

30. (B) JK is a line segment.

31. (C)  $\star \times 9 \times 6 \times 4 = 216 \times \star$   
 $\star$  can be either 2 or 7.

32. (B)  $(13.72 + 9.14) \text{ m} = 22.86 \text{ m}$

33. (C)  $\frac{2}{7} = \frac{7}{B}$

$$\frac{2B}{49} = \frac{A}{49}$$

$$\Rightarrow 2B = A$$

$$\Rightarrow A = 14, B = 7$$

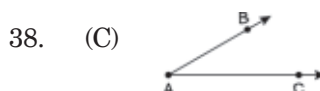
34. (A) QT, QR, QS, ST, RS are the chords for the given points.

35. (C)  $(3.6 + 0.75) \text{ kg} = 4.35 \text{ kg}$

$$4.35 \text{ kg} \div 5 = 0.87 \text{ kg}$$

36. (C)  $4\boxed{3}76192 < 4578136$

37. (D)  $\left(8 - \frac{9}{4}\right)m = \frac{23}{4}m$  or  $5\frac{3}{4}m$



39. (D)  $1\frac{3}{8} + \frac{1}{4} = \frac{13}{8}$  or  $1\frac{5}{8}$  m

40. (A)  $0.5 < \frac{3}{5} < 0.9 < 1\frac{1}{3} < 1\frac{3}{4}$

41. (C)  $\frac{6}{10} = 0.6$

42. (A)  $\frac{8}{10} = \frac{4}{5}$

43. (A)  $\frac{1}{5+2+1} = \frac{1}{8}$

44. (D)  $30 + 90 + 55 + 20 + 15 = 210$

$$\text{Average} = \frac{210}{5} = 42 \text{ cm}$$

45. (A) There are equal number of white and black squares on a chess board.

Hence 50%.

## General Science

46. (B) In the given figure X represents melting and Y represents Freezing as ice melts to form water, which freezes to become ice.

47. (C) In the given figure 'P' represents top soil. Top soil is fertile and helps plants to grow.

48. (C) Growth of thick fur on the skin of animals helps them to survive in polar regions.

49. (B) The stem of sugarcane contains stored food.

50. (D) Kidneys are a part of the excretory system.

51. (A) In the given figure the process shown is of respiration.

52. (D) The root part grows first, when the seed germinates. It is called radicle.

53. (B) The part labelled as Q in the given figure is called hinge joint. Hinge joint functions as the opening and closing of the door.
54. (B) A rabbit eating a carrot represents a producer and a consumer in a food chain.
55. (B) Air pressure helps in making a fountain when air is blown into a bottle containing water air pressure inside the tube pulls water into it with pressure in the form of a fountain.
56. (C) In the given figures P-tomato and R-castor seed. Tomatoes are eaten by the animals and the seeds that remain as undigested are passed out and thus help in seed dispersal. A castor seed has hooks that get stuck to the fleece of animals skin and get dispersed.
57. (C) Stream lined body shapes reduce resistance in water and helps them to swim in water.
58. (D) Machines help us to make our work simpler, faster and do work with less effort.
59. (B) An eclipse of the sun is called solar eclipse. During solar eclipse the moon comes between the earth and the sun.
60. (B) Caterpillar and giraffe are herbivores.
61. (D) Mango and Papaya fruits are edible as they are brightly coloured, fleshy and juicy. These fruits are eaten by man and animals and help in dispersal of seeds.
62. (A) In the given diagram the symbol rectangle represents the load, the triangle represents fulcrum and arrow represents effort.
63. (A) The venus fly trap is an insectivorous plant.
64. (B) An image is formed on the retina of the eye.
65. (B) The development of a seed into a new plant is called germination.
66. (B) The process of settling down of insoluble matter in water is called sedimentation.
67. (C) The process of changing of water into water vapour on boiling or heating is called evaporation.
68. (C) In the given figures R is a polar bear and S is a penguin. Polar bear and penguin are the animals that live in cold regions.
69. (B) A mango tree reproduces by seeds, potato by underground stem and fern by spores.
70. (D) A mixture of nitrogen and hydrogen is a chemical process which cannot be separated easily.
71. (B) Most of the seeds of flowering plants are dispersed by the animals.
72. (A) A pulley is used to lift heavy objects, a wedge is used to cut objects and a screw is used to fix two objects together.
73. (B) In the given table 'X' represents hinge joint, and 'Y' represents ball and socket joint.
74. (C) In the given figure 'W' represents cerebrum, 'X' medulla oblongata and 'Y' represents cerebellum.
75. (A) The man in option (A) is using a wedge to cut a log of wood.
76. (C) There are 12 pairs of curved ribs in a ribcage.
77. (D) A balanced diet contains all classes of food like carbohydrates, proteins, fibre, fats, vitamins and minerals in correct quantities.
78. (B) Weathering of rocks by wind and water forms small pieces of stones which become a part of the soil.
79. (D) The air from outside enters into the glass and exerts pressure in the upward direction on the cardboard. Owing to this upward pressure, the cardboard sticks to the glass and the water does not come out.
80. (D) Air is a mixture of gases. It consists of 78% nitrogen, 21% of oxygen and the remaining 1% is mainly of argon and carbondioxide.
81. (A) The volume of the object immersed in water =  $(30 - 20) \text{ ml} = 10 \text{ ml}$ .
82. (B) The air in the ink filler is released into the water to form bubbles.
83. (A) A pulley makes our work easier by simply changing the direction of the force.
84. (D) Carnivores are flesh eating animals.
85. (A) The freezing point of water is same.
86. (D) Slate is made by the metamorphosis of shale, a sedimentary rock.
87. (D) In the given figure the structure 'P' represents scales. Scales protect the body of the fish.
88. (C) The longest and the strongest bone in the human body is the thigh bone (femur). Its length is about a quarter of the height of the body.
89. (B) The given figure is of bryophyllum. It reproduces from leaves.
90. (C) The given information is about frog. It is an amphibian. It has a moist skin, its young one is called tadpole. It breathe through gills.