

**UNIFIED COUNCIL**

Foundation for success

**NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION (UPDATED)****CLASS - 5****Question Paper Code : 1P214****KEY**

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

**SOLUTIONS****MATHEMATICS**

01. (D) Divisible by 2, 3, 5 → must end in 0, divisible by 6 & 15, not necessarily by 8.

02. (A,B,C) Sequence : 4, 16, 64, 256, 1024, 4096, 16384, 65536 .....

Numbers that cannot be in the sequence: 23468, 12986, 23232

03. (D)  $650000 \div 0.65 = 1,000,000$  times bigger.

04. (B) Tina has 5 times as many as Meena" and "Meena has 24 fewer" → Total difference = 4 parts → Divide 24 by 4 → 6 → Multiply by 5 → Tina's sweets = 30.

05. (B) 9 : 00 AM

- First jog →  $7:25 + 0:35 = 8:00$
- Rest →  $8:00 + 0:10 = 8:10$
- Second jog →  $8:10 + 0:50 = 9:00$

06. (D) Square side =  $\frac{20}{4} = 5$  cm. Cutting into two rectangles (by a straight cut parallel to a side) does not change total length of the outer edges plus the cut: the sum of perimeters of the two rectangles equals perimeter of square plus twice the cut length.

Let the cut be along a side direction, splitting side 5 into parts a and 5 - a. The cut length = 5. Then sum of perimeters =  $20 + 2 \times 5 = 30$ .

One rectangle perimeter = 16, so the other =  $30 - 16 = 14$  cm

07. (A) 3 minutes 20 seconds = 200 seconds. Rate is 1 paisa per 2 seconds  $\rightarrow$  cost

$$= \frac{200}{2} = 100 \text{ paisa} = 1.00 \text{ rupee}$$

08. (C) Tripling each day means day 3 = day 1  $\times$  9. Since day 3 has 3105 visitors, divide 3105 by 9.  $3105 \div 9 = 345$ .

09. (C)  $50 + 4 + 0.3 + 0.02 + 0.005 = 54.325$ .

10. (B) Difference in speed

$$= 220 - 190 = 30 \text{ m/min}$$

$$12 \text{ minutes} = 30 \times 12 = 360 \text{ m}$$

Jatin was 360 m ahead

11. (D) 3rd container has  $x$  litres

2nd container has  $(8 + x)$  litres

1st container has  $(4 + 8 + x)$  litres

Total volume of water in 3 containers

$$x + 8 + x + 12 + x$$

$$3x + 20 = 68$$

$$3x = 68 - 20 = 48$$

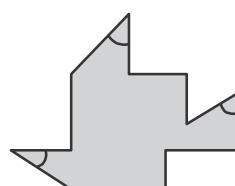
$$x = 16 \text{ litres}$$

3rd container has 16 litres

2nd container has  $8 + 16 = 24$  litres

1st container has  $12 + 16 = 28$  litres

12. (D) 3 angles in this figure are smaller than a right angle.



13. (D)  $987654321 \times 9 = 8888888889$

14. (C)

Area of ABCD - Area of BEFG

$$9 \times 10 - 6 \times 4$$

15. (B) Width = 5, 10, 15,...

Length =  $4 \times$  width

Perimeter = 2 (Length + Width)

$$= 2 (4W + W) = 10W$$

Given:  $10W < 150$

$$W < 15$$

Possible widths (multiples of 5 less than 15)

$$5 \text{ m, } 10 \text{ m}$$

16. (B)  $1.7 \text{ kg} - 0.4 \text{ kg} = 1.3 \text{ kg}$

17. (B)  $x + 4x = 60 \text{ cm}$

$$5x = 60 \text{ cm}$$

$$x = 12 \text{ cm}$$

18. (C) Each shaded number (12, 15, 24, 33, 42, 45) is divisible by 3 (sum of digits divisible by 3). For example,  $12 \div 3 = 4$ ,  $33 \div 3 = 11$ , etc.

19. (B) John ate more than Billy and the difference is given by

$$1\frac{2}{3} - 1\frac{1}{4} = (1 - 1) + \left(\frac{2}{3} - \frac{1}{4}\right) = \left(\frac{2}{3} - \frac{1}{4}\right)$$

Write fractions with the same denominator

$$\frac{2}{3} = \frac{2}{3} \times \frac{4}{4} = \frac{8}{12}$$

$$\frac{1}{4} = \frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$$

The difference is

$$1\frac{2}{3} - 1\frac{1}{4} = \frac{8}{12} - \frac{3}{12} = \frac{5}{12}$$

John ate  $\frac{5}{12}$  of a pizza more than Billy.

20. (D) Freezing water is at  $0^\circ\text{C}$ , not  $100^\circ\text{C}$ .

21. (B) 9 parts = 54  $\rightarrow$  1 part = 6  $\rightarrow$  7 parts  
 $= 42 \rightarrow$  total =  $42 + 54 = 96$ .

<p>22. (C) Convert each</p> <ul style="list-style-type: none"> <li>• 70 ten-thousands = 7,00,000</li> <li>• 7 lakh = 7,00,000</li> <li>• 70 thousands = 70,000</li> <li>• 70,000 tens = 7,00,000</li> </ul>	<p>33. (C) Sugar is a carbohydrate that provides quick energy. Soyabean gives protein, orange and spinach provide vitamins.</p>
<p>23. (A) A rhombus would need two equal sides in both original triangles, so a rhombus is impossible with these triangles.</p>	<p>34. (C) Anaemia is caused by iron deficiency, leading to low haemoglobin and reduced oxygen transport.</p>
<p>24. (B) Remaining = <math>1,05,000 - 27,600 = 77,400</math> Monthly = <math>77,400 \div 12 = \text{Rs. } 6,450</math></p>	<p>35. (B) Dark colors absorb more solar radiation and convert it into heat, making objects hotter than lighter colors, which reflect more heat.</p>
<p>25. (A) <math>246 \times 128 = 31488</math> (P) <math>492 \times 64 = 31488</math> (P)</p>	<p>36. (C) The picture likely shows food being dried in sunlight, a traditional preservation method that removes moisture to inhibit microbial growth.</p>
<p><b>GENERAL SCIENCE</b></p> <p>26. (D) Pigeon and eagle belong to the same group (birds) because they have feathers, whereas a bat is a mammal and does not have feathers. Hence, the bat does not belong to the same group. The phrase 'other three' is a minor wording oversight; however, the scientific concept and the correct answer (D) remain valid and will be considered final."</p>	<p>37. (A) Foul smell and colored patches indicate spoilage due to bacterial or fungal growth, often encouraged by warmth and moisture.</p>
<p>27. (B) Dandelion seeds have fluffy parachutes that help them float in the wind.</p>	<p>38. (B) Webbed feet help in swimming, and a streamlined shell reduces water resistance, aiding aquatic life.</p>
<p>28. (C) Sequence is: Ploughing, Levelling, Adding manure/fertilizer, sowing seeds and irrigation.</p>	<p>39. (C) Camouflage helps the grasshopper blend into its surroundings, avoiding detection by predators.</p>
<p>29. (D) Seeds require air, water, and warmth for germination.</p>	<p>40. (D) Paper plates, paper cups, and wooden chopsticks are biodegradable (break down naturally), while plastic utensils are not.</p>
<p>30. (D) Venus is closest to Earth in size and mass, hence called Earth's twin.</p>	<p>41. (B) Sugarcane is grown from stem cuttings (called setts).</p>
<p>31. (C) p-iii; q-iv; r-i; s-ii Physical change (change in appearance) Properties (qualities describe an object) Chemical change (A change to a different type of matter with new properties)</p>	<p>42. (B) Cotyledons store food in seeds, nourishing the embryo until leaves form and start photosynthesis.</p>
<p>Matter(Anything that has mass and occupies space)</p>	<p>43. (D) Scissors have the fulcrum between the effort and load, making them a first-class lever. Nutcracker is second class, tweezers third class, wheelbarrow second class.</p>
<p>32. (B) Soil erosion is the process where topsoil is worn away by natural forces like wind, water, and sun.</p>	<p>44. (C) Force changes the motion (or shape) of an object kicking applies force, changing the ball's speed/direction.</p> <p>45. (B) Carbon dioxide is only about 0.04% of air but essential for photosynthesis in plants.</p> <p>46. (D) Pumice is a volcanic rock with many air pockets, making it porous and lightweight.</p>

47. (C) Medulla oblongata controls involuntary functions like heartbeat and breathing.

48. (A) An inclined plane is a sloping surface that reduces the effort needed to lift objects to a higher level.

49. (B) Day and night occur because the Earth rotates on its axis, causing different parts to face toward or away from the Sun.

50. (B) The sour smell and slimy texture are due to bacterial fermentation, where bacteria break down sugars and produce acids and slimy byproducts.

51. (B) Air trapped in hollow stems provides buoyancy, helping aquatic plants like water lilies float.

52. (C) Obsidian is a naturally occurring volcanic glass that cools quickly, giving it a fine-grained, smooth, and glossy appearance.

53. (C) The camel's hump stores fat, which can be converted to energy and water when food is scarce.

54. (B) The given figure is showing a farmer using a sickel for the harvesting.

55. (A) Jet planes typically fly in the stratosphere to avoid weather disturbances and for smoother, more efficient flight.

### CRITICAL THINKING

56. (B) A bigger wheel covers more distance in one turn than a smaller wheel because it has to travel a longer path to complete a full circle.  
So the toy car with Wheel 2 (4 units) will roll the furthest.

57. (B) From Statement 1: Varun > Rahul > Aarav  
From Statement 2: Aarav > Ishaan  
So the order becomes: Varun > Rahul > Aarav > Ishaan  
Thus, Varun is heavier than Ishaan, not lighter.  
So, Statement 3 is false.

58. (C)

59. (C)

60. (B) P and S are ladies, unmarried, and do not play games.

- No lady can be a chess or badminton player → ladies cannot play these games.
- Q is a brother → Q is male and not chess or tennis player (so Q plays badminton).
- There is one married couple, and T is the husband → T must be male.
- P and S are unmarried → they cannot be T's wife.
- Q is male → cannot be wife.

So, the only person left who can be T's wife is R.