





21. Mica is used in–
- 1) Furnace
  - 2) Electric industry
  - 3) Steel Industry
  - 4) Glass Manufacturing
22. Which of the following is a physical change?
- 1) Burning of cooking gas
  - 2) Fermentation of milk
  - 3) Digestion of food
  - 4) Dissolution of sugar in water
23. The chemical compound used in photography is
- 1) Aluminium Hydroxide
  - 2) Silver Bromide
  - 3) Potassium Nitrate
  - 4) Sodium Chloride
24. What causes cholera?
- 1) Bacteria
  - 2) Virus
  - 3) Fungus
  - 4) Algae
25. An apparatus for viewing objects lying above the eye level of the observer and whose direct vision is obstructed is known as–
- 1) Photometer
  - 2) Periscope
  - 3) Planimeter
  - 4) Spectrometer
26. Which atom has only one electron?
- 1) Potassium
  - 2) Nitrogen
  - 3) Oxygen
  - 4) Hydrogen
27. What the electrode that is connected to the negative pole of the battery is called?
- 1) Cathode
  - 2) Electroplate
  - 3) Ion
  - 4) Anode
28. The organic acid present in vinegar is–
- 1) butanoic acid
  - 2) propanoic acid
  - 3) methanoic acid
  - 4) ethanoic acid
29. Which of the following is an example of fossil fuel?
- 1) Coke
  - 2) Natural gas
  - 3) Coal gas
  - 4) Producer gas
30. Water gas consists of
- 1) a mixture of carbon monoxide and hydrogen
  - 2) water vapour and coal dust
  - 3) a mixture of carbon monoxide and nitrogen
  - 4) water vapour and methane
31. A body strike the floor vertically with a velocity  $u$  and rebounds at the same speed. The change of speed would be–
- 1)  $3u$
  - 2) Zero
  - 3)  $u$
  - 4)  $2u$



32. Which of the following is different from others?  
1) Speed                      2) Time                      3) Density                      4) Force
33. Momentum has the same unit as that of—  
1) torque    2) couple  
3) impulse    4) moment of momentum
34. What is the momentum of a man of mass 75 kg when he walks with a uniform velocity of 2m/s?  
1) 50 kg m/s                      2) 75 kg m/s                      3) 100 kg m/s                      4) 150 kg/s
35. At the centre of the earth, the value of g becomes—  
1) infinity                      2) unity                      3) zero                      4) None of these
36. Two unequal masses possess the same momentum, then the kinetic energy of the heavier mass is .....the kinetic energy of the lighter mass.  
1) smaller than    2) greater than  
3) same as    4) none of these
37. 15 Bulbs of 60 W each, run for 6 hours daily and a fridge of 300 W runs for 5 hours daily. Find the forthrightly bill at the rate of 30 paise per unit.  
1) Rs.31.05                      2) Rs.45.55                      3) Rs.62.10                      4) Rs.75.10
38. Sheaths are used in cables to—  
1) Provide proper insulation    2) Provide mechanical strength  
3) Prevent ingress of moisture    4) None of these
39. For the stable operation of interconnected system, the passive element that can be used as interconnecting element is  
1) Reactor    2) Resistor  
3) Capacitor    4) Resistor and Capacitor
40. The insulation resistance of a cable of length 10 km is  $1M\Omega$ , its resistance for 50 km length will be—  
1)  $M\Omega$                       2)  $5 M\Omega$                       3)  $0.2 M\Omega$                       4)  $10 M\Omega$
41. The rate of change of momentum is directly proportional to—  
1) Force                      2) Inertia                      3) Moment                      4) None of these
42. If four  $80 \mu F$  capacitors are connected in parallel, the net capacitance is—  
1)  $20 \mu F$                       2)  $80 \mu F$                       3)  $160 \mu F$                       4)  $320 \mu F$

43. The transformer used to decrease the magnitude of the alternating voltage is a—  
1) step-up transformer                      2) step-down transformer  
3) step-in transformer                      4) step-out transformer
44. When two bodies are rubbed against each other  
1) They acquire equal and similar charges  
2) They acquire equal and opposite charges  
3) They acquire unequal and similar charges  
4) They acquire unequal and opposite charges
45. Lightning is caused in the sky due to the flow of charge between—  
1) two oppositely charged clouds  
2) two similarly charged clouds  
3) one neutral and one charged cloud  
4) None of the these
46. Which of these converts sunlight directly into electrical energy?  
1) Solar cooker                              2) Solar cell  
3) Solar furnace                              4) Solar water heater
47. Electric charge can flow through—  
1) insulators                                  2) conductors  
3) both insulators and conductors      4) neither conductors nor insulators
48. The electric current which changes its direction after fixed intervals of time is called—  
1) induced current                          2) direct current  
3) alternating current                          4) None of these
49. A device used to stabilise the voltage supplied by electric supply station is a—  
1) dynamo                      2) transformer                      3) ammeter                      4) generator
50. Silver is a  
1) magnetic substance                      2) good conductor of electricity  
3) bad conductor of electricity              4) none of these
51. An instrument used to observe heavenly bodies is the—  
1) telescope                      2) camera                      3) microscope                      4) periscope
52. The maximum percentage in the atmosphere is of  
1) Oxygen                      2) Nitrogen                      3) Carbon dioxide                      4) Helium

53. What is the function of Ozone layer?  
1) Prevents harmful infra-red rays of the sun from reaching the earth  
2) Prevents radiation escaping the earth, hence keeping it warm  
3) It is essential for rainfall  
4) It filters harmful ultra-violet rays of the sun
54. In the International system of measurement, the 'Kelvin' is the unit of—  
1) mass                      2) temperature              3) electric current      4) air
55. The Sanchi Stupa was constructed by—  
1) Chandragupta      2) Ashoka                      3) Kunal                      4) Harshavardhan
56. The first atomic power plant was started in India at—  
1) Narora                      2) Tarapur                      3) Rawat bhata              4) None of these
57. To conserve the eatables we use—  
1) Benzoic acid                      2) Sodium chloride  
3) Sodium carbonate                      4) None of these
58. The least polluting fuel is—  
1) Hydrogen                      2) Diesel                      3) Kerosene                      4) Coal
59. Malaria spreads by—  
1) Culex mosquito                      2) Anopheles mosquito  
3) Water borne mosquito                      4) None of these
60. Heart disease is caused by increase in—  
1) Glucose                      2) Cholesterol                      3) Heparin                      4) Haemoglobin
61. Which vitamin helps in clotting of blood?  
1) Vitamin B                      2) Vitamin B<sub>2</sub>                      3) Vitamin K                      4) Vitamin D
62. The chief source of energy is—  
1) Vitamin                      2) Minerals                      3) Carbohydrate                      4) Water
63. The chief centre of learning during lord Buddha era was—  
1) Nalanda                      2) Delhi                      3) Varanasi                      4) Bodh Gaya
64. Mustard is grown in—  
1) Kharif season      2) Rabi season                      3) Jayad season                      4) Whole year
65. In case the posts of President and Vice-President lie vacant, who officiates as the President?  
1) Speaker of the Lok Sabha                      2) Chief Justice of India  
3) Attorney General of India                      4) Chairman of Rajya Sabha



66. Magnetic needle directs to—  
1) East                      2) Sky                      3) North                      4) West
67. Lord Buddha got emancipation (Mahapari nirvana) at—  
1) Kushinagar              2) Lumbini                  3) Bodh Gaya              4) Kapilvastu
68. The colours on a colour code resistor are green, white, orange and silver. Find the value of resistor.  
1)  $5.9 \times 10^3 \pm 10\%$                       2)  $59 \times 10^3 \pm 10\%$   
3)  $590 \times 10^3 \pm 10\%$                       4)  $5900 \times 10^2 \pm 10\%$
69. The eddy current loss is directly proportional to  
1) Area of metal                      2) Volume of metal  
3) Length of metal                      4) Weight of metal
70. Direction of dynamically induced e.m.f is given by—  
1) Lenz's law                      2) Flemings right hand rule  
3) Flemings left hand rule              4) Cork screw rule
71. The Rowlatt Act, 1919 empowered the British Government to:  
1) extend the period of imprisonment for Indians  
2) close down any industrial unit at its discretion  
3) release all the political prisoners by 1921  
4) detain a person for any duration without trial
72. The latitude of a place situated on the equator is:  
1)  $0^\circ$                       2)  $23 \frac{1}{2}^\circ$                       3)  $33 \frac{1}{2}^\circ$                       4)  $66 \frac{1}{2}^\circ$
73. The purpose of inclusion of Directive Principles in the Constitution is to establish:  
1) A Social democracy                      2) Gandhian democracy  
3) Social and economic democracy              4) Political democracy
74. A fisherman is stranded in a lake because the motor of his motor-boat has failed. What should he do to reach the shore?  
1) He should start walking in his boat towards the shore  
2) He should start throwing the fish he has collected away from the shore  
3) He should lie flat on his boat  
4) He should start throwing the fish he has collected towards the shore

75. The elements in the portland cement is/are -  
 1) Silica, Alumina and Magnesia      2) Lime, Silica and Magnesia  
 3) Lime, Silica and Iron oxide      4) Lime, Silica and Alumina
76. The Indian Constitution came into force on -  
 1) January 21, 1950      2) January 23, 1950  
 3) January 26, 1950      4) January 30, 1950
77. Insulin activates in  
 1) Pancreas      2) Parathyroid      3) Liver      4) Pituitary
78. The whole structure of the world is regulated by -  
 1) Magnetic force      2) Gravitational force  
 3) Electric force      4) None of these
79. In India State Legislature includes-  
 1) Legislative Assembly & Legislative Council  
 2) Legislative Assembly & Council of Ministers  
 3) Governor, Legislative Assembly & Legislative Council  
 4) Only Legislative Assembly
80. Which country is on the top in Gold production?  
 1) China      2) South Africa      3) Brazil      4) Argentina
81. Who wrote "Causes of the Indian Mutiny"?  
 1) Sayyid Ahmad Khan      2) D.H.Buchanan  
 3) R.P.Dutt      4) Chittaranjan Das
82. Ranji Trophy and Aga Khan Cup are associated with:  
 1) Cricket and Volleyball      2) Badminton and Hockey  
 3) Cricket and Football      4) Cricket and Hockey
83. Where is the headquarters of the International Red Cross Committee?  
 1) Prague      2) Geneva      3) Moscow      4) Berlin
84. Which Article in the Indian Constitution empowers the President to dissolve the Lok Sabha?  
 1) Article 82      2) Article 84      3) Article 85      4) Article 90
85. Which among the following countries has made 'euthanasia' legally valid?  
 1) Newzealand      2) Denmark      3) Australia      4) Netherlands



**Directions (86-88): Find the missing in the following series.**

86. 6, 10, 27, 52, 153, ?

- 1) 308                      2) 305                      3) 304                      4) 306

87. 12, 15, 30, 37.5, 75, ?

- 1)  $93\frac{1}{2}$                       2)  $93\frac{3}{5}$                       3)  $93\frac{3}{4}$                       4)  $93\frac{1}{4}$

88. 88, 56, 19, ?

- 1) 8                          2) 7                          3) 10                          4) -8

**Directions (89-91): In the following number series, one of the numbers does not fit into the series. Find the wrong number.**

89. 7, 9, 16, 27, 47, 77, 119

- 1) 9                          2) 16                          3) 77                          4) 27

90. 4, 5, 12, 39, 160, 804, 4836

- 1) 12                          2) 804                          3) 39                          4) 4836

91. 844, 420, 208, 102, 47, 22.5, 9.25

- 1) 420                          2) 208                          3) 47                          4) 22.5

92. In a certain code "DEVIL" is written as ABSEFI. How is "OTHER" written in that code?

- 1) LRECO                      2) LQEBO                      3) LWEBU                      4) RWKHU

93. In a certain code language "637" means sea is black. "547" means colour is beautiful and "35" means black colour. Which digit in the language means beautiful?

- 1) 6                          2) 4                          3) 5                          4) 3

**Directions (94-98): Read the following information to answer the given questions:**

- (i) A, B, C, D, E and F are six family members.
- (ii) There is one doctor, one lawyer, one pilot, one student and one housewife.
- (iii) There are two married couples in the family
- (iv) F who is a lawyer is father of A.
- (v) B is a pilot and mother of C
- (vi) D is grandmother of C and is a housewife
- (vii) E is father of F and is a doctor
- (viii) C is brother of A

94. How many female members are there in the family?  
 1) 3                      2) 2                      3) 3 or 4                      4) None of these
95. How is A related to D?  
 1) Granddaughter                      2) Grandson  
 3) Son                      4) Either granddaughter or grandson
96. Which of the following statements is definitely true?  
 1) A is engineer                      2) E is the father of the pilot  
 3) D is the mother of the Pilot                      4) F is the father of the engineer
97. Who is student?  
 1) Either C or A                      2) B's son                      3) A                      4) C
98. Which of the following is one of the pair of married couples?  
 1) FB                      2) FA                      3) CF                      4) FD
- Directions (99-100): Find the wrong one.**
99. 1) River                      2) Pond                      3) Well                      4) Tank
100. 1) North                      2) Right                      3) East                      4) South
101. The basis for measuring thermodynamic property of temperature is given by–  
 1) zeroth law of thermodynamics                      2) first law of thermodynamics  
 3) second law of thermodynamics                      4) third law of thermodynamics
102. One watt is equal to–  
 1) 1 Nm/s                      2) 1 N/mt                      3) 1 Nm/t                      4) 1 k Nm/mt
103. Work done is zero for the following process–  
 1) constant volume                      2) free expansion  
 3) throttling                      4) all of the above
104. One calorie in kgm is equal to  
 1) 0.427                      2) 4.27                      3) 42.7                      4) 427
105. On volume basis, air contains following parts of Oxygen  
 1) 21                      2) 23                      3) 25                      4) 77
106. Universal gas constant is defined as equal to product of the molecular weight of the gas and  
 1) specific heat at constant pressure                      2) specific heat at constant volume  
 3) ratio of two specific heat                      4) gas constant

- 107.** Strictly speaking all engineering processes are–
- 1) quasi-static
  - 2) thermodynamically in equilibrium
  - 3) irreversible
  - 4) reversible
- 108.** In a free expansion process
- 1) work done is zero
  - 2) heat transfer is zero
  - 3) both (1) and (2)
  - 4) work done is zero but heat increases
- 109.** Which of the following process is irreversible process
- 1) isothermal
  - 2) adiabatic
  - 3) throttling
  - 4) all of the above
- 110.** Minimum work in compressor is possible when the value of adiabatic index  $n$  is equal to–
- 1) 0.75
  - 2) 1
  - 3) 1.27
  - 4) 1.35
- 111.** In DC motor the direction of induced emf is opposite to main bars as per–
- 1) Fleming's left hand rule
  - 2) Lenz's law
  - 3) Fleming's right hand rule
  - 4) Faraday's law
- 112.** The condition for max power developed by the motor–
- 1)  $E_b = v/2$
  - 2) Cost losses = variable losses
  - 3) Both (1) and
  - 4)  $I^2 aRa = \text{mechanical loss}$
- 113.** The  $T_a/I_a$  graph of a DC series motor is a–
- 1) parabola from no load to over load
  - 2) straight line through out
  - 3) parabola up to full load and a time at over load
  - 4) parabola through out
- 114.** 220V shunt motor develops torque of 54 nM at armature current of 10A. The torque produced when the armature current is 20A is–
- 1) 54 NM
  - 2) 81 N.M
  - 3) 108 N.M
  - 4) 27 N.M
- 115.** Which type of DC generator is used in welding machines–
- 1) series generator
  - 2) shunt generator
  - 3) cumulatively compound
  - 4) differential compound



## ANSWERS

1-2; 2-3; 3-1; 4-4; 5-2; 6-3; 7-4; 8-1; 9-3; 10-1; 11-1; 12-1; 13-2; 14-3; 15-3; 16-1;  
17-4; 18-3; 19-4; 20-4; 21-2; 22-4; 23-2; 24-1; 25-2; 26-4; 27-1; 28-2; 29-1; 30-1;  
31-4; 32-2; 33-3; 34-4; 35-3; 36-1; 37-1; 38-1; 39-3; 40-2; 41-1; 42-4; 43-2; 44-2;  
45-1; 46-2; 47-2; 48-3; 49-2; 50-2; 51-1; 52-2; 53-4; 54-2; 55-2; 56-2; 57-1; 58-1;  
59-2; 60-2; 61-3; 62-3; 63-1; 64-2; 65-2; 66-3; 67-1; 68-2; 69-2; 70-2; 71-4; 72-2;  
73-3; 74-3; 75-3; 76-3; 77-1; 78-2; 79-3; 80-2; 81-2; 82-4; 83-4; 84-2; 85-4; 86-3;  
87-3; 88-4; 89-2; 90-2; 91-3; 92-2; 93-2; 94-4; 95-4; 96-4; 97-1; 98-1; 99-1; 100-2;  
101-1; 102-1; 103-4; 104-1; 105-1; 106-4; 107-3; 108-3; 109-3; 110-2; 111-2; 112-1;  
113-3; 114-3; 115-4.