

Indo Danish Tool Room, Jamshedpur  
Ministry of MSME, Govt. of India

Diploma Entrance Exams AY 2025-26

Time: 1hrs 30 mins

Question Set: B

**INSTRUCTIONS**

- ❖ Kindly go through the instructions written on the OMR answer sheet. While filling the OMR answer sheet correctly indicate the Set (A or B) as mentioned in the top right side of this Question paper. Use black/blue ball point pen only.
- ❖ All the questions are Multiple Choice Questions (MCQs). There is no Negative marking.
- ❖ Only one of the four choices (a, b, c, d) of each question is the correct answer.
- ❖ Total number of questions is 90 and total time of exam is of 1½ Hours (90-minutes). There will be a reminding bell 15 minutes before the end time of the examination.
- ❖ Calculator, cell phone or any electronic device is not allowed. Candidates to focus on their own work and avoid looking at papers of other candidates or indulging in chit-chat which will lead to disqualification from exam.

1. Latent heat of fusion is the amount of heat energy required to change the state of  
(a) one Kg of solid to liquid state at its melting point      (b) one tonne of solid to liquid state at its melting point  
(c) one Kg of solid to liquid state at its boiling point      (d) one tonne of liquid to gas state at its boiling point
2. Which of the following is a greenhouse gas?  
(a) Oxygen      (b) Carbon dioxide      (c) Nitrogen      (d) Argon
3. Which one of the following is a pure matter?  
(a) Ice      (b) Pure Milk      (c) Iron      (d) All
4. For making Carbon Monoxide, 3 g of Carbon will require how many grams of Oxygen?  
(a) 4      (b) 8      (c) 12      (d) 16
5. Why does one have to wear safety belt while driving a car?  
(a) to prevent accidents  
(b) one should not hit the dash board if the brake had to be applied suddenly or car hits an obstruction  
(c) one should not fall off the car if the door opens suddenly  
(d) none of the above
6. Why a person falling on a soft cushion does not get hurt?  
(a) because the cushion is soft  
(b) the energy is absorbed by the cushion  
(c) body momentum is distributed on a wider area  
(d) the time taken for the body to come to rest is delayed due to the cushioning effect
7. Which of the following is the SI unit of velocity?  
(a) m      (b) m/s      (c) kg      (d) m<sup>2</sup>/s

8. Two objects of 55 Kg and 60 Kg moving at a velocity of 6 and 5 m/sec in opposite direction and gets entangled. The entangled mass will move in which direction and at what speed?  
 (a) 5.48 Kgm/s in the direction of the motion of 55 Kg (b) 5.48 Kgm/s in the direction of the motion of 60 Kg  
 (c) 0.26 Kgm/s in the direction of motion of 60 Kg (d) 0.26 Kgm/s in the direction of motion of 55 Kg
9. In order to calculate the total distance travelled by an object, which of following three parameters must be known?  
 (a) Final velocity, Initial Velocity, time (b) Final velocity, Initial velocity, acceleration  
 (c) Initial velocity, acceleration and time (d) Any of a, b or c above
10. Which of the following is the main cause of ozone layer depletion?  
 (a) Chlorofluorocarbons (CFCs) (b) Nitrogen oxide (c) Carbon monoxide (d) Sulfur dioxide
11. An object is thrown vertically upward and travels a distance of 10 m. What was its initial velocity?  
 (a) 1.4 m/s (b) 10 m/s (c) 9.1 m/s (d) 14 m/s
12. The volume of 50 g substance is 20 cm<sup>3</sup>. Is it possible to float this body in water having density of 1 gm./cm<sup>3</sup>?  
 (a) No (b) Yes (c) May be (d) Inadequate data
13. A 60 W lamp is replaced by 12 W LED lamp. What will be the percentage saving in electricity per year?  
 (a) 0.2 (b) 0.4 (c) 0.6 (d) 0.8
14. What is audible range of frequency for human being?  
 (a) 10-10000 Hz (b) 20-20000 Hz (c) 50-30000 Hz (d) 100-100000 Hz
15. Solar radiation heats up  
 (a) water bodies faster than land (b) water bodies slower than land  
 (c) both equal (d) neither water bodies nor land
16. Which of the following metals is most reactive?  
 (a) Iron (b) Zinc (c) Magnesium (d) Copper
17. Chemical name of the product used for white washing of walls is  
 (a) Ca(OH)<sub>2</sub> (b) CaO (c) CaCO<sub>2</sub> (d) CaCO<sub>3</sub>
18. Higher pH is an indication of higher  
 (a) Hydrogen ion concentration (b) OH ion concentration  
 (c) Cl ion concentration (d) Higher Oxide concentration
19. The process in which Hydrogen is passed over CuO and Cu + H<sub>2</sub>O are formed is called  
 (a) Oxidation (b) reduction (c) redox (d) double displacement
20. Calcination is a process used in extraction of metal from its ore in which  
 (a) ore is heated strongly in presence of excess air (b) ore is heated strongly in presence of limited air  
 (c) ore is heated mildly in presence of limited air (d) ore is heated mildly in presence of excess air
21. What is the SI unit of resistance?  
 (a) Ampere (b) Volt (c) Ohm (d) Coulomb

22. In an arithmetic progression, the first term is 5 and the common difference is 3: What is the 7th term?  
 (a) 23 (b) 24 (c) 25 (d) 26
23. Which of the following is a physical change?  
 (a) Burning of wood (b) Dissolution of salt in water (c) Rusting of iron (d) Cooking of food
24. Maximum number of electrons that can be accommodated in a shell depends on the formula  
 (a)  $n^2$  (b)  $2n^2$  (c)  $2n^2-1$  (d)  $2(n^2-1)$
25. The normal blood pressure is  
 (a) 130/70 (b) 130/80 (c) 120/80 (d) 120/70
26. Spherical mirrors having reflecting surface curved outwards is called  
 (a) concave mirror (b) convex mirror (c) plane mirror (d) concave lens
27. You need concave lens to correct the eye vision  
 (a) for myopia (b) for hypermetropia (c) for presbyopia (d) for hyper myopia
28. Why is the danger signal colour red?  
 (a) red colour of white light scatters the maximum (b) red colour of white light scatters the minimum  
 (c) red colour of white light disperses the minimum (d) red colour of white light disperses the maximum
29. Electrical energy is the most preferred mode of energy because it is  
 (a) Convertible (b) controllable  
 (c) environment friendly (d) all
30. Resistivity of wire depends directly on the  
 (a) length and inversely on resistivity (b) length and inversely on the area of cross section  
 (c) area of cross section and inversely on length (d) always constant
31. The iron filings near a magnet will align  
 (a) in a circle around the magnet (b) parallel to the longitudinal axis of the magnet  
 (c) parallel to the magnetic field (d) parallel to the lateral axis of the magnet
32. Which of the following is the smallest in size?  
 (a) Neutron (b) Atom (c) Electron (d) Proton
33. Which of the following is an example of a strong acid?  
 (a) Acetic acid (b) Hydrochloric acid (c) Citric acid (d) Carbonic acid
34. What is an isotope of an atom?  
 (a) having same atomic number but different mass number  
 (b) having same mass number but different atomic number  
 (c) having same atomic and mass number but different electrons  
 (d) having same number of neutrons

35. Which of the following is a vector quantity?  
(a) Speed (b) Distance (c) Acceleration (d) Time
36. Which of the following is a saturated hydrocarbon?  
(a) Methane (b) Ethene (c) Ethyne (d) Benzene
37. The modern periodic table is arranged in increasing order of:  
(a) Atomic mass (b) Atomic number (c) Mass number (d) Number of electrons
38. If a body is moving with a constant speed in a circular path, what type of motion is it exhibiting?  
(a) Uniform motion (b) Uniform circular motion (c) Non-uniform motion (d) Simple harmonic motion
39. During fission process while harnessing energy for peaceful purpose, the mass of the radio-active heavy elements undergoes changes that \_\_\_\_\_  
(a) it reduces (b) it increases  
(c) it remains constant (d) it first reduces and then again restores back to original mass
40. Which of the following is a type of decomposition reaction?  
(a)  $A + B \rightarrow AB$  (b)  $AB \rightarrow A + B$  (c)  $A + O_2 \rightarrow AO_2$  (d)  $AB + CD \rightarrow AD + CB$
41. Which of the following is an example of a basic salt?  
(a) Sodium Chloride (b) Sodium Carbonate (c) Copper Sulfate (d) Calcium Chloride
42. The magnetic field around a straight current-carrying conductor is:  
(a) Always in a straight line (b) Circular and concentric (c) Radial (d) Non-existent
43. Which of the following is a non-renewable source of energy?  
(a) Wind (b) Sun (c) Coal (d) Biomass
44. The image formed by a concave lens is:  
(a) Real and inverted (b) Virtual and erect (c) Real and erect (d) Virtual and inverted
45. Why do we see the sky as blue during the day?  
(a) Scattering of light (b) Reflection of light (c) Refraction of light (d) Absorption of light
46. The defect of vision in which distant objects appear blurred is called:  
(a) Myopia (b) Hypermetropia (c) Astigmatism (d) Presbyopia
47. Which one is the smallest even prime number?  
(a) 1 (b) 2 (c) 3 (d) 5
48. The ratio of two number is 4:7 and their HCF is 6. Find out their LCM  
(a) 164 (b) 168 (c) 174 (d) 184

49. A prism is solid that has  
 (a) two congruent and parallel faces (b) one side triangle and others rectangle  
 (c) one side as rectangle and balance sides as triangle (d) All
50. Water is pouring into a cuboidal reservoir at the rate of 60 liters per minute. If the volume of reservoir is 108 m<sup>3</sup>, find the number of hours it will take to fill the reservoir  
 (a)  $\frac{1}{2}$  hr (b) 1800 sec (c) 1800 hrs (d) 30 hrs
51. The height of a triangular base pyramid is 12 m with base area as 24 m. What will be volume of the triangular pyramid in cubic meter?  
 (a) 96 (b) 144 (c) 288 (d) 72
52. Which is the smallest natural number  
 (a) -1 (b) 0 (c) 1 (d) 9
53. Find the smallest length of the scale to measure the length of 4m95cm, 9m, 16m65cm  
 (a) 45cm (b) 35cm (c) 55cm (d) 65cm
54. A Pyramid has  
 (a) one side as square and balance all triangle (b) all sides triangle  
 (c) one side as any polygon and balance all triangle (d) All
55. Vacancies for Engineers, Diploma and Artisan were in the ratio of 5:7:8 and it was decided to increase by 40, 50 and 75%. What will be the revised ratio  
 (a) 3:4:5 (b) 4:5:6 (c) 2:3:4 (d) 5:6:7
56. The ratio of two number is 3:4 and their sum is 560. What is the larger number  
 (a) 240 (b) 320 (c) 340 (d) 416
57. An old man gave away  $\frac{1}{5}$ th of his property to Ram,  $\frac{1}{3}$ rd of the remaining to Shyam and  $\frac{1}{2}$  of the remaining to Geeta. How much part he is left?  
 (a)  $\frac{4}{15}$  (b)  $\frac{2}{15}$  (c)  $\frac{8}{15}$  (d)  $\frac{1}{5}$
58. Find the value of  $[(-2)^5]^5$   
 (a)  $(-2)^{25}$  (b)  $2^{25}$  (c)  $2^{10}$  (d)  $(-2)^{10}$
59. Which of the following is an organic compound?  
 (a) Sodium chloride (b) Calcium carbonate (c) Glucose (d) Water
60. 6 pipes can fill the tank in 1 hour and 20 minutes. How much time in minutes it will take it to fill by 5 pipes.  
 (a) 80 (b)  $\frac{200}{3}$  (c) 96 (d) 106

61. A can do a piece of work in 15 days and B alone can do it in 10 days. B works at it for 5 days and then leaves. A alone can finish the remaining work in \_\_\_\_\_  
 (a) 2 (b) 2.5 (c) 7.5 (d) 3
62. By what percentage the interest amount received after six year is more as compared to the amount after five years on Rs. 1000/- compounded at an interest of 10% is given by  
 (a) 0.1 (b) 0.1001 (c) 0.1002 (d) 0.1003
63. Which of the following is the highest ratio  
 (a) 17:25 (b) 15:23 (c) 7:15 (d) 27:39
64. Ram completes a work in  $\frac{7}{12}$  hrs. and Shyam in  $\frac{3}{4}$  hrs. Who has the higher capacity of doing work?  
 (a) Ram (b) Shyam (c) both equal (d) None
65. Find the value of  $[\sqrt{3} - (1/\sqrt{3})]^2$   
 (a)  $\frac{3}{4}$  (b)  $\frac{4}{3}$  (c)  $\frac{4}{\sqrt{3}}$  (d) None
66. A water tank is filled in 4 hours. It is decided to fill it in 3 hours. The flow rate shall be increased by  
 (a) 0.25 (b) 0.3 (c) 0.305 (d) 0.3333
67. A is thrice as good a workman as B and takes 10 days less to do a piece of work than B takes. B alone can do the whole work in  
 (a) 5 (b) 8 (c) 9 (d) 15
68. The news agency Reuters belongs to which of the following country?  
 (a) Palestine (b) Yugoslavia (c) Vietnam (d) UK
69. The refrigerant commonly used for domestic refrigerators is  
 (a) alcohol (b) ammonia (c) neon (d) None of the above
70. Who was the first revolutionary of Chhota Nagpur area, who was martyred during the fight against Britishers  
 (a) Kunwar Singh (b) Ram Narain Singh (c) Buddha Bhagat (d) Birsa Munda
71. Choose the correct verb form:  
 She \_\_\_\_\_ to school every day.  
 (a) go (b) going (c) goes (d) gone
72. Identify the correct passive voice:  
 They are watching a movie.  
 (a) A movie is watched by them. (b) A movie is being watched by them.  
 (c) A movie was watched by them. (d) A movie has been watched by them.

73. Choose the correct preposition:

The cat is hiding \_\_\_\_\_ the sofa.

- (a) in (b) on (c) under (d) at

74. Read the passage and answer:

"Rita wakes up early every day. She loves going for a walk in the fresh morning air. It gives her energy for the day."

Why does Rita go for a walk in the morning?

- (a) To meet friends. (b) To get fresh air and energy.  
(c) To buy groceries. (d) To feed the birds.

75. Newton's Third Law of Motion states that:

- (a) A body remains at rest unless acted upon by an external force  
(b) The rate of change of momentum is proportional to the applied force  
(c) For every action, there is an equal and opposite reaction  
(d) The force is equal to the product of mass and acceleration

76. The unit of work is:

- (a) Joule (b) Watt (c) Newton (d) Meter

77. Find the compound interest on Rs.16,000 at 20% per annum for 9 months, compounded quarterly

- (a) 2582 (b) 2562 (c) 2500 (d) 2522

78. Find n:  $[(5)^n \times (125)^{-6} \times (5)^{-1}] / (5)^{-7} = 1$

- (a) 12 (b) -3 (c) 13 (d) 11

79. Factorize  $(a^3 + b^3)$

- (a)  $(a + b)(a^2 + ab + b^2)$  (b)  $(a + b)(a^2 - ab + b^2)$   
(c)  $(a - b)(a^2 + ab + b^2)$  (d)  $(a + b)(a^2 - ab - b^2)$

80. If 250 is increased to 300, what is the percentage increase?

- (a) 16.67 (b) 20 (c) 23 (d) 17

81. A train of 100 meters long is running at the speed of 36 km per hour. In what time it passes a bridge of 80 meters long?

- (a) 30 seconds (b) 36 seconds (c) 20 seconds (d) 18 seconds

82. Ice : Coolness :: Earth : ?

- (a) Ocean (b) Forest (c) Weight (d) Gravitation

83. Find the odd one out

- (a) Mother (b) Friend (c) Sister (d) Brother

84. The saffron colour in the national flag signifies

- (a) truth and peace (b) courage and sacrifice  
(c) faith and chivalry (d) None of the above

85. What comes next in the series 2, 4, 8, 16, ?

(a) 18

(b) 24

(c) 32

(d) 64

86. Find the odd one out:

Circle, Triangle, Rectangle, Cube

(a) Circle

(b) Triangle

(c) Rectangle

(d) Cube

87. Which planet is known as the Red Planet?

(a) Venus

(b) Jupiter

(c) Mars

(d) Mercury

88. Who is the President of India as of 2025?

(a) Ram Nath Kovind

(b) Draupadi Murmu

(c) Narendra Modi

(d) Amit Shah

89. Choose the correct synonym of the word 'Happy':

(a) Sad

(b) Angry

(c) Joyful

(d) Fearful

90. Fill in the blank: She is \_\_\_\_\_ intelligent girl.

(a) a

(b) an

(c) the

(d) some