NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION

Paper Code: UN426
Solutions for Class : 4

Mathematics

1. (D) $\dfrac{2}{7} \times 70 = 20$

and $\boxed{\dfrac{1}{5}} \times 100 = 20$

2. (C) Successor of 67854398 = 67854399

Predecessor of 54677456 = 54677455

Required difference

= 67854399 − 54677455 = 13176944

So, '2' does not appear in the required difference.

3. (A) 48 = 3 × 16 is a multiple of 16

64 = 4 × 16 is a multiple of 16

80 = 5 × 16 is a multiple of 16

44 = 2 × 2 × 11 is not a multiple of 16

42 = 6 × 7 is a not a multiple of 16

66 = 3 × 2 × 11 is not a multiple of 16

86 = 2 × 43 is not a multiple of 16

46 = 2 × 23 is not a multiple of 16

68 = 2 × 2 × 17 is a multiple of 16

88 = 2 × 2 × 2 × 11 is not a multiple of 16.

4. (B) Capacity of 6 containers = 15 *l* 600 m*l*

Capacity of each container

= (15 *l* 600 m*l*) ÷ **6**

= (15600 ÷ 6) m*l*

= 2600 m*l*

= 2 *l* 600 m*l*

5. (C) DC = 600 ≠ 200

CXV = 115 ≠ 512

CV = 105

CLVI = 156 ≠ 256

6. (A)
40 thousands = 40000
4 ones = 4
40004

7. (B) 16 + 9 = 9 + 16 = 25

9 ÷ 3 ≠ 3 ÷ 9

7 × 3 = 3 × 7 = 21

(4 + 11 + 5) = (5 + 4 + 11) = 20

9 ÷ 3 and 3 ÷ 9 gives two different options.

8. (C) The greatest factor of a number is the number itself

9. (A) 1 kg − 350 g

= 1000 g − 350 g

= 650 g

10. (A,B) When radius is increased, the size of the circles increase each time also the centre remains same.

11. (A) Total number of stickers = 640 + 520
= 1160

After Jaya giving some stickers, Neeta has 20 stickers more than Jaya.

So, the total number of stickers = No. of stickers Jaya has + No.of stickers Neeta has = 2(No. of stickers Jaya has) + 20

∴ 1160 − 20 = 2(No. of stickers Jaya has)

⇒ 1140 ÷ 2 = No. of stickers Jaya has = 570

Therefore, no. of stickers Jaya must give Neeta = 640 − 570 = 70.

12. (C) Six times = twice + twice + twice
= 3 × 56

13. (A) Number of tomatoes in 1 bunch

= 792 ÷ 36 = 22

14. (C) Given time = 5 : 20 pm

Colour of light = red

Number of minutes traffic light stopped working = 25 minutes

Number of minutes traffic light takes to change its colour = 2 minutes

∴ Light will become green after

= (25 + 2 + 2) minutes = 29 minutes

So, light will be green at 5 : 20 pm + 29 minutes = 5 : 49 pm

15. (B) P represents $= 2\dfrac{6}{10} = \dfrac{26}{10}$

Q represents $= 4\dfrac{3}{10} = \dfrac{43}{10}$

$\therefore Q - P = \dfrac{43}{10} - \dfrac{26}{10} = \dfrac{17}{10}$

16. (A) We have, LIV × XXV

where, L represents 50, IV represents 4, XX represents 20 and V represents 5)

So, we have 54 × 25 = 1350 = MCCCL

17. (C) Area of the given figure

U = 13 sq units

C = 12 sq units

= (13 + 12) sq units = 25 sq units.

18. (A) 40, 80 and 100 are multiples of 20. Hence we have only three numbers are multiples of 20 from the given list.

19. (B) 63334 − 62934 = 400

400 units is divided into 5 equal parts. So, each part is 400 ÷ 5 = 80

∴ The missing number is 62934 + 2 × 80

= 62934 + 160 = 63094

20. (A)

l	ml
25	650
+ 22	860
48 l	510 ml

∴ Total quantity of milk sold = 48 l 510 ml

21. (C) ₹ 658 × 12 = ₹ 7896

22. (D) 6th multiple of 7 = 6 × 7 = 42

11th multiple of 12 = 11 × 12 = 132

12th multiple of 10 = 12 × 10 = 120

∴ Difference = 132 − 120 = 12

23. (C)

	8	?	6	1
	6	8	2	9
+		?	3	6
1	5	7	2	6

$1 + 8 + 2\boxed{?} = 17$

as $8 + 6 + ①= 15$

So, $2\boxed{?} = 8$ which means each $\boxed{?} = 4$.

Therefore, the missing number is 4.

24. (A) The given time shows 6:44:55

After 70 sec (i.e., 1 min 10 sec)

the given time is 6:46:05 (i.e., 6:46 and 5 sec)

25. (B) The greatest two digit number written by Pandu is 97.

The least two digit number written by Raghu is 70.

Their product = 97 × 70 = 6790

26. (A) The red part is $1\dfrac{2}{5}$ times the blue part

$= \dfrac{7}{5}$ (Blue part)

Total length of the pole = Blue part + Red part

= Blue part + $\dfrac{7}{5}$ (Blue part)

$= \left(1 + \dfrac{7}{5}\right)$ (Blue part) = 5.52 m

∴ Blue part = 5.52 m × $\dfrac{5}{12}$ = 2.3 m

27. (B) Since 143 = 11 × 13, the missing digit is 4

28. (A) The required fraction $= \dfrac{1}{2}\left[\dfrac{3}{8}\right] = \dfrac{1}{2} \times \dfrac{3}{8} = \dfrac{3}{16}$

29. (A) Place value of 9 in 26594325 = 90000

[∵ 9 is at ten thousand place]

∴ Required difference

= 90000 − 9 = 89991

30. (B) Weight of 2 apples = 20g

∴ Weight of 1 apple = 10g

Weight of 2 mangoes and 1 apple = 46 g

⟹ Weight of 2 mangoes = 46g − 10g = 36g

∴ Weight of 1 mango = 36 g ÷ 2 = 18 g

and weight of 1 mango and 1 pear = 24 g

∴ Weight of 1 pear = 24 g − 18 g = 6 g

31. **(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.

32. **(A)** Alphabets made up of straight lines = 15

[First write all the alphabets on rough paper, then select the alphabets having only straight lines]

A, E, F, H, I, K, L, M, N, T, V, W, X, Y, Z.

Total number of alphabets = 26

$\therefore$ Required fraction = $\dfrac{15}{26}$

33. **Delete**

34. **(B)** Total money spent by

Aneesh = $\dfrac{3}{7} + \dfrac{1}{2} \times \left(1 - \dfrac{3}{7}\right) = \dfrac{3}{7} + \dfrac{2}{7} = \dfrac{5}{7}$

Amount left with him = ₹ 23

$\therefore \left(1 - \dfrac{5}{7}\right) = ₹\ 23 \Rightarrow \dfrac{2}{7} = ₹\ 23$

$\Rightarrow \dfrac{2}{7} \times \dfrac{7}{2} = ₹\ 23 \times \dfrac{7}{2} \Rightarrow 1 = ₹\ \dfrac{161}{2}$

$\therefore$ Total money Aneesh had = ₹ $\dfrac{161}{2}$

$\therefore$ Amount he spent = $\dfrac{5}{7} \times ₹\ \dfrac{161}{2}$

$= ₹\ \dfrac{5 \times 23}{2} = ₹\ \dfrac{115}{2} = ₹\ 57.50$

35. **(D)** 15 is the only number that have 45 as their multiple.

36. **(Del)** Perimeter of Fig. (i) = (20 + 1 + 20 + 1)cm = 42 cm

Perimeter of Fig. (ii) = (20+2+2)cm = 24 cm

$\therefore$ Required difference=(44 − 24)cm = 20cm

37. **(A)** Less

38. **(C)** 1726 + 1726 = 3452

39. **(A,B)** Added, subtracted

40. **(D)** 9 + 10 + 11 + 12 + 13

41. **(A)** Multiples of 3: 3, 6, 9, 12 15, 18, 21, 24, 27 .....

Multiples of 6: 6, 12, 18, 24, 30 .....

Multiples of 9: 9, 18, 27 .....

The clocks ring in every 18 minutes together.

1st time the clock will ring in 18 minutes, then at 36 minutes and then at 54 minutes. So in 60 minutes the clocks will ring 3 times.

42. **(B)** There are 13 halves in this shape. 13 × 1/3 = 13/3.

43. **(A)** 626 ÷ 1000 = 0.626 > 0.6

44. **(C)** 5 kg 500g + 500g = 6 kg

$\therefore$ 6 kg − 1 kg = 5 kg

Therefore, the answer is option (C) 5 kg.

45. **(C)** 8:14 $\xrightarrow{26\,min}$ 8:40

The correct time now is 8:40

8:40 $\xrightarrow{2h}$ 10:40

The correct time 2h from now is 10:40.

General Science

46. **(A)** Planets revolve around the sun in orbits.

47. **(D)** Carnivore are flesh eating animals.

48. **(C)** The heart, blood and blood vessels make up the circulatory system.

49. **(C)** In sugarcane food is stored in the stem.

50. **(B)** A leaf insect and polar bear merge with their surroundings to confuse their enemies.

51. **(D)** Planets are non-luminous while stars are luminous.

52. **(A)** Cutting pliers is a first order lever where fulcrum is between load and effort. It belongs to category of levers.

53. **(B)** A battery utilizes chemical energy to produce electrical energy.

54. **(D)** The layer surrounding the earth is the atmosphere.

55. **(D)** The butterfly, mosquito and housefly have four stages in their life cycles. The grasshopper has only three stages its life cycle: egg, nymph, adult.

56. **(C)** P represents Mercury, Q-Venus, R-Mars.

57. **(C)** Cotton fibres absorb more water than other fibres. They shrink when they become wet.

58. **(C)** Squirrel bury nuts in the soil to eat shows a food storing behaviour.

59. **(B)** Roots absorb water from soil. The stem conducts water to all parts of the plants and leaves through vessels. This water is used by the leaves to synthesise food during photosynthesis.

60. **(C)** Rotation of the earth causes day and night.

61. **(B)** Photosynthesis is the process of making food by plants in the presence of sunlight. CO_2 combines with water in the presence of sunlight and chlorophyll pigment to form glucose molecule. In this process light energy is converted to food energy or chemical energy.

62. **(C)** Water on heating changes to gaseous form or water vapour, the process is called evaporation.

63. **(C)** A thick layer of fat in whales help them in protecting themselves in the cold weather.

64. **(A)** First man go into space – Yuri Gagarin
First Indian women to go into space – Kalpana Chawla
First Man to set foot on man – Neil Armstrong
First Indian to go into space – Rakesh Sharma

65. **(B)** The given sequence shows the movement of energy Sun $\longrightarrow$ Grass $\longrightarrow$ Insects $\longrightarrow$ Frogs.

66. **(C)** Spines are reduced leaves. Spines help in protection of plant.

67. **(B)** Wheel and axle are the two circular objects of different sizes.

68. **(B)** When the air wet clothes take long time to dry.

69. **(A)** The process in which an animal sleeps for several months to protect itself from cold is called hibernation.

70. **(B)** The part labelled Q have taste buds that shows or know sour taste.
P - Bitter, R - Salt, S - Sweet.

71. **(D)** 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.

72. **(A)** The larva of housefly is called Maggot

73. **(A)** Coconut – Coastal areas
Mango – Plains
Cactus – Desert
Pine – Hilly area
Mangroves – Mashy area

74. **(D)** The number of molar in each jaw is 6.

75. **(C)** Circulatory system transport oxygen and digested food to all parts of the body and removes carbon dioxide from different pan.

76. **(C)** Camel is a herbivore – it eats plants.
Hyene is a scavenger – it eats dead animals.

77. **(C)** Seeds will germinate given the right conditions. Hence, they show that they are living things and are able to grow. The leaves rustling and moving in the wind is caused by an external force. The toy dog and toy car are not living things.

78. **(D)** Opuntia have needle like leaves. It protects it from grazing animals.

79. **(D)** Fruits and vegetables are rich in vitamins and minerals, hence they are called protective foods.

80. **(B)** A tooth have a crown, root and neck.

81. **(B)** Tools are simple machines which make our work easy.

82. **(A)** Solids have fixed volume.

83. **(D)** Air spaces in stem enables a plant to float on the surface of water.

84. **(D)** Incisors – cutting teeth, canines – tearing teeth, premolars – cracking, molar – grinding.

85. **(A)** Jupiter is the largest and fastest spinning planet.

86. **(A)** Fire accident cause harm to life and property.

87. **(D)** Microbes cannot be seen with naked eye. We need microscope to see them.

88. **(D)** X – Evaporation
Y – Condensation
Z – Precipitation.

89. **(A)** The sun and the planets are the members of solar system.

90. **(C)** When the matter was changed from one container to another container, its volume remained same but its shape changed. So, it must be a liquid.

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