

Reg. No

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Time: 2 Hours
Max. Marks: 100

Name of the student: Div:

Name of the school :

Instructions:

- All questions are compulsory.
- Each question carries 1 mark.
- Choose the most appropriate answer from the given options.
- Use the OMR sheet provided to mark your answers.

1. If a force of 20 N acts on an object of mass 5 kg, what is the acceleration produced in the object?
(Use $F=ma$)

- | | |
|-------------------------|--------------------------|
| A) 2 m/s ² | B) 4 m/s ² |
| C) 100 m/s ² | D) 0.25 m/s ² |

2. An element has an atomic number of 17 and a mass number of 35. How many neutrons are in its nucleus?

- | | |
|-------|-------|
| A) 17 | B) 18 |
| C) 35 | D) 52 |

3. The cell organelle known as the “powerhouse of the cell” for its role in cellular respiration is the:

- | | |
|----------------|-----------------|
| A) Nucleus | B) Ribosome |
| C) Chloroplast | D) Mitochondria |

4. A solution turns blue litmus paper red. Its pH value is likely to be:

- | | |
|------|-------|
| A) 9 | B) 7 |
| C) 5 | D) 12 |

5. The tissue responsible for the transport of food (sugars) from leaves to other parts of the plant is:

- | | |
|---------------|-----------------|
| A) Xylem | B) Phloem |
| C) Parenchyma | D) Sclerenchyma |

6. Sound waves travel fastest through which of the following media?

- A) Vacuum
B) Air
C) Water
D) Steel

7. The direct conversion of a solid into a gaseous state without passing through the liquid state is called:

- A) Evaporation
B) Condensation
C) Sublimation
D) Fusion

8. What is the molecular mass of sulfuric acid (H_2SO_4)? (Atomic masses: H=1, S=32, O=16)

- A) 49 u B) 50 u
C) 98 u D) 100 u

9. A car accelerates from rest to a speed of 20 m/s in 5 seconds. What is its acceleration?

- A) 2 m/s^2
B) 4 m/s^2
C) 5 m/s^2
D) 100 m/s^2

10. Which of the following is a vector quantity, possessing both magnitude and direction?

- A) Distance
B) Speed
C) Mass
D) Velocity

11. What type of mixture is fog, where liquid droplets are dispersed in a gas?

- A) A Solution
B) A Suspension
C) A Colloid (Aerosol)
D) A Compound

12. The functional, filtering units of the human kidney are known as:

- A) Neurons
B) Alveoli
C) Nephrons
D) Villi

13. The number 6.022×10^{23} is known as:

- A) The Gas Constant
B) Avogadro's Number
C) The Atomic Number
D) The Mass Number

14. The work done is considered zero if the angle between the applied force and the displacement is:

- A) 0°
B) 45°
C) 90°
D) 180°

15. The atoms of an element with the same atomic number but different mass numbers are called:

- A) Isobars
B) Isotopes
C) Isotones
D) Isomers

16. Which of the following diseases is caused by a protozoan?

- A) COVID-19
B) Tuberculosis
C) Malaria
D) Ringworm

17. If you factorize the polynomial $x^2 + 5x + 6$, you get:

- | | |
|---------------------|---------------------|
| A) $(x + 1)(x + 4)$ | B) $(x + 2)(x + 3)$ |
| C) $(x + 5)(x + 1)$ | D) $(x - 6)(x + 1)$ |

18. In which state of matter do particles have the highest kinetic energy and are most spread out?

- | | |
|----------|-----------|
| A) Solid | B) Liquid |
| C) Gas | D) Plasma |

19. The law of conservation of mass in a chemical reaction was proposed by:

- | | |
|-----------------|----------------------|
| A) John Dalton | B) Antoine Lavoisier |
| C) Robert Boyle | D) Amedeo Avogadro |

20. A solution is made by dissolving 20 g of salt in 180 g of water. What is the concentration in terms of mass by mass percentage?

- | | |
|--------|----------|
| A) 10% | B) 11.1% |
| C) 20% | D) 9% |

21. The energy possessed by an object due to its motion is called:

- | | |
|---------------------|-------------------|
| A) Potential Energy | B) Kinetic Energy |
| C) Chemical Energy | D) Heat Energy |

22. Which part of the human brain is responsible for maintaining balance and coordinating voluntary muscle movements?

- | | |
|----------------------|---------------|
| A) Cerebrum | B) Cerebellum |
| C) Medulla Oblongata | D) Pons |

23. According to the five-kingdom classification, in which kingdom are bacteria placed?

- | | |
|-------------|------------|
| A) Protista | B) Fungi |
| C) Monera | D) Plantae |

24. What is the volume of a cube with a side length of 4 cm?

- | | |
|----------------------|----------------------|
| A) 16 cm^3 | B) 32 cm^3 |
| C) 48 cm^3 | D) 64 cm^3 |

25. The audible frequency range for a healthy human ear is typically:

- | | |
|--------------------|-----------------------|
| A) Below 20 Hz | B) 20 Hz to 20,000 Hz |
| C) Above 20,000 Hz | D) 2 Hz to 20 Hz |

26. Which of the following is a non-metal that is liquid at room temperature?

- | | |
|------------|------------|
| A) Mercury | B) Bromine |
| C) Gallium | D) Carbon |

27. The SI unit of electric charge is the:

- | | |
|---------|------------|
| A) Volt | B) Ampere |
| C) Ohm | D) Coulomb |

28. In the periodic table, elements in the same group have the same number of:

- | | |
|--------------------|----------------------|
| A) Protons | B) Neutrons |
| C) Electron shells | D) Valence electrons |

29. A rocket propulsion system is a practical application of:

- | | |
|---------------------------------|----------------------------------|
| A) Newton's First Law of Motion | B) Newton's Second Law of Motion |
| C) Newton's Third Law of Motion | D) Law of Universal Gravitation |

30. The process of growing two or more crops simultaneously on the same piece of land is known as:

- | | |
|------------------|-------------------|
| A) Crop Rotation | B) Mixed Cropping |
| C) Fallowing | D) Weeding |

31. If the weight of an object on Earth is 60 N, its approximate weight on the Moon (where gravity is 1/6th of Earth's) would be:

- | | |
|---------|----------|
| A) 60 N | B) 360 N |
| C) 10 N | D) 6 N |

32. The main component of Biogas and Compressed Natural Gas (CNG) is:

- | | |
|-------------------|-------------|
| A) Carbon Dioxide | B) Methane |
| C) Butane | D) Nitrogen |

33. Which cell organelle is known as the "protein factory" of the cell?

- | | |
|--------------------|-------------|
| A) Lysosome | B) Ribosome |
| C) Golgi Apparatus | D) Vacuole |

34. A right-angled triangle has a base of 8 cm and a height of 6 cm. What is the length of its hypotenuse?

- | | |
|----------|----------|
| A) 10 cm | B) 12 cm |
| C) 14 cm | D) 7 cm |

35. The law of reflection states that the angle of incidence is always:

- A) Greater than the angle of reflection
- B) Less than the angle of reflection
- C) Equal to the angle of reflection
- D) Unrelated to the angle of reflection

36. An example of a metalloid, which has properties of both metals and non-metals, is:

- | | |
|------------|------------|
| A) Gold | B) Carbon |
| C) Silicon | D) Sulphur |

37. A correct food chain would be represented as:

- A) Eagle → Snake → Frog → Grasshopper → Grass
- B) Grass → Grasshopper → Frog → Snake → Eagle
- C) Grass → Frog → Snake → Grasshopper → Eagle
- D) Snake → Eagle → Grass → Frog → Grasshopper

38. The outermost layer of the Earth is called the:

- A) Core
- B) Mantle
- C) Crust
- D) Asthenosphere

39. The volume of a right circular cone is given by the formula $V = (1/3)\pi r^2 h$. If a cone has a radius (r) of 3 cm and a height (h) of 7 cm, what is its volume? (Use $\pi = 22/7$)

- A) 66 cm³
- B) 154 cm³
- C) 44 cm³
- D) 22 cm³

40. When light passes from a rarer medium (like air) to a denser medium (like water), it bends:

- A) Towards the normal
- B) Away from the normal
- C) It does not bend
- D) It reflects back

41. Choose the sentence that uses the word “comprise” correctly.

- A) The library is comprised of over a million books.
- B) The library comprises of over a million books.
- C) The library comprises over a million books.
- D) The library was comprising over a million books.

42. The idiom “to burn the midnight oil” means:

- A) To waste precious resources
- B) To work or study late into the night
- C) To start a fire accidentally
- D) To create unnecessary problems

43. Select the most appropriate synonym for “ephemeral”.

- A) Everlasting
- B) Temporary
- C) Essential
- D) Mysterious

44. Convert the sentence to passive voice: “The author wrote the novel.”

- A) The novel was written by the author.
- B) The novel is being written by the author.
- C) The author was written by the novel.
- D) The author writes the novel.

45. The study of the origin and historical development of words is called:

- | | |
|--------------|----------------|
| A) Phonetics | B) Linguistics |
| C) Etymology | D) Semantics |

46. Which figure of speech is used in the phrase “deafening silence”?

- | | |
|--------------------|-------------|
| A) Personification | B) Metaphor |
| C) Simile | D) Oxymoron |

47. Choose the correctly spelled word.

- | | |
|----------------|----------------|
| A) Accomodate | B) Accommodate |
| C) Accommodete | D) Accomodate |

48. Select the most appropriate antonym for “benevolent”.

- | | |
|---------------|-------------|
| A) Malevolent | B) Generous |
| C) Kind | D) Gracious |

49. Complete the sentence: “If I were a millionaire, I _____ travel the world.”

- | | |
|---------------|----------|
| A) will | B) would |
| C) would have | D) can |

50. The prefix “im-” in a word like “impossible” means:

- | | |
|-----------|----------|
| A) Before | B) After |
| C) Not | D) With |

51. “He seldom makes mistakes, _____?” Choose the correct question tag.

- | | |
|---------------|------------|
| A) isn't he | B) is he |
| C) doesn't he | D) does he |

52. A person who is skilled in the use of words and can speak eloquently in public is an:

- | | |
|-----------|-----------|
| A) Author | B) Orator |
| C) Editor | D) Scribe |

53. Which of the following is an example of non-verbal communication?

- | | |
|------------------------|-------------------------|
| A) A written email | B) A phone conversation |
| C) A facial expression | D) A text message |

54. The tone of a formal complaint letter should be:

- | | |
|--------------------------------|-----------------------------|
| A) Humorous and casual | B) Aggressive and demanding |
| C) Polite, objective, and firm | D) Sarcastic and informal |

55. Identify the sentence that contains a metaphor.

- | | |
|------------------------------|--------------------------------------|
| A) He is as brave as a lion. | B) The clouds sailed across the sky. |
| C) Life is a journey. | D) The wind howled in the night. |

56. Choose the word closest in meaning to “scrutinize”.

- A) To glance at
- B) To ignore
- C) To examine closely
- D) To approve

57. Complete the sentence: “The committee _____ unable to agree on a final decision.”

- A) is
- B) are
- C) was
- D) has been

58. The climax in the plot of a story is the:

- A) Introduction of the main characters
- B) Point of highest tension or the turning point
- C) Final resolution of the conflict
- D) Description of the setting

59. Read the argument: “My last two laptops from this brand were faulty. Therefore, all laptops from this brand are unreliable.” This is an example of which logical fallacy?

- A) Ad Hominem
- B) Straw Man
- C) Hasty Generalization
- D) Appeal to Authority

60. Identify the type of clause underlined in the sentence: “This is the house that Jack built.”

- A) Noun Clause
- B) Adjective (Relative) Clause
- C) Adverb Clause
- D) Main Clause

61. ‘Emotional Intelligence’ is best described as the ability to:

- A) Solve complex mathematical problems.
- B) Suppress your emotions completely.
- C) Recognize, understand, and manage your own and others’ emotions.
- D) Argue logically and win debates.

62. Setting a daily schedule and prioritizing tasks are key components of effective:

- A) Procrastination
- B) Time Management
- C) Socializing
- D) Relaxation

63. An ‘entrepreneur’ is a person who:

- A) Works for a large multinational corporation.
- B) Starts a business, typically taking on financial risks in the hope of profit.
- C) Manages government projects.
- D) Invests passively in the stock market.

64. ‘Cooperation’ and ‘active listening’ are essential skills for effective:

- A) Competition
- B) Teamwork
- C) Isolation
- D) Leadership without a team

65. A rational and effective decision is typically based on:

- A) The first idea that comes to mind
- B) Peer pressure
- C) A logical evaluation of facts and options
- D) Emotional impulse

66. While applying for a job or internship, it is generally advised NOT to include what on a résumé?

- A) Your educational qualifications
- B) Your relevant skills
- C) Your previous work experience
- D) Your expected salary

67. The concept of ‘lifelong learning’ is important in the modern world primarily because:

- A) It helps individuals adapt to rapid changes in technology and the job market.
- B) It is a mandatory requirement for all jobs.
- C) It ensures you never have to change your career.
- D) It is only useful for academic professions.

68. A person aspiring to a career in law and justice would most likely become an:

- A) Engineer
- B) Advocate
- C) Doctor
- D) Accountant

69. Which of the following is considered a ‘soft skill’?

- A) Computer programming
- B) Operating heavy machinery
- C) Effective communication
- D) Scientific research

70. The primary goal of conflict resolution should be to:

- A) Prove that you are right.
- B) Avoid the person you are in conflict with.
- C) Find a mutually acceptable solution.
- D) Win the argument at all costs.

71. A career field that focuses on protecting the natural environment and managing resources is:

- A) Economics
- B) Sociology
- C) Ecology and Environmental Science
- D) Political Science

72. Achieving a healthy ‘work-life balance’ means:

- A) Prioritizing work over personal well-being.
- B) Never working overtime.
- C) Effectively managing the demands of one’s job and personal life.
- D) Separating work and life so they never interact.

73. 'Self-motivation' is the ability to:

- A) Depend on others for encouragement.
- B) Do what needs to be done without external influence or pressure.
- C) Work only when a reward is offered.
- D) Avoid taking on difficult tasks.

74. An essential quality of a good leader is:

- A) The ability to control every small detail.
- B) Having a clear vision and the ability to inspire others.
- C) Never listening to the opinions of the team.
- D) Avoiding all risks.

75. The skill of understanding and managing your own money effectively is known as:

- A) Economic Theory
- B) Financial Literacy
- C) Corporate Accounting
- D) Statistical Analysis

76. Complete the analogy: 9 : 81 :: 7 : ?

- A) 42
- B) 49
- C) 63
- D) 56

77. Find the odd one out from the group:

- A) Triangle
- B) Square
- C) Pentagon
- D) Circle

78. If A=1, B=2, C=3, and so on, what is the value of the word "CAT"?

- A) 24
- B) 27
- C) 29
- D) 32

79. Find the next number in the geometric progression: 3, 9, 27, 81, ?

- A) 162
- B) 243
- C) 324
- D) 405

80. Choose the missing term in the series: 2, 5, 10, 17, 26, ? (Hint: $n^2 + 1$)

- A) 35
- B) 37
- C) 40
- D) 45

81. What time is the mirror image of 9:30 on a standard clock?

- A) 3:30
- B) 2:30
- C) 10:30
- D) 8:30

82. Find the next term in the pattern: A, C, F, J, O, ? (Hint: +2, +3, +4, +5...)

- A) Q
- B) T
- C) U
- D) V

83. In a code language, if 'CAT' $(3+1+20) = 24$ and 'DOG' $(4+15+7) = 26$, what would be the value of 'LION' $(12+9+15+14)$?
- A) 48
B) 50
C) 52
D) 54
84. Complete the analogy: $121 : 11 :: 169 : ?$
- A) 12
B) 13
C) 14
D) 15
85. A man is facing North. He turns 90 degrees clockwise, walks 10 m, and then turns 90 degrees clockwise again. Which direction is he facing now?
- A) North
B) South
C) East
D) West
86. Analogy: Pen is to Writer as Sword is to:
- A) Painter
B) Soldier
C) Farmer
D) King
87. Find the next number in the series: 2, 6, 12, 20, 30, ? (Hint: $1 \times 2, 2 \times 3, 3 \times 4 \dots$)
- A) 40
B) 42
C) 45
D) 50
88. Which of the following does NOT belong to the group of planets?
- A) Mercury
B) Venus
C) Sun
D) Neptune
89. A is the father of B. C is the brother of A. D is the son of C. How is B related to D?
- A) Uncle
B) Nephew
C) Cousin
D) Brother
90. Complete the analogy: $5 : 125 :: 7 : ?$
- A) 343
B) 240
C) 729
D) 512
91. India's successful Chandrayaan-3 mission, which landed on the Moon's south pole, was accomplished in which year?
- A) 2021
B) 2022
C) 2023
D) 2024

92. The “Digital Personal Data Protection Act,” enacted by the Indian Parliament, aims to:

- A) Control the price of internet data.
- B) Regulate citizens’ rights and duties regarding their personal data.
- C) Ban all social media platforms.
- D) Make government data freely available to all.

93. The G20 Summit, a major international forum, was hosted by India in 2023 in the city of:

- A) Mumbai
- B) Bengaluru
- C) New Delhi
- D) Kolkata

94. Your project team has two strong but conflicting ideas for a science project. What is the best first step to make a decision?

- A) Ask the teacher to pick one for you.
- B) Have the team vote immediately without discussion.
- C) Analyze the pros and cons of each idea against the project’s goals.
- D) Insist on your own idea because you are the team leader.

95. The World Health Organization (WHO) is a specialized agency of the United Nations that is responsible for:

- A) International financial stability
- B) International public health
- C) Promoting education and culture
- D) Regulating international trade

96. India’s impressive rank of 40 in the Global Innovation Index 2024 primarily reflects its growing strength in:

- A) Agriculture and farming
- B) Traditional arts and crafts
- C) Technology, research, and startups
- D) Sports and athletics

97. A rational decision-making process involves:

- A) Making a choice based on a gut feeling.
- B) Following what the majority is doing.
- C) Systematically analyzing information and alternatives to reach a logical conclusion.
- D) Choosing the easiest and quickest option available.

98. You have a major test on Monday, but a close friend invites you to a weekend trip. The most responsible decision would be to:

- A) Go on the trip and hope for the best on the test.
- B) Cancel the trip and feel bad about it.
- C) Politely decline, explaining your study commitments, and suggest an alternative time.
- D) Go on the trip but take your books, knowing you probably won’t study.

99. The COP (Conference of the Parties) summits are major global conferences focused on addressing:

- A) Global poverty
- B) Nuclear disarmament
- C) Climate change
- D) Internet governance

100. The decision by the Indian education boards to introduce an official AI curriculum in schools is primarily aimed at:

- A) Reducing the importance of traditional subjects like History.
- B) Preparing students with future-ready skills for the digital age.
- C) Replacing human teachers with AI tutors.
- D) Making exams easier for students.