NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION (UPDATED)

CLASS - 5
Question Paper Code : UN464

KEY

1. C	2. B	3. D	4. A	5. A	6. D	7. D	8. D	9. B	10. B
11. C	12. B	13. D	14. D	15. A	16. C	17. B	18. C	19. B	20. D
21. B	22. A	23. D	24. A	25. B	26. B	27. C	28. D	29. A	30. C
31. C	32. C	33. Del	34. B	35. C	36. A	37. D	38. C	39. B	40. D
41. C	42. C	43. B	44. C	45. B	46. B	47. D	48. D	49. D	50. C
51. B	52. C	53. D	54. C	55. B	56. D	57. A	58. B	59. C	60. B

EXPLANATIONS

MATHEMATICS

01. (C) Multiples of 10: 10, 20, 30, 40, 50, <u>60</u>, 70, ...

Multiples of 12: 12, 24, 36, 48, <u>60</u>, 72, 84, ...

The smallest whole number is 60

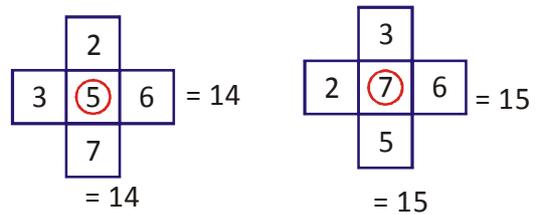02. (B) Sum of $\frac{19}{23} + B = 1\frac{11}{69}$

$\frac{19}{23} + B = \frac{80}{69}$

$B = \frac{80}{69} - \frac{19}{23}$

$= \frac{80 - 57}{69} = \frac{23^1}{69_3} = \frac{1}{3}$

03. (D) No. of rounds jogged by karan = 6

No. of rounds walked by karan = 3

Total rounds = 9

Perimeter of the field = 30 m + 11 m + 14 m + 5 m + 6 m + 5 m + 4 m + 5 m + 6 m + 16 m = 102 m

Total distance walked by karan = 102 m × 9 = 918 m

04. (A) Smallest possible 6-digit number $\longrightarrow$ 235679

The place value of digit 6 is hundreds = 600

05. (A) ₹ 120 + 6 mechanical pens = ₹ 450

6 mechanical pens = ₹ 450 − ₹ 120 = ₹ 330

1 mechanical pen = ₹ 330 ÷ 6 = ₹ 55

₹ 120 + ₹ 55 = ₹ 175

06. (D) 1.048 + 3.162 = 4.21

4.21 × 39 = 164.19

07. (D) $\angle a + 90° = 155°$

$\angle a = 155° − 90°$

= 65°

08. (D) 100% − 25% = 75%

$75\% \times 1200 = \dfrac{75}{100} \times 1200 = 900$

09. (B) $2\dfrac{1}{4} - 1\dfrac{3}{5} + 3\dfrac{1}{2} = 2\dfrac{5}{20} - 1\dfrac{12}{20} + 3\dfrac{10}{20} = 4\dfrac{3}{20}$

10. (B) A + B̸ = 200

$\dfrac{A − B̸ = 130}{2A \quad = 330}$

A = 330 ÷ 2 = 165

A + B = 200

165 + B = 200

B = 200 − 165 = 35

11. (C) Weight of 2 goats = 320 kgs

Weight of black goat 32 kilos more than white goat

= 320 ÷ 2 = 160

Weight of white goat = 160 − 16 = 144 kgs

Weight of black goat = 160 + 16 = 176 kgs

12. (B) Greatest to smallest 94.36, 69.43, 49.36, 39.63

13. (D) LCM of 10, 15 & 30 = 2, 5 & 3

i.e 2 × 5 × 3 = 30

14. (D) Given numbers 2, 3, 5, 6 and 7.

We have to show that,

Sum of the numbers in the row is equal to sum of the numbers in the column

15. (A) Number of boys = (1 − 0.54) × 850

= 0.46 × 850 = 391

Number of girls = 850 − 391 = 459

Difference = 459 − 391 = 68

16. (C) Area of 1 face of the cube = 72 ÷ 2 = 36 m²

Length of 1 face of the cube = 6 m (since 6 × 6 = 36)

Volume of the cube = 6 × 6 × 6 = 216 m³

17. (B) Shopping time of Nidhi = 3 h 40 min − 1 h 50 min

= (180 min + 40 min) − (60 min + 50 min)

= 220 min − 110 min

= 110 min

Total time spent by both

= 220 min + 110 min = 330 min

= 5 hours 30 mins

18. (C) Subtract 6 from 30 to get 24, which is twice my age. Therefore, I am 12 years old. My brother is 6 years older than I am, so he is 18

19. (B) 90° − 43° = 47°

20. (D) Amount left with Sam after giving ₹ 250 to Akhil

= ₹ 2450 − ₹ 250 = ₹ 2200

Amount Akhil

= ₹ 2200 − ₹ 250 = ₹ 1950

Total amount of both

₹ 2450 + ₹ 1950 = ₹ 4400

21. (B) No. of 2 - digits numbers which have the digit on the right is larger than the digit on the left

12, 13, 14, 15, 16, 17, 18, 19

23, 24, 25, 26, 27, 28, 29

34, 35, 36, 37, 38, 39

45, 46, 47, 48, 49

56, 57, 58, 59

67, 68, 69

78, 79

89

= 36 numbers

22. (A) No. of ducks = 10

No. of ducks lay an egg every day = 5

No. of ducks lay an egg every second day = 5

In a period of 10 days

5 ducks lay 5 × 10 = 50 eggs

And an every second day 5 ducks lay = 10 ÷ 2 = 5

5 × 5 = 25 = 50 + 25 = 75 eggs

23. (D) Option (A) = $\dfrac{19}{8}$ = 2

Option (B) = $\dfrac{20}{9}$ = 2.22

Option (C) = $\dfrac{21}{10}$ = 2.1

Option (D) = $\dfrac{23}{12}$ = 1.91

24. (A) No. of paper strips = 4

Aadya overlaps 2 strips using glue with 10 cm and the length of the strip will be 50 cm

i.e, Before overlap the strips length = 50 + 10 = 60 cm

each strip length = 60 ÷ 2 = 30 cm

so, length of each strip = 30 cm

To make a strip 50 cm long, she has to overlap 2 strips upto = 60 cm – 56 cm = 4 cm

25. (B) Given area of a rectangle = 12 cm^2

Then its maximum length of its sides should be 12 cm and breadth = 1 cm

Perimeter of the rectangle = 2(l + b) = 2(12 + 1)

= 2 × 13 = 26 cm

GENERAL SCIENCE

26. (B) Animals shown in the box are vertebrates or with back bones. Snake is a vertebrate.

27. (C) The given figure shows bryophyllum leaf with leaf buds. Leaf buds at notches of bryophyllum grows into a new plant.

28. (D) Screw is an inclined plane.

29. (A) The earth rorates on its own axis. This makes stars appear to move across Earth's sky each night.

30. (C) Option (C) is tractor. A farmer use tractor in his field.

31. (C) The simple machine represented by letter 'A' is pulley.

32. (C) Option (C) is a frog. A frog breathe through its moist skin.

33. (Delete)

34. (B) The moon reflects light from the sun.

35. (C) Joint at Q and T are called hinge joints.

36. (A) Housefly lays 120 to 150 eggs, its life span is about 28 days, it spreads diseases such as cholera, typhoid, diarrhoea, etc.

37. (D) Fishes breathes through gills, they are boat shaped and have scales on their body and are vertebrates with backbones.

38. (C) We apply ice on the head and pinch the bridge of the nose in nose bleed.

39. (B) Granite, Pumice, Basalt are igneous rocks.

40. (D) Snake (predator) – Frog (prey). Predator is an animal that kills other organism for its food. Prey is the organism which the predator eat.

41. (C) Seeds need air (oxygen), water and warmth (right temperature) for germination.

Sunlight is needed only after leaves have developed.

[By the time seedlings (baby plants) have leaves, the food in their seed leaves is almost used up, and their seed leaves are about to drop off. They have to start making their own food in sunlight before their seed leaves drop off so that they can continue to grow healthily.]

42. (C) Cerebellum in the brain is responsible for maintaining the balance of the body.

43. (B) As Animal R feeds on Animal S and Plant Q, we can conclude that it is a plant-and-animal eater or an omnivore.

We cannot conclude where the organisms live, how the animals reproduce and if the plant is woody or non-woody from the information given.

44. (C) The picture given below shows tourniquet. It is used to stop bleeding.

45. (B) Q - Seed coat tears; P - Root appears; S - Shoot appears; R - First leaves appear.

46. (B) These seeds will most likely be dispersed when they attach to an animal's fur.

47. (D) A cockroach breathes through the pores on its abdomen.

48. (D) The animals are grouped according to the type of body covering. Animals in Group 1 are covered with scales and Group 2 animals are covered with hair.

49. (D) In this food chain, energy is transferred from one living thing to the next. When a living thing is eaten by something above it on the food chain, the living thing that consumes it absorbs its energy. Just as the rabbit gets energy from eating the carrot, the fox gets energy from eating the rabbit.

50. (C) In case of gas leak in the kitchen, one should open all the doors and windows of the house.

51. (B) Even though both animals live in the same environment, the Armadillo is a mammal and the coral snake is a reptile. The question explains how the animals use different techniques to protect themselves from their enemies; the armadillo curls up into an armored ball and the coral snake uses its tail to confuse its enemies. Though the techniques differ, both animals have ways to protect themselves.

52. (C) Bicycle, sewing machine, screw driver are examples of wheel and axle.

53. (D) A chameleon is a reptile. It is a kind of lizard.

A chameleon has a very long tongue with a sticky tip. Its tongue can extend out of the mouth rapidly to catch its prey.

Each foot of a chameleon has five toes that are fused into a group of two and a group of three, giving the foot a tong-like appearance. These feet allow chameleons to grip tightly to thin branches.

Its eyes can rotate and focus separately simultaneously. Its eyes allow it to have a full 360-degree arc of vision around its body.

Each chameleon has a long tail that is able to curl up. It is used to balance itself.

54. (C) Corn, rice and potatoes have most of the carbohydrates that provide our body with energy.

55. (B) Igneous rock is formed when hot lava cools.

CRITICAL THINKING

56. (D) Clearly A and E are sitting on the extreme ends of the bench for them to have three people between them. Therefore A _ _ _ E or E_ _ _ A.

Now if C is not adjacent to either A or E, C can only be in the middle bench. Therefore A _ C _ E or E_C_A.

From above information second person from left is either D or B

Therefore option D is the correct answer.

57. (A) 18

First day : (4 guavas)
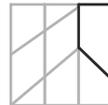
Second day : (6 guavas)

Third day : (8 guavas)

58. (B)

59. (C) Riya will use the string of letters given in option (C)

60. (B)

THE END