SAMPLE PAPER
GRADE – 10th

SECTION – A (English)

1. **Choose the correctly spelled word meaning 'absolutely necessary'.**
   (A) Indispensible (B) Indispensable
   (C) Endispensable (D) Inndispensable
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 (Social Science)

11. Which of the following factors is primarily responsible for the formation of black soil in India ?

(A) Deposition by rivers
(B) Weathering of basaltic lava rocks
(C) Wind deposition in arid regions
(D) Deposition of fine sediments by glaciers

12. Which of the following is a major disadvantage of multipurpose river valley projects ?

(A) They prevent irrigation completely
(B) They eliminate the need for electricity
(C) They may displace local communities and disrupt ecosystems
(D) They stop all groundwater recharge

13. What was the primary objective of the Congress of Vienna (1815) ?

(A) To establish universal adult suffrage
(B) To restore conservative monarchies and maintain the balance of power
(C) To unify Germany under Prussian leadership
(D) To establish democratic republics throughout Europe

14. Why did Mahatma Gandhi withdraw the Non – Cooperation Movement in February 1922 ?

(A) The British government accepted all nationalist demands
(B) The Indian National Congress dissolved itself
(C) The Chauri Chaura incident involved violence by protesters
(D) The Simon Commission arrived in India

15. Which arrangement best illustrates the horizontal distribution of power in a democracy ?

(A) Power shared between the Union and State governments
(B) Power shared among the legislature, executive and judiciary
(C) Power shared between different linguistic communities
(D) Power shared between national and regional political parties

16. Which statement about the Indian Constitution is correct ?

(A) State governments can independently amend every constitutional provision
(B) All powers are vested exclusively in the Union government
(C) The Constitution divides legislative powers between different levels of government
(D) Local governments have the authority to override Parliament

17. Why is per capita income alone insufficient to measure the development of a country ?

(A) It measures only agricultural production
(B) It does not reveal income distribution or adequately reflect health and education
(C) It measures only government expenditure
(D) It excludes all income earned by individuals

18. A farmer grows wheat, and a factory converts it into flour. Which sectors are involved, respectively ?

(A) Secondary and primary
(B) Tertiary and secondary
(C) Primary and secondary
(D) Primary and tertiary

19. Why is collateral generally required by banks when providing certain loans ?

(A) To increase the borrower's income
(B) To guarantee that interest rates never change
(C) To provide security against the risk of non – repayment
(D) To eliminate the need for loan repayment

20. What is the most significant role of multinational corporations (MNCs) in the process of globalisation ?

(A) Restricting all international trade
(B) Integrating production and markets across different countries
(C) Eliminating competition in every market
(D) Preventing the movement of technology between countries

SECTION – C (Science)

21. In an experimental setup analyzing photosynthesis, a plant is exposed to carbon dioxide containing the oxygen isotope ^{18}O (C ^{18}O), while the water provided contains normal oxygen (H_2 ^{16}O). What will be the isotopic composition of the oxygen gas released into the atmosphere ?

(A) It will consist entirely of ^{18}O

(B) It will consist entirely of ^{16}O

(C) It will be a 50 : 50 mixture of ^{18}O and ^{16}O

(D) No oxygen gas will be released under these conditions

22. If a patient's pancreatic duct is blocked completely by a gallstone, which of the following digestive processes will be most drastically affected in the small intestine ?

(A) Digestion of proteins only

(B) Digestion of carbohydrates only

(C) Digestion of fats, proteins, and carbohydrates

(D) Emulsification of large fat globules

23. During vigorous physical exercise, human muscle cells experience oxygen deprivation and switch to anaerobic respiration. Which of the following pathways correctly identifies the substrate conversion leading to muscle fatigue ?

(A) Glucose → Pyruvate → Ethanol + Carbon dioxide

(B) Glucose → Pyruvate → Lactic acid + Energy

(C) Glucose → Pyruvate → Carbon dioxide + Water

(D) Glucose → Lactic acid → Pyruvate + Carbon dioxide

24. A selective injury to the cerebellum of the human brain following an accident would most likely result in the loss of which of the following vital functions ?

(A) Regulation of involuntary heartbeat and respiratory rate

(B) Processing of visual signals and auditory memory storage

(C) Maintenance of posture, equilibrium, and precision of voluntary movements

(D) Sensation of hunger, thirst, and thermoregulation control

25. A potted plant is kept inside a dark room near a window receiving directional sunlight. Over a few days, the stem tip bends significantly toward the light source. This phototropic movement is primarily driven by :

(A) Destruction of auxins on the illuminated side of the shoot apex

(B) High accumulation and elongation of auxins on the shaded side of the stem

(C) Active movement of gibberellins toward the sunlit side of the plant

(D) Immediate shutdown of cellular respiration in cells facing away from the light

26. Which of the following is a double displacement reaction as well as a precipitation reaction ?

(A) $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$ (B) $2KClO_3 \rightarrow 2KCl + 3O_2$

(C) $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$ (D) $2Mg + O_2 \rightarrow 2MgO$

27. Assertion (A) : The aqueous solution of sodium carbonate is alkaline.

Reason (R) : Sodium carbonate is a salt of a strong acid and a weak base.

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is not the correct explanation of A.

(C) A is true but R is false.

(D) A is false but R is true.

28. An element X reacts with dilute HCl to liberate hydrogen gas. The oxide of X dissolves in both acids and bases. X is most likely :

(A) Copper (B) Zinc (C) Sodium (D) Iron

29. Which of the following compounds will give a positive test with alkaline $KMnO_4$ (Baeyer's reagent) and also decolourise bromine water ?

(A) $CH_3 – CH_2 – CH_3$ (B) $CH_3 – CH = CH_2$

(C) $CH_3 – CH_2 – OH$ (D) $CH_3 – COOH$

30. An element has electronic configuration 2, 8, 7. Which of the following statements is correct about this element ?

(A) It belongs to Group 17 and Period 3; its oxide is acidic.

(B) It belongs to Group 7 and Period 3; its oxide is basic.

(C) It belongs to Group 17 and Period 2; its oxide is amphoteric.

(D) It belongs to Group 1 and Period 3; its oxide is basic.

31. An object moves along a circular path of radius R. What is its displacement and distance covered after it completes exactly 2.5 revolutions ?

(A) Displacement = 2R, Distance = $5\pi R$

(B) Displacement = 0, Distance = $5\pi R$

(C) Displacement = 2R, Distance = $2.5\pi R$

(D) Displacement = πR, Distance = 5R

32. A bullet of mass 20 g is horizontally fired with a velocity of 150 m/s from a pistol of mass 2 kg. What is the recoil velocity of the pistol ?

(A) -1.5 m/s (B) -3.0 m/s (C) +1.5 m/s (D) -0.15 m/s

33. A piece of wire having a uniform resistance R is cut into five equal segments. These five segments are then connected in a parallel configuration. If the equivalent resistance of this parallel combination is R', what is the value of the ratio R/R' ?

(A) 1/25 (B) 1/5 (C) 5 (D) 25

34. A cylindrical liquid column of height 'h' and fluid density 'ρ' is kept on a horizontal base. If the area of cross – section of the cylinder is halved while keeping 'h' constant, the liquid pressure exerted at the bottom surface will :

(A) Be halved (B) Be doubled

(C) Remain unchanged (D) Increase four times

35. An electric bulb is rated at 220 V and 100 W. When it is operated on a reduced voltage of 110 V, what will be the electrical power consumed by its filament ?

(A) 100 W (B) 75 W (C) 50 W (D) 25 W

SECTION – D (Reasoning)

36. Name a single letter, which can be prefixed to the following words in order to obtain entirely new words ?
TILL, TABLE, PILE, TAB, PRING

(A) C (B) S (C) B (D) H

37. Odometer : Distance : : Thermometer : ?

(A) Heat (B) Pressure (C) Temperature (D) Speed

38. Find the missing term :
2, 6, 7, 21, 22, 66, ?

(A) 67 (B) 132 (C) 198 (D) 68

39. There are five friends Shailendra, Keshav, Madhav, Ashish and Rakesh. Shailendra is shorter than Keshav but taller than Rakesh. Madhav is the tallest. Ashish is a little shorter than Keshav and little taller than Shailendra. Who is the shortest ?

(A) Rakesh (B) Shailendra (C) Ashish (D) Keshav

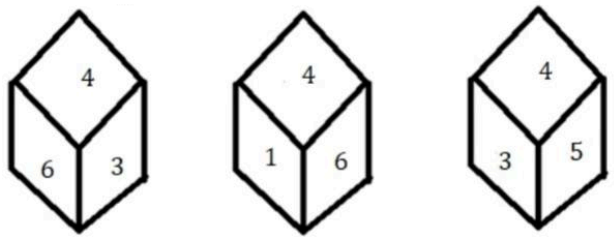
40. In a certain code language, TAPE is written as 'SUZBOQDF'. How will "MOCK" be written as in that language ?

(A) MOPQDELM (B) LNNPBDJL (C) LOPQBCKL (D) KNNPBEBL

41. In a morning Raman was performing yoga with his head down and legs up. If at this time his face towards North then in which direction his Right hand be ?

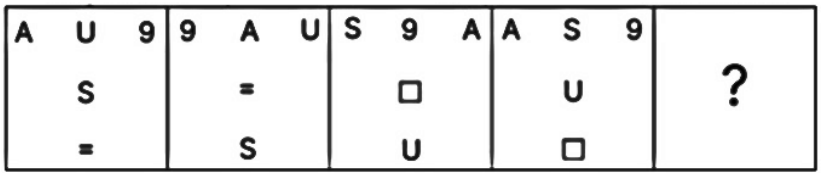
(A) West (B) North (C) East (D) South

42. Three different positions of the same dice are shown. Find the number on the face opposite the face having '2' :

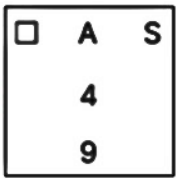


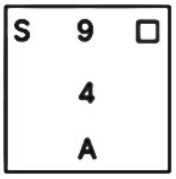
(A) 1 (B) 4 (C) 3 (D) 6

43. Select the option figure that will replace the question mark (?) in the figure given below to complete the pattern :



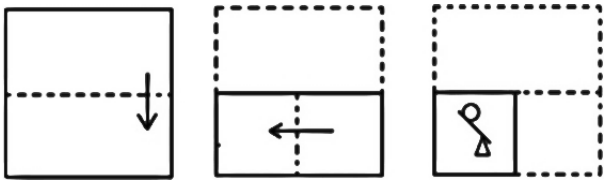
(A) 

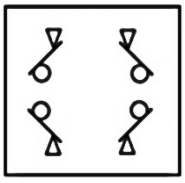
(B) 

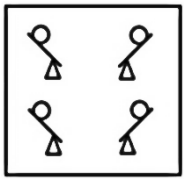
(C) 

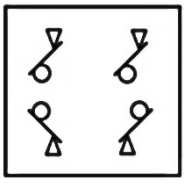
(D) 

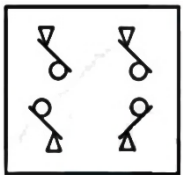
44. The sequence of folding a piece of paper and the manner in which the folded paper has been cut is shown below. Choose a figure which would most closely resemble the unfolded form of the paper :



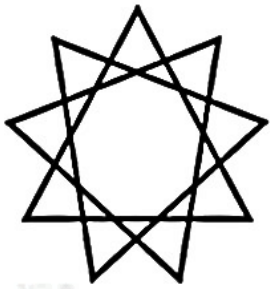
(A) 

(B) 

(C) 

(D) 

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



(A) 30 (B) 28 (C) 24 (D) 32

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 $\sin\theta = \frac{3}{5}$, then what is the exact value of $\cos\theta$?

(A) $\frac{4}{5}$ (B) $\frac{3}{4}$ (C) $\frac{5}{3}$ (D) $\frac{5}{4}$

49. What is the total surface area of a solid hemisphere of radius ?

(A) $2\pi r^2$ (B) $3\pi r^2$ (C) $4\pi r^2$ (D) πr^2

50. What is the shortest distance of the point P(3, 4) from the origin (0, 0) ?

(A) 3 (B) 4 (C) 5 (D) 7

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. What is the standard empirical relationship between the three measures of central tendency (Mean, Median, and Mode) ?

(A) 3 Median = Mode + 2 Mean (B) 2 Median = Mode + 3 Mean

(C) Median = 3 Mode + 2 Mean (D) Mode = 3 Median – 2 Mean

53. Which of the following numerical values CANNOT possibly represent the probability of any valid event ?

(A) $\frac{2}{3}$ (B) -1.5 (C) 15% (D) 0.7

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 $-3, -\frac{1}{2}, 2, \ldots$ 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 ΔABC, DE || 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 cm² and 49 cm² 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