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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION (UPDATED)

CLASS - 5
Question Paper Code : 1P204

KEY

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

SOLUTIONS

MATHEMATICS

01. (D) $\frac{1}{3} + \frac{1}{2} + \frac{1}{6} = 1$

02. (D) $10 \times 30 \times 50 \times 70 = 1 \times 30 \times 500 \times \boxed{70}$

03. (C) $7 \times 6 = 42$; $5 \times 6 = 30$
    $42 + 30 = 72$ cm

04. (B) $\frac{1}{2} = 0.5 = 50\%$
    $\frac{3}{4} = 0.75 = 75\%$
    ∴ 60% is between 50% and 75%

05. (B) The temperatures on the thermometers are 40°, 102°, 50° and 60°. Based on these Fahrenheit temperatures, we know that options A, C & D, showing temperatures of 40°, 50° and 60° respectively, are low on the Fahrenheit scale and considered cold in summer. While option B, 102°, is high on the Fahrenheit scale, it is likely for midsummer and more likely to be on the Fourth of July in Texas.

06. (D) The point $4\frac{3}{4}$ is incorrect. It would be $4\frac{7}{8}$

07. (B) AB is the diameter and OC is the radius,
    So $OC = \frac{40}{2} = 20$ cm

08.	(D)	If the numerator stays the same and the denominator increases, the fraction names a smaller amount.

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09. (B) 7 / 12 = 0.583

10. (C) 10012 < 10112 < 11011 < 11120

11. (B) Profit = SP − CP

Rs. 100 = Rs. 800 − CP

CP = Rs. 800 − Rs. 100 = Rs. 700

12. (C) Volume of one 125 ml bottle and one 500 ml bottle (1 set)

= 125 + 500 = 625 ml

5 l = 5000 ml

Number of sets of one 125 ml bottle and one 500 ml bottle

= 5000 ÷ 625 = 8

8 + 8 = 16

There are 16 125 ml and 500 ml bottles in total

13. (C) Sum of the 3 numbers A, B and C

= 3 × 25 = 75

A = B − 2

C = B + 2

A + B + C = B − 2 + B + B + 2 = 3B

3B = 75

B = 75 ÷ 3 = 25

14. (D) Multiples of 11 between 20 and 60: 22, 33, 44, 55

Multiples of 8 between 20 and 60: 24, 32, 40, 48, 56

56 − 55 = 1

Johnny is 55 years old now.

15. (D)
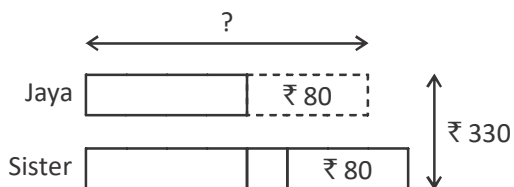
3 units − ₹ 330

1 unit − ₹ 330 ÷ 3 = ₹ 110

Amount of money Jaya had at first

= ₹ 110 + ₹ 80 = ₹ 190

16. (C) In 2 hours:

• Distance travelled by Car A = 60 × 2

= 120 km

• Distance travelled by Car B = 80 × 2

= 160 km

Difference = 160 − 120 = 40 km

17. (C) The required time

= 11: 15 a.m. − 3 h 20 min = 7: 55 a.m.

18. (C) The ratio of apples to oranges = 3 : 2

If 3 parts = 18 apples, then 1 part

= 18 ÷ 3 = 6

So, 2 parts (oranges) = 6 × 2 = 12 oranges

19. (D) P + Q = 105

P − Q = 45

So, 2P = 105 + 45 = 150

⇒ P = 75

Then, Q = P − 45 = 75 − 45 = 30

∴ (75 × 30) ÷ (75 ÷ 30) = 900

20. (B) 3000 ÷ 7 = 428.6

428 × 7 = 2996 = 3000

429 × 7 = 3003 = 3000

The greatest possible whole number that Ben used was 429.

21. (A) Smallest number 6 digit number

235 679

The place value of digit 6 is hundreds.

22. (D) Number of 1 cm cubes needed along the length of the 2 cm cube

= 2 ÷ 1 = 2

Number of 1 cm cubes needed along the breadth of the 2 cm cube

= 2 ÷ 1 = 2

Number of 1 cm cubes needed along the height of the 2 cm cube

= 2 ÷ 1 = 2

Number of 1 cm cubes needed

= 2 × 2 × 2 = 8

23. (C) Cube

24. (B)

Indian system	TC	C	TL	L	T.Th	Th	H	T	O
International system	HM	TM	M	H.Th	T.Th	Th	H	T	O

Hence, 10 crores = 100 millions.

25. (B) 3 m 4 cm = 304 cm

6 m 21 cm = 621 cm

1 km 1m = 1100 cm

∴ 3 m 4 cm is the shortest length.

GENERAL SCIENCE

26. (C) Potato reproduce from nodes or eyes.

27. (Delete)

28. (B) Cockroach breathe through certain special structures called trachea.

29. (B) Oxygen, nitrogen and hydrogen are all gases.

30. (A) Given seeds have wing and hair like structures that help these seeds to disperse.

31. (C) A frog has sticky tongue to catch insects.

32. (D) An inclined plane is a slope which makes work easier. When workers have to load or unload a truck they use a plank of wood as an inclined plane.

33. (C) Sedimentary rocks were built up over many millions of years. They are made up of layers of sediments. Sandstone is a sedimentary rock used as a building material.

34. (A) Inhaled air reaches our lungs through trachea.

35. (D) A solar eclipse is formed when the moon comes between the sun and the earth.

36. (A) Earth = 2; Moon = 3; Sun = 1

37. (D) Ice melt and form into puddle of water due to the absorption of heat.

38. (B) Heat, light and electricity are all forms of energy.

39. (D) Brain is the controlling centre of the body.

40. (A) Igneous rocks that are formed due to earth's heat, they are called fiery rocks.

41. (A) Lever in which the fulcrum is located between the load and the effort is I class lever.

42. (B) Tadpole breathe through gills. A tapole is a larva of frog it resembles fish and breathe through gills.

43. (B) Head, thorax, abdomen are parts of insects.

44. (C) The given fruit has hooks which get stuck to the skin of animals and get dispersed.

45. (D) Venus is called the morning and evening star.

46. (D) Uranus - Coldest planet

Mars - Red planet

Mercury - Smallest planet

Saturn - Second largest planet

47. (A) Drying of wet floor involves evaporation of water from the wet floor.

48. (D) Measles, chicken pox and plague are communicable diseases.

49. (B) Tortoise and turtle are reptiles

50. (A) Marble is metamorphic rock.

51. (A) Phases of the moon occur because we can see only the part of the moon which reflects light towards us

52. (C) Cotyledons or seed leaves supply food, radicle forms the root and plumule forms leaves and stem.
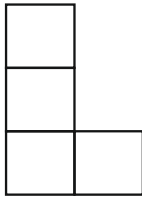
53. (D) A tiger uses its canines to hold onto its prey and kill it. The tiger stabs its prey with the canines and rips the meat.

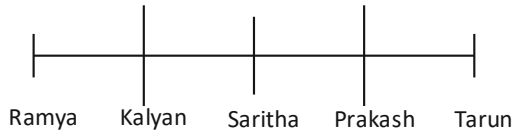54. (D) Ball and socket joint allows the movement in 360° degrees or as a circle.

55. (D) Goitre is a deficiency disease.
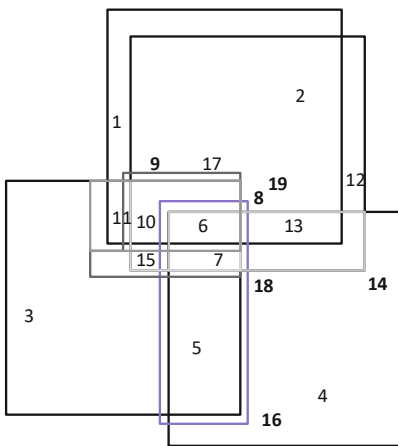
CRITICAL THINKING

56. (C)

57. (A)

Ramya   Kalyan   Saritha   Prakash   Tarun

58. (B)

59. (D)

60. (B)   Identifying common words:

The word 'friendly' is common in the first two phrases:

'pa ka ma' (dogs are friendly)

'ra pa ka' (cats are friendly)

The common codes in both are 'pa' and 'ka'. Since the only common word is 'friendly', it must correspond to either 'pa' or 'ka'.

If 'friendly' corresponds to 'pa' or 'ka', then the remaining code should correspond to the remaining words in the phrases:

'pa ka ma': 'dogs are friendly' (since 'friendly' is either 'pa' or 'ka', 'dogs are' must be 'pa' and 'ma')

'ra pa ka': 'cats are friendly' (since 'friendly' is either 'pa' or 'ka', 'cats are' must be 'ra' and 'pa')

Determining 'dogs' and 'are':

The word 'dogs' appears in the first and third phrases:

'pa ka ma' (dogs are friendly)

'ma ka la' (dogs are loving)

The common code in both is 'ma' and 'ka'. Since the word 'dogs' is present in both, 'dogs' must correspond to either 'ma' or 'ka'.

Determining 'la':

Finally, the third phrase 'ma ka la' means 'dogs are loving'.

We already know that 'dogs' corresponds to either 'ma' or 'ka'. Therefore, 'loving' must be the remaining code.

Since we determined that 'dogs' correspond to 'ma' (based on the other analyses), 'ka' must mean 'are'.

Conclusion:

The word 'la' in the code language stands for 'loving'.

Answer : 'la' stands for 'loving'.