



SAMPLE PAPER
GRADE– 11th (PCM)

SECTION – A (English)

1. Choose the correctly spelled word meaning 'absolutely necessary'.

- | | |
|-------------------|--------------------|
| (A) Indispensible | (B) Indispensable |
| (C) Endispensible | (D) Inndispensible |

2. Fill in the blank with the modal that shows a strong past deduction.

'The lock is broken; someone _____ forced their way in.'

- | | |
|----------------|-----------------|
| (A) must have | (B) should have |
| (C) could have | (D) might have |

3. What is the correct question tag for this suggestion? '

Let's review the strategic maneuvers, _____?'

- | | |
|--------------|---------------|
| (A) don't we | (B) shall we |
| (C) won't we | (D) should we |

4. What do we call 'a person who is indifferent to pleasure or pain'?

- | | |
|-----------|---------------|
| (A) Stoic | (B) Ascetic |
| (C) Cynic | (D) Epicurean |

5. What literary device is used in the saying:

'The pen is mightier than the sword'?

- | | |
|--------------|----------------|
| (A) Metonymy | (B) Synecdoche |
| (C) Oxymoron | (D) Hyperbole |

6. Choose the correct phrasal verb.

'The commander ordered the troops to _____ the counter – attack until the artillery was ready.'

- | | |
|--------------|---------------|
| (A) hold up | (B) hold out |
| (C) hold off | (D) hold down |

7. Identify the structure of this sentence.

'Not only did he secure the perimeter, but he also rescued the hostages.'

- (A) Simple
- (B) Compound
- (C) Complex
- (D) Compound – Complex

8. Fill in the blank with the correct determiner. '_____ knowledge is a dangerous thing.'

- (A) A little
- (B) Little
- (C) The little
- (D) Few

9. Which sentence has the correct subject – verb agreement?

- (A) The commander, accompanied by his troops, are advancing.
- (B) A number of recruits has failed the obstacle course.
- (C) The number of casualties is significantly lower this year.
- (D) Neither of the plans are viable.

10. What does it mean 'to cross the Rubicon'?

- (A) To make a careless mistake
- (B) To take an irreversible step
- (C) To cross a dangerous river safely
- (D) To negotiate a peace treaty

SECTION – B (General Knowledge)

11. Where is Barberton Desert situated?

- (A) Australia (B) New Zealand (C) Canada (D) South Africa

12. What is separated by Cook Strait?

- (A) Australia – New Zealand (B) Spain – Morocco
(C) North – South New Zealand (D) Denmark – Greenland

13. Which is the longest strait in the world?

- (A) Maksar (B) Malacca (C) Davis (D) Gibraltar

14. Which is the widest strait in the world?

- (A) Davis (B) Malacca (C) Florida (D) Greenland

15. Which of the following is a continental dividing strait?

- (A) Bering (B) Gibraltar (C) Bab – el – Mandeb (D) All

16. The 180° longitude passes through which strait?

- (A) Davis (B) Dover (C) Tsugaru (D) Bering

17. Match the following:

Strait

- a. Bering
b. 9° Channel
c. Tsugaru
d. Bose

Separates

1. Hokkaido – Honshu
2. Australia – Tasmania
3. Alaska – Siberia
4. Minicoy – Kononar

a b c d

- (A) 3 4 1 2

a b c d

- (B) 1 2 3 4

a b c d

- (C) 2 3 1 4

a b c d

- (D) 3 4 2 1

18. What type of land is the plain of Hangho river?

- (A) Alluvial (B) Loess (C) Volcanic (D) Karst

19. Where are the plains of the Adriatic Sea coast?

- (A) Italy (B) Yugoslavia (C) Norway (D) Spain

20. Where is the Yangtze River Plain located?

- (A) China (B) Burma (C) Nepal (D) New Zealand

SECTION – C (General Science)

- 21. A plant physiologist labels carbon dioxide with a heavy carbon isotope ($^{14}\text{CO}_2$) and provides it to an actively photosynthesizing plant showing distinct *Kranz anatomy* under optimal light conditions. Which specific cell layer and chemical compound will first exhibit the concentration of this radioactive tracer?**
- (A) Bundle sheath cells; 3-phosphoglyceric acid (PGA)
 - (B) Mesophyll cells; Oxaloacetic acid (OAA)
 - (C) Bundle sheath cells; Oxaloacetic acid (OAA)
 - (D) Mesophyll cells; RuBP
- 22. During a routine laboratory evaluation of dividing microspore mother cells, an experimental drug is introduced that selectively inactivates the functional *recombinase* enzyme assembly during early meiotic division. What structural or genetic anomaly will be explicitly observed under the microscope at the conclusion of Prophase-I?**
- (A) Homologous chromosomes will fail to initiate synapsis at the zygotene phase.
 - (B) The synaptonemal complex will completely fail to dissolve during diplotene.
 - (C) Crossing over and genetic material exchange between non-sister chromatids will be completely blocked at pachytene.
 - (D) Chiasmata will fail to terminalize during the final diakinesis transition.
- 23. Under conditions of acute physiological hypokalemia (severely low extracellular potassium concentration), what immediate biophysical modification occurs across the resting axonal membrane of a mammalian motor neuron?**
- (A) The threshold potential shifts toward a more positive value, inducing spontaneous action potentials.
 - (B) The resting membrane potential becomes hyperpolarized, shifting further away from the activation threshold.
 - (C) Voltage – gated sodium channels lock into a permanently open configuration, arresting repolarization.
 - (D) The sodium – potassium exchange pump operational kinetics reverse completely.
- 24. Anatomical cross-examination of an unknown terrestrial plant stem reveals a scattered arrangement of conjoint, collateral, and closed vascular bundles embedded within bulk parenchymatous ground tissue, with a prominent lack of secondary cambial layers. This specimen belongs to:**
- (A) A typical Dicotyledonous stem
 - (B) A typical Monocotyledonous root
 - (C) A typical Monocotyledonous stem
 - (D) A typical Dicotyledonous root

- 25. A patient exhibits a sharp reduction in physiological alveolar compliance along with an altered rate of alveolar-capillary gas exchange. Detailed molecular screening confirms a pathology directly compromising the functional integrity of Type-II pneumocytes. Which parameter is primarily disrupted?**
- (A) Carbonic anhydrase catalytic turnover inside the erythrocytes
 (B) Synthesis and secretion of lecithin-rich surfactant reducing alveolar surface tension
 (C) Elastic recoil capacity mediated by dense collagen type-IV fibrils
 (D) Haemoglobin-oxygen binding affinity curves due to an induced Bohr shift
- 26. A physical quantity P is given by $P = \frac{(a^3 b^2)}{(\sqrt{c} d)}$. If the percentage errors of measurement in a , b , c , and d are 1%, 2%, 4%, and 2% respectively, what is the maximum percentage error in the quantity P ?**
- (A) 11% (B) 10%
 (C) 9% (D) 7%
- 27. A particle moves along a straight line such that its displacement x at any time t is given by $x = t^3 - 6t^2 + 3t + 4$ meters. Find the velocity of the particle when its acceleration becomes zero.**
- (A) 3 m/s (B) -9 m/s
 (C) -3 m/s (D) 0 m/s
- 28. A block of mass 2 kg rests on a rough horizontal plane. If the coefficient of static friction between the block and the surface is 0.4, what horizontal force must be applied to just move the block? (Take $g = 10 \text{ m/s}^2$)**
- (A) 4 N (B) 8 N
 (C) 12 N (D) 20 N
- 29. A solid sphere rolls down an inclined plane of inclination θ without slipping. What is the linear acceleration of the rolling sphere down the incline?**
- (A) $g \sin \theta$ (B) $(5/7) g \sin \theta$
 (C) $(2/3) g \sin \theta$ (D) $(3/5) g \sin \theta$
- 30. Two wires A and B are made of the same material. Wire A has twice the length and twice the diameter of wire B. If both wires are subjected to the same stretching force, what is the ratio of the elongation of wire A to that of wire B?**
- (A) 1 : 2 (B) 2 : 1
 (C) 1 : 1 (D) 1 : 4

31. Which quantum number determines the shape of an orbital?

- (A) Principal (n)
- (B) Azimuthal (l)
- (C) Magnetic (m)
- (D) Spin (s)

32. The element with atomic number 19 belongs to which block?

- (A) s-block
- (B) p-block
- (C) d-block
- (D) f-block

33. The enthalpy changes when 1 mole of a compound is formed from its elements is called:

- (A) Enthalpy of combustion
- (B) Enthalpy of formation
- (C) Enthalpy of fusion
- (D) Enthalpy of vaporization

34. Oxidation involves:

- (A) Gain of electrons
- (B) Loss of electrons
- (C) Gain of hydrogen
- (D) Loss of oxygen

35. The most abundant element in the universe is:

- (A) Oxygen
- (B) Carbon
- (C) Hydrogen
- (D) Nitrogen

SECTION – D (Reasoning)

36. On a standard clock, what will be the angle between the hour and minute hands at 4 : 30 AM?

- (A) 45° (B) 45.5°
(C) 27.6° (D) 40°

37. P, Q, R, S, T, U, and V are seven friends, each having a different height. R is taller than four people. Q is taller than R but shorter than P. T is taller than U but shorter than S. Also, it is mentioned that U is not the shortest. Based on this information, how many people are shorter than T?

- (A) 3 (B) 5
(C) 2 (D) 1

38. In a certain language, DECEMBER is written as ERMBCED. What is the code for RELATION?

- (A) ONTILARE (B) SERWGSNI
(C) OMTJAREL (D) PRWHHSNI

39. Vikas starts walking towards the east. After walking 2 km, he turns to his left. After walking 5 km, he turns left again. In which direction is he now facing?

- (A) West (B) South
(C) North (D) East

40. Select the number from the given options that can replace the question mark (?) in the following series.

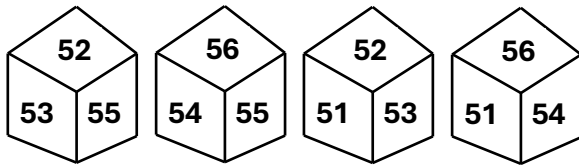
5, 10, 8, 16, 14, 28, ?

- (A) 30 (B) 26
(C) 56 (D) 24

41. Six friends P, Q, R, S, T, and U are sitting in a row facing north. Q is second to the left of R. P is at one of the ends. S is immediate right of Q. T is between P and R. Who is sitting in the middle?

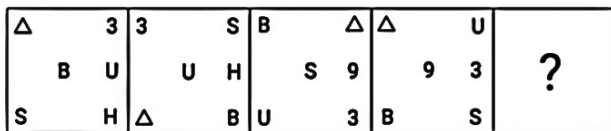
- (A) Q or T (B) T or R
(C) R or Q (D) S or R

42. Four different positions of the same dice are given below. Find the number on the face opposite to 51:



- (A) 53 (B) 55
(C) 52 (D) 54

43. Which figure should replace the question mark (?) in the following series to continue the pattern?



- (A)

S	B
	U
9	△

 (B)

S	B
	△
U	9

 (C)

9	B
	S
U	△

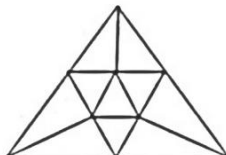
 (D)

R	B
	U
9	3

44. Father, Pilots, Woman

- (A) (B) (C) (D)

45. How many triangles are there in the following figure?



- (A) 18 (B) 12
(C) 15 (D) 10

SECTION – E (Mathematics)

46. If two positive integers a and b are written as $a = x^3y^2$ and $b = xy^3$, where x, y are prime numbers, then HCF (a, b) is:
- (A) xy (B) xy^2
(C) x^3y^3 (D) x^2y^2
47. The largest number which divides 70 and 125, leaving remainders 5 and 8 respectively, is:
- (A) 13 (B) 65
(C) 875 (D) 1750
48. If α and β are the zeros of the quadratic polynomial $f(x) = x^2 - 5x + k$ such that $\alpha - \beta = 1$, then the value of k is:
- (A) 12 (B) 6
(C) 4 (D) 1
49. If one zero of the quadratic polynomials $x^2 + 3x + k$ is 2, then the value of k is:
- (A) 10 (B) -10
(C) -7 (D) -2
50. If α, β, γ are the zeros of the cubic polynomial $f(x) = ax^3 + bx^2 + cx + d$, then the value of $\alpha\beta + \beta\gamma + \gamma\alpha$ is:
- (A) $-\frac{b}{a}$ (B) $\frac{c}{a}$
(C) $-\frac{d}{a}$ (D) $\frac{b}{a}$
51. For what value of k do the equations $kx - 2y = 3$ and $3x + y = 5$ represent unique intersecting lines?
- (A) $k = -6$ (B) $k \neq -6$
(C) $k = 0$ (D) $k \neq 0$
52. The pair of equations $x + 2y + 5 = 0$ and $-3x - 6y + 1 = 0$ has:
- (A) a unique solution (B) exactly two solutions
(C) infinitely many solutions (D) no solution
53. If the equation $x^2 + 4kx + k = 0$ has equal real roots, then the non-zero value of k is:
- (A) $\frac{1}{4}$ (B) $\frac{1}{16}$
(C) 4 (D) 1

54. The roots of the quadratic equation $2x^2 - \sqrt{5}x - 2 = 0$ are:

- (A) Real and distinct (B) Real and equal
(C) Non – real/Imaginary (D) Cannot be determined

55. If one root of $bx^2 + cx + a = 0$ is reciprocal of the other, then:

- (A) $a = b$ (B) $b = c$
(C) $c = a$ (D) $a = c$

56. The 11th term of the Arithmetic Progression $-3, -\frac{1}{2}, 2, \dots$ is:

- (A) 28 (B) 22
(C) -38 (D) -46

57. If the sum of first n terms of an A.P. is $3n^2 + 5n$, then its common difference is:

- (A) 3 (B) 5
(C) 6 (D) 9

58. In $\triangle ABC$, $DE \parallel BC$ such that $AD = 3$ cm, $DB = 4$ cm, and $AE = 6$ cm. The length of EC is:

- (A) 8 cm (B) 12 cm
(C) 4.5 cm (D) 9 cm

59. The areas of two similar triangles are 81 cm^2 and 49 cm^2 respectively. If the altitude of the larger triangle is 4.5 cm, then the corresponding altitude of the smaller triangle is:

- (A) 3.5 cm (B) 2.5 cm
(C) 3.8 cm (D) 4.0 cm

60. In a right – angled triangle ABC , right – angled at B , if $AB = 6$ cm and $BC = 8$ cm, the length of the perpendicular drawn from B to AC is:

- (A) 5 cm (B) 4.8 cm
(C) 5.2 cm (D) 3.6 cm