

**Section 1: English**

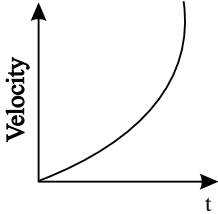
1. You are requested to your shoes before entering.
(Choose the best Prepositional Verbs from the options to fill in the blank)
(A) take off (B) take on
(C) put on (D) throw off
2. The cat was lying down
(Choose the best prepositional phrase from the options given to fill up the blank)
(A) above the floor (B) under the floor
(C) beside the floor (D) on the floor
3. Choose the most suitable conjunction from the options to fill in the blank of the sentence:
..... waiting for them, I fell asleep.
(A) Until (B) Because
(C) While (D) After
4. Fill in the blank in the following sentence with a suitable non-finite verb from the given options:
Are you ready..... now?
(A) for leaving (B) to leave
(C) leave (D) leaving
5. Choose the appropriate conditional clause to complete the following sentence:
You will succeed
- (A) if you work hard
(B) if you had worked hard
(C) if you worked hard
(D) had you worked hard
6. Choose the correct question tag for the given sentence from the options:
Let us play another game..... ?
(A) isn't it (B) shall us
(C) shall we (D) will we
7. Which of the following sentences is False?
(A) The American English word for 'defence' is "defense".
(B) The American English word for 'jewellery' is "juwellery".
(C) The American English word for 'moustache' is "mustache".
(D) The American English word for 'analogue' is "analog".
8. What is the meaning of the phrase 'child's play'?
(A) an interesting work (B) an easy work
(C) games of children (D) difficult work
9. Identify the compound word from the four options.
(A) running (B) rainfall
(C) yesterday (D) kitchen
10. Mr. Alfred was proud of his son's achievement in sports.
(Choose the correct noun form of the underlined word in the above sentence)
(A) proudness
(B) prouidience
(C) pride
(D) prouderly

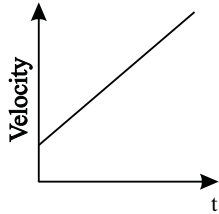
Section 2: Mathematics

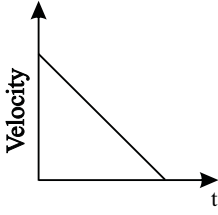
11. If $\sqrt{81} + \sqrt{48} + \sqrt{75} - \sqrt{108} = a + b\sqrt{3}$, where a and b are rational numbers, find a and b .
(A) $a=9$ and $b=3$ (B) $a=0$ and $b=6$
(C) $a=9$ and $b=15$ (D) None of the above
12. The acute angles of a right triangle in the ratio 1 : 5. Find the measure of the greatest acute angle.
(A) 15° (B) 25°
(C) 75° (D) 55°

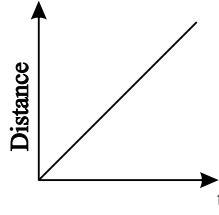
13. Anand has a cubic box of volume $8,000 \text{ cm}^3$ with open top. What is the surface area of this box?
 (A) 2400 cm^2 (B) 2000 cm^2
 (C) 200 cm^2 (D) 120 cm^2
14. An object is in the shape of a hemisphere with a base diameter of 16 cm. The curved surface area of the object is to be coated with silver at the rate of Rs 25 per cm^2 . Find the total cost of coating the object. ($\pi = 3.14$)
 (A) Rs. 10,048 (B) Rs. 15,072
 (C) Rs. 40,192 (D) Rs. 20,096
15. A housing estate of 360 dwellings consists of houses, cottages and flats in the ratio 7 : 3 : 5. How many houses, cottages and flats are there?
 (A) 2,520 houses; 1,080 cottages; 1,800 flats
 (B) 70 houses; 30 cottages; 50 flats
 (C) 168 houses; 72 cottages; 120 flats
 (D) 7 houses; 3 cottages; 5 flats
16. In $\triangle ABC$, if $AB : BC : AC = 21 : 20 : 29$, then find the value of $\sin C$.
 (A) $\frac{20}{29}$ (B) $\frac{21}{20}$
 (C) $\frac{21}{29}$ (D) $\frac{20}{21}$
17. If A and B are the remainders when the polynomial $2x^4 - 8x^3 + 5x^2 + px + 1$ is divided by $x - 2$ and $x - 1$ respectively and $A + B = 10$, find the value of p .
 (A) 6 (B) 7
 (C) 8 (D) 9
18. If $4x - y = 13$ and $xy = 12$, find the value of $64x^3 - y^3$.
 (A) 210 (B) 9984
 (C) 156 (D) 4069
19. In a parallelogram ABCD, if the bisectors of $\angle A$ and $\angle B$ intersect at P, then find $\angle APB$.
 (A) 60° (B) 90°
 (C) 120° (D) 100°
20. For $1/21$, the repeating block of digits in the quotient is 047619. What is the repeating block of digits for $20/21$?
 (A) 952,380 (B) 20
 (C) 476,190 (D) none of the above

Section 3: Science

21. A particle is thrown from height h to the ground. Which of the following graph correctly represents the motion? [neglect air resistance]
- (A) 

(B) 

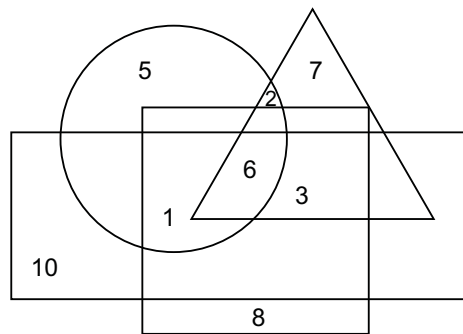
(C) 

(D) 
22. A body executing uniform circular motion completes 4 rotations in one second in a circle of radius 25 cm. Its speed is
 (A) 6.28 cm/s (B) 6.28 m/s
 (C) 62.8 m/s (D) 628 m/s
23. On a cold day a person touching a metal bench on a park will feel it to be extremely cold while a nearby wooden bench does not that way. This is because
 (A) Iron being a good conductor loses more heat to the environment than wood.
 (B) Iron being a good conductor removes body heat faster than wood
 (C) Iron is in thermal equilibrium with the surrounding, wood is not.
 (D) Wood has more capacity to hold heat.

24. Metal 'M' forms a sulphate salt of formula MSO_4 . The correct chemical formula of M formed with chloride anion is
 (A) MCl (B) MCl_2
 (C) MCl_3 (D) MCl_4
25. Total number of electrons that can be accommodated in M shell of an atom is
 (A) 8 (B) 18
 (C) 32 (D) 50
26. Which of the following is the correct chemical test for CO_2 gas?
 (A) It turns lead acetate paper silvery black
 (B) It turns acidified potassium dichromate solution from orange to green.
 (C) It turns lime water milky.
 (D) It turns moist starch iodide paper blue black.
27. **Assertion (A):** At cancerous tissue mitotic cell division occurs.
Reason (R): It adds cells continuously to form lump.
 (A) Both A and R are true but R does not explain A
 (B) Both A and R are false.
 (C) A is true but R is false
 (D) Both A and R are true; R explains A
28. Match the following and find the correct answer.
 (a) Cuboidal epithelium (i) wind pipe
 (b) Columnar epithelium (ii) tongue
 (c) Ciliated epithelium (iii) nephron tubules
 (d) Squamous epithelium (iv) bile duct
 (A) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
 (B) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)
 (C) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
 (D) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)
29. **Assertion (A):** Birds do not hear the sound.
Reason (R): They do not have ears.
 (A) Both A and R are correct.
 (B) Both A and R are wrong
 (C) Both A and R are correct; but R is not the right reason to A
 (D) Both A and R are correct, R is the right reason for A.
30. Which one of the following is not a characteristic of xylem?
 (A) It contains only one living tissue.
 (B) It contains vessels for conduction of water.
 (C) It is present only in monocot plants.
 (D) It conducts minerals from root to other parts of the plant.

Section 4: Logical Reasoning

31. The next term in the sequence:
 1, 7, 2, 9, 3, 11, 4, 13, 5,?
 (A) 6 (B) 18
 (C) 15 (D) 9
32. If 'SCIENCE' is coded as 193951435, how will you code the word 'SINCE'?
 (A) 183135 (B) 1931435
 (C) 1991435 (D) 1891435
33. Two signs are to be interchanged in the given relation to get the correct answer. The relation is $15 - 4 \times 5 + 4 \div 7 = 17$. Then the signs are
 (A) \times and \div (B) $-$ and $+$
 (C) \times and $+$ (D) $+$ and \div
34. In the Venn diagram, the rectangle represents the people who like to read books, the square represents the people who like cricket, the circle represents the people who like kabaddi, the triangle represents the people who like hockey.



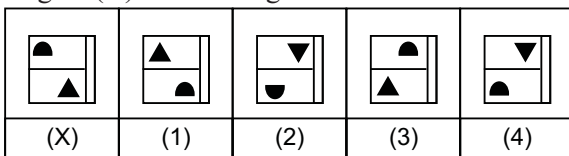
Which number will represent the people who like only hockey?

- (A) 3 (B) 9 (C) 6 (D) 7

35. Mani is taller than Asir but shorter than Kamal. Anjali is taller than Kamal but shorter than Aslam. If all are asked to stand in descending order based on heights, who would be in fourth place?

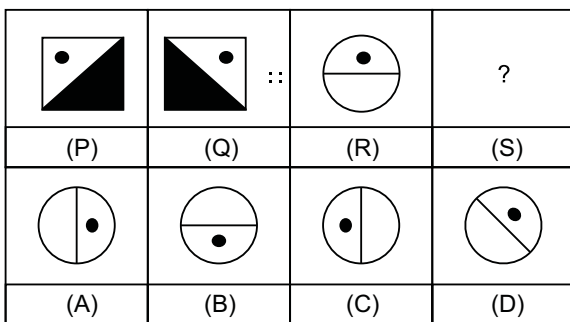
- (A) Asir (B) Kamal
(C) Aslam (D) Mani

36. Choose the correct water image of the given figure (X) from amongst the four alternatives:

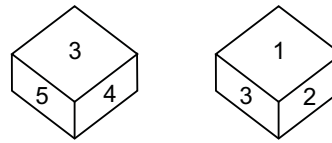


- (A) (1) (B) (2)
(C) (3) (D) (4)

37. Find the similar relationship between R and S as the one given in figure P and Q.



38. Two position of a die are given below. The number opposite to 3 is



- (A) 4 (B) 5
(C) 1 (D) 6

39. Thamizhini ranked 17th from the top and 34th from the bottom in a class. The number of students in the class is

- (A) 52 (B) 49
(C) 51 (D) 50

40. If m and n are prime numbers such that $m^2 + n^2 = 34$ then, they are

- (A) 3, -5 (B) 3, 5
(C) 2, 7 (D) 3, 7

Section 5: General Knowledge

41. Numismatics refers to the hobby of collecting.....

- (A) Stamps (B) Coins
(C) Insects (D) Books

42. Which of the following companies is not correctly matched with its tagline?

- (A) Disneyland – The happiest place on earth
(B) Nike – Just do it
(C) Samsung – Do what you can
(D) De Beers – A diamond is forever

43. Schiphol airport is in

- (A) Paris (B) Oslo

- (C) Berlin (D) Amsterdam

44.Tennis Tournament is held at Roland Garros.

- (A) US Open (B) Australian Open
(C) French Open (D) Japan Open

45. The current Prime Minister of New Zealand is

- (A) Jacinda Ardern (B) Winston Peters
(C) John Key (D) Helen Clark

Section 6: Extrapolative Questions

46. $\cot^2 60^\circ + \frac{1}{5} \cot^2 45^\circ + \frac{1}{6} \sin^2 60^\circ + \frac{1}{x} = \frac{107}{120}$

Which of the following trigonometric ratios can replace x so that the equation is true?

- (A) $\cot 30^\circ$ (B) $\cot 60^\circ$
 (C) $\cot^2 60^\circ$ (D) $\cot^2 30^\circ$

47. If RED is coded as 18 05 04, find the word that would be coded as 07 18 05 25.

- (A) BLUE (B) GREEN
 (C) GREY (D) FREY

48. **Assertion:** Two current carrying conductors of same length, one is made up of copper and other of aluminum are placed in a constant magnetic field. For both conductors, current is same, But copper is experiencing greater force than aluminum.

Reason: copper has less resistance than aluminum.

- (A) Both Assertion and Reason are true and Reason is the correct explanation of Assertion
 (B) Both Assertion and Reason are true but Reason is NOT correct explanation of Assertion
 (C) Assertion is true but Reason is not true
 (D) Assertion is NOT true but Reason is true

49. Identify the correct match in the following

- (a) Sodium carbonate (i) preservative
 (b) Bleaching powder (ii) bone fracture
 (c) Sodium bicarbonate (iii) disinfectant
 (d) Plaster of paris (iv) softening hard water
 (e) Sodium chloride (v) soda-acid fire extinguishers

- (A) (a) (iii) (b) (iv) (c) (v)
 (d) i (e) (ii)

- (B) (a) (iv) (b) (iii) (c) (v)
 (d) (ii) (e) (i)

- (C) (a) (ii) (b) (v) (c) (i)
 (d) (iv) (e) (iii)

- (D) (a) (v) (b) (i) (c) (iv)
 (d) (ii) (e) (iii)

50. Meiosis is different from the mitosis in the following aspect/s.

- i. Exchange of genes occur between paternal and maternal chromosomes.
- ii. it lays base for variations in new born.
- iii. one mother cell can produce two daughter cells.
- iv. it occurs in all cells of plants and animals.

- (A) i and ii only (B) ii and iii only
 (C) i and iii only (D) ii and iv only