



UNIFIED COUNCIL

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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION (UPDATED)

CLASS - 6

Question Paper Code : UN444

KEY

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

SOLUTIONS

MATHEMATICS

- (C) LCM of 2, 12 & 3 is 12
HCF of 15, 5 & 4 is 1
 \therefore LCM of $\frac{2}{15}$, $\frac{12}{5}$ & $\frac{3}{4}$ is 12
- (B) $1-2+3-4+5-6+\dots+2017 - 2018 + 2019$
 $= -1 -1 -1 \dots -1 + 2019$
 $\longleftarrow 1009 \longrightarrow$
 $= -1009 + 2019 = 1010$
- (D) 15 minutes : 2 hours = 15 min : 120 min
 $= 1 : 8$
- (C) Great than

- (C) Water in the bucket = 48 litres $\times \frac{1}{14}$
 $= \frac{24}{7}$ litres
Water leaked per minute = $\frac{3}{14}$ litres
 \therefore Time taken to empty the bucket
 $= \frac{\left(\frac{24}{7}\right) \text{ min}}{\left(\frac{3}{14}\right)} = \frac{24}{7} \times \frac{14}{3}$ minutes
 $= 16$ minutes

6. (B) Given three numbers are $3x, 4x, 5x$
 \therefore LCM of $3x, 4x, 5x = 60x$
 Given $60x = 2400$
 $x = 40$
 \therefore HCF = $x = 40$
7. (B) HCF of 36 & 25 is 1
 \therefore 36 & 25 are coprimes
8. (C) $\frac{10}{11} = \frac{40}{44}$
9. (A) Area of play ground = $62.6 \text{ m} \times 25.4 \text{ m}$
 $= 1590.04 \text{ m}^2$
 cost of turfing = ₹ 2.50 per m^2
 \therefore Total cost of turfing
 $= 1,590.04 \times ₹ 2.50 = ₹ 3,975.1$
10. (C) Let number of five rupee notes be x
 \therefore number of two rupee notes be $2x$
 Given $5x + 2(2x) = ₹ 72$
 $₹ (5x + 4x) = ₹ 72$
 $9x = 72$
 $x = 8$
 number of two rupee notes = $2x = 16$
11. (C) Other fraction = $14 \frac{5}{12} - 7 \frac{2}{3} = \frac{173}{12} - \frac{23}{3}$
 $= \frac{173 - 92}{12} = \frac{81}{12}$
 $= \frac{27}{4} = 6 \frac{3}{4}$
12. (D) $x + 198.01 = 300.909$
 $x = 300.909 - 198.01$
 $x = 102.899$
13. (A) Females = $3540 - 2065 = 1475$
 Ratio of males & femals = $2065 : 1475$
 $= 7 : 5$
14. (C) number of paper weights
 $= \frac{4.745 \text{ kg} + 4.745 \text{ kg}}{365 \text{ g}}$
 $= \frac{9490 \text{ g}}{365 \text{ g}} = 26$

15. (B) $\frac{x^2 + y^2 - z^2}{xy + yz - zx} = \frac{3^2 + 4^2 - 5^2}{12 + 15 - 20} = \frac{0}{7} = 0$
16. (A) $2 : 3 = \frac{2}{3} = 0.666$
 $4 : 7 = \frac{4}{7} = 0.571$
 $\therefore 2 : 3 > 4 : 7$
17. (C) LCM of 12, 16, 24 & 48 is 48
 \therefore Required number = $48 + 9 = 57$
18. (C) Given $x + x + 11.72 \text{ cm} = 59.12 \text{ cm}$
 $2x = 59.12 \text{ cm} - 11.72 \text{ cm}$
 $2x = 47.4 \text{ cm}$
 Equal side = $x = \frac{47.4}{2} \text{ cm} = 23.7 \text{ cm}$
19. (A) Part of money left after giving to elder son
 $= 1 - \frac{1}{4} = \frac{3}{4}$
 Part of money given to younger son
 $= \frac{1}{4} \times \frac{3}{4} = \frac{3}{16}$
 Part of money given to daughter
 $= \frac{3}{4} - \frac{3}{16} = \frac{12 - 3}{16} = \frac{9}{16}$
20. (C) $xy + yz + zx = 4 \times 3 + 3 \times -2 + (-2) \times 4$
 $= 12 - 6 - 8$
 $= -2$
21. (A) number of boys = $1650 \times \frac{(100 - 34)}{100}$
 $= \frac{1650 \times 66}{100} = 1089$
22. (B) 75 kg : 2 Quantites = 75 kg : 200 kg
 $= 3 : 8$
23. (A) Given $3x - 5^\circ + 2x + 10^\circ = 180^\circ$
 $5x = 180^\circ - 5^\circ$
 $5x = 175^\circ$
 $x = 35^\circ$
24. (A) Total ratio = $6 + 4 + 3 = 13$
 share of Arjun = $\frac{3}{13} \times ₹ 26,234 = ₹ 6054$

25. (C) $\frac{3}{8} = 0.375$

$\frac{4}{13} = 0.3076$

$\therefore \frac{3}{8} > \frac{4}{13}$ ie $\frac{4}{13} < \frac{3}{8}$

PHYSICS

26. (C) The part labelled P is the shiny surface around the bulb in the torch light which acts as a reflector. Due to the black painting on it, the intensity of light from the bulb decreases when the torch light is switched on.

27. (C) Option (C) shows the correct grouping of objects based on the medium through which light rays travel.

- (i) Air is a transparent substance through which light rays travel totally.
- (ii) Ground glass is a translucent substance through which light rays travel partially.
- (iii) Brick is an opaque object. So, light rays cannot travel through it totally.

28. (D) Boats, ships, steamers, aeroplanes helicopters etc. have streamlined shaped bodies to enable them to move easily in air and water respectively.

29. (A) Bakelite is a type of plastic, an insulator or a non-conducting material.

30. (B) When electric current flows through the given appliances, electrical energy is converted to heat energy in a water heater, sound energy in a CD player, light energy in a bulb and mechanical energy in a fan.

31. (D) From 9 hours, the length of the shadow decreases till noon. At 12 noon, the sun is right above the object, so the shadow is diminished. The length of the shadow increases from noon to 17 hours.

32. (D) Alphabets C, K, Z, D, J, N, G, P and R undergo lateral inversion as shown below.

C	↔	D	↔	G	↔	᠒
K	↔	J	↔	P	↔	q
Z	↔	N	↔	R	↔	Я

Alphabets A, H, V undergo lateral inversion when viewed through a plane mirror but appear to be the same as shown below.

A	↔	A
H	↔	H
V	↔	V

33. (C) A measuring tape has standard unit of measurement for measuring length. Hence, Somu's teacher asked him to measure the length of the table by using a measuring tape.

34. (C) The filament in an electric bulb is fixed in the middle.

35. (C) Total distance travelled by Bhavana = AB + BC + CD = 4 + 6 + 4 = 14 cm

CHEMISTRY

36. (C) A plant that uses sunlight to prepare food by photosynthesis process is a chemical change.

37. (B) Rubber is obtained naturally as liquid (latex) from rubber trees. Glass, plastic and polystyrene are man-made materials.

38. (A) Condensation and evaporation are reverse of each other. For example water on absorbing heat evaporates as water vapour which on cooling condenses into liquid water.

39. (C) The advantage of inter-linking the rivers in India is to facilitate uniform distribution of water.

40. (D) Man-made material is not obtained directly from the natural surroundings. It is obtained through chemical processes.

41. (B) As a new substance magnesium oxide is formed when magnesium is burnt in air, it is a chemical change. As heat is produced, it is an exothermic reaction.

42. (A) The process of mechanically transferring a clear liquid without disturbing the settled solid particles is called Decantation.

43. (A) Evaporation causes cooling after you start sweating because water droplets present on the skin require some heat to evaporate, which they take from the body.
44. (D) Metals do not absorb water. They conduct electricity. They are opaque not transparent.
45. (C) A very hot glass on placing under cold water cracks due to contraction, When the outer surface of hot glass comes in direct contact with cold water, it contracts more compared to the inner surface of the glass that is not in direct contact with cold water. Due to uneven heat absorption by outer and inner surfaces in the same glass, it contracts.

BIOLOGY

46. (A) The green colour of the leaves is due to the presence of chlorophyll.
47. (C) The organisms which depend on dead and decaying organic matter are called saprophytes.
48. (C) Plastic bag is a non-biodegradable products.
49. (A) If the leaves are arranged on either side of a node, the phyllotaxy is known as opposite.
50. (B) Cactus is a desert plant.
51. (B) The winter sleep of animals like bears is called hibernation.
52. (C) The tip of the shoot bends towards the light, this phenomenon is called phototropism.
53. (B) Carrots and turnips are included under biennial.

54. (A) Roots that develop from the lower nodes of stem are called stilt roots.
55. (D) Vitamin belongs to the class of protective foods.

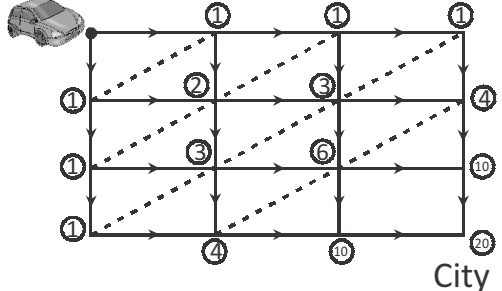
CRITICAL THINKING

56. (B) The hands of a clock point in opposite directions (in the same straight line) 11 times in every 12 hours. (Because between 5 and 7 they point in opposite directions at 6'o clock only).

So, in a day, the hands point in the opposite directions 22 times.

57. (B) John } brothers Surya } brothers
 Madhu } Karan }
 Surya } father and son
 John }

Karan is Madhu's uncle.

58. (C) 

There are 20 different ways for the car to travel to the city.

59. (D) Draw a verticle line at the centre in each figure. Turn the book 90° clockwise, the figures are mirror images of the letters I, J, K, L and M. Hence, the next one is N.
60. (C) Regardless of their size, all free-falling objects on Earth accelerate downwards at the same rate.

THE END