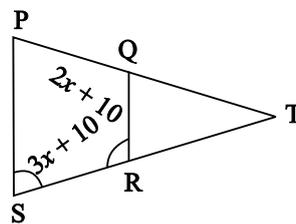## Section 1: English

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 phr ase 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 <u>proud</u> of his son's achievement in sports.

    (Choose the correct noun form of the underlined word in the above sentence)

    (A) proudness

    (B) proudience

    (C) pride

    (D) proudery

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°
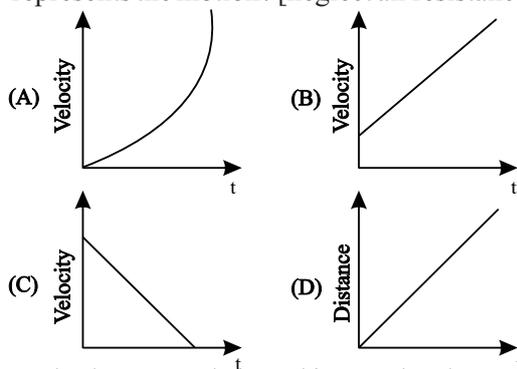
    (C) 75° (D) 55°

13. Anand has a cubic box of volume 8,000 cm³ 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 cm². 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 $sinC$.

(A) $\dfrac{20}{29}$ (B) $\dfrac{21}{20}$

(C) $\dfrac{21}{29}$ (D) $\dfrac{20}{21}$

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

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

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) $\cot^2 30^\circ$

22. 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

23. A college awarded 38 medals in foot ball, 15 in basket ball and 20 in cricket. If these medals went to a total of 58 men and only 3 men got medals in all the games, how many received medals in exactly two of the three games?

(A) 18   (B) 9

(C) 3   (D) 6

24. If the point C (- 1, 2) divides internally the line joining the points A(2, 5) and B(a, b) in the ratio 3:4, then the value of a 2 + b2 is

(A) 25   (B) 45

(C) 70   (D) 29

25. If PS is parallel to QR in the following diagram, find PSR

(A) 62° (B) 118?

(C) 120° (D) 135

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

(A) Velocity vs t
(B) Velocity vs t
(C) Velocity vs t
(D) Distance vs t

27. 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

28. 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.

29. **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

30. **Statement A:** Atmospheric pressure decreases with altitude.

   Statement B: The density of air also decreases with altitude

   (A) Both the statements are correct and statement B correctly explains statement A
   (B) Both the statements are correct but statement B does not correctly explain statement A
   (C) Only statement A is correct
   (D) Only statement B is correct

31. 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

32. Total number of electrons that can be accommodated in M shell of an atom is

   (A) 8   (B) 18
   (C) 32   (D) 50

33. 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.
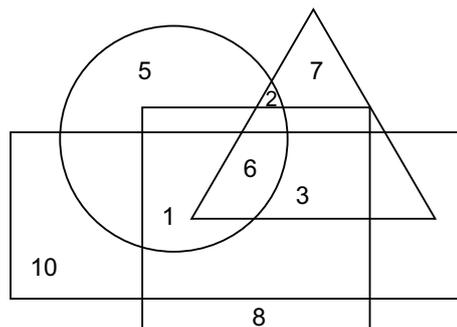   (D) It turns moist starch iodide paper blue black.

34. Which is correctly matched

Colloidal system	Example
(P) Emulsion	(i) smoke
(Q) Solid sol	(ii) milk
(R) Gel	(iii) cheese
(S) Aerosol	(iv) alloys

   (A) P-(ii), Q-(i), R-(iv), S-(iii)
   (B) P-(ii), Q-(iv), R-(iii), S-(i)
   (C) P-(iv), Q-(iii), R-(ii), S-(i)
   (D) P-(i), Q-(iii), R-(iv), S-(ii)

35. Which is/are true for an aqueous solution of KOH?

(i) acidic

(ii) turns red litmus blue

(iii) turns blue litmus red

(iv) basic

(A) (i), (iii)   (B) (ii), (iv)

(C) (iv) only   (D) (iii) only

36. **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

37. 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)

38. **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.

39. 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.

40. 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

Section 4: Logical Reasoning

41. The next term in the sequence:
1, 7, 2, 9, 3, 11, 4, 13, 5,?

(A) 6   (B) 18

(C) 15   (D) 9

42. If 'SCIENCE' is coded as 193951435, how will you code the word 'SINCE'?

(A) 183135   (B) 1931435

(C) 1991435   (D) 1891435

43. 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 $\div$

44. 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.
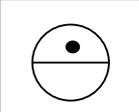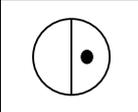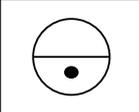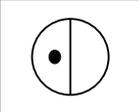
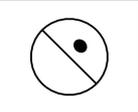Which number will represent the people who like only hockey?
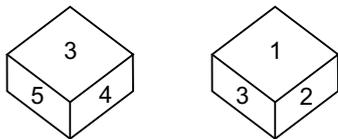
(A) 3   (B) 9   (C) 6   (D) 7

45. 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

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

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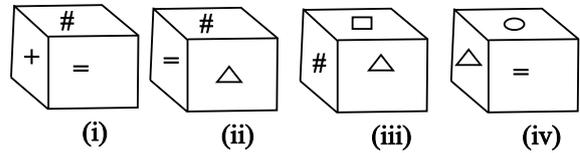

(A) 4   (B) 5

(C) 1   (D) 6

48. 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

49. Which symbol will come opposite to symbol #?

(A) oval

(B) =

(C) +

(D) Triangle

50. Rajesh walks 35 km towards north. He turns left and walks 20 km. He turns left and walks 35 km. How far (in km) is he now from his starting point?

(A) 25 km

(B) 90 km

(C) 20 km

(D) 10   2 km

Section 5: General Knowledge

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

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

52. 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

53. Schiphol airport is in ....

(A) Paris   (B) Oslo

(C) Berlin   (D) Amsterdam

54. ....Tennis Tournament is held at Roland Garros.

(A) US Open

(B) Australian Open

(C) French Open

(D) Japan Open

55. The current Prime Minister of New Zealand is ....

(A) Jacinda Ardern

(B) Winston Peters

(C) John Key

(D) Helen Clark

56. Which of the following is not matched correctly?

    (A) C.L.Sholes   –   Typewriter

    (B) Roentgen   –   Radium

    (C) James Dewar   –   Vacuum Flask

    (D) Janssen   –   Microscope

57. Which Award is given in Tamil Nadu by Iyal Isai Nataka Mandram?

    (A) Isai Puyal Award

    (B) Natya Vardhini Award

    (C) Kalaimamani Award

    (D) Sangam Award

58. The 'Charminar' at Hyderabad was built by .

    (A) Quli Qutb Shah

    (B) Osman Ali Khan

    (C) Qamar-ud-din-Khan

    (D) Tipu Sultan

59. Which city in India has been declared 'UNESCO City of Music', the second city to get the recognition after Kolkata?

    (A) Jaipur   (B) Prayagraj

    (C) Bhopal   (D) Gwalior

60. Which Formula 1 driver won Formula 1 World Drivers' Championship consecutively for three years in 2021, 2022 & 2023?

    (A) Max Verstappen

    (B) Sebastian Vetteri

    (C) Louis Hamilton

    (D) Michael Schumacher