

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

I – PHYSICS

1. The static friction is equal to
 - a. Equal to the dynamic friction
 - b. always greater than dynamic friction
 - c. Sometimes equal sometimes greater than dynamic than dynamic friction
 - d. None of these
2. The particle moves along a X axis in such a way its coordinate varies with time t, according to the equation $x = 2-5t+6t^2$. The initial velocity of the particle is
 - a. -5m/s
 - b. - 3m/s
 - c. 3m/s
 - d. None of these
3. The displacement of a particle is given by $x=2t^2+t+5$. The acceleration at time t=2 seconds is
 - a. 4 ms^{-2}
 - b. 8 ms^{-2}
 - c. 10 ms^{-2}
 - d. None of theses
4. The displacement is a
 - a. vector quantity
 - b. Scalar quantity
 - c. Neither scalar nor vector
 - d. None of these
5. The correct expression for power among the following is
 - a. force \times velocity
 - b. force \times (velocity)²
 - c. force/ velocity
 - d. None of these .
6. One horse power is equal to
 - a. 746 watt
 - b. 764 watt
 - c. 744 watt
 - d. None of these
7. Which among the the is correct expression for gravitational potential energy
 - a. mgh^2
 - b. mg^2h
 - c. mgh
 - d. None of these
- 8.A body is said to be in equilibrium , if all forces acting on it
 - a. are in same direction
 - b. are equal in magnitude
 - c. have zero resultant
 - d. None of these
11. one calorie is equal to
 - a. 4.19 joule
 - b. 4 joule
 - c. 3 joule
 - d. None of these
12. One Fermi is equal to
 - a. 100 meter
 - b. 10^{-15} meter
 - c. 10^{-12} meter
 - d. None of these
13. A force of 6 newton acts on a body of mass 2 kg at rest . the acceleration produced in it
 - a. 6 ms^{-2}
 - b. 3 ms^{-2}
 - c. 12 ms^{-2}
 - d. None of these
14. A particle starts from rest attains a velocity of 2 m/s after a time of 2 s. What is the value of acceleration of particle
 - a. 1 ms^{-2}
 - b. 4 ms^{-2}
 - c. 2 ms^{-2}
 - d. None of these
15. A particle moves with a speed of 5m/s. The distance travelled by a particle in 2 s.
 - a. 5 m
 - b. 10 m
 - c. 5/2 m
 - d. None of these

II – CHEMISTRY

- 16: A red brown gas is released on heating lead nitrate. It is an example of
(a) Combination reaction

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

- (b) Oxidation reaction
- (c) Decomposition reaction
- (d) Reduction reaction

17: Some stale food gives a bad taste and a bad smell because of:

- (a) Corrosion
- (b) Displacement
- (c) Heating
- (d) Rancidity

18: A chemical reaction involves in

- (a) Only breaking of bonds
- (b) Only formation of bonds
- (c) Both breaking and formation of bonds
- (d) None of these

19: When the gases sulphur dioxide and hydrogen sulphide mix in the presence of water, the reaction $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 2\text{H}_2\text{O} + 3\text{S}$ occurs. Here hydrogen sulphide is acting as

- (a) an oxidising agent
- (b) a reducing agent
- (c) a dehydrating agent
- (d) a catalyst

20: Which of the following reaction will not take place?

- (a) $\text{Zn} + \text{FeSO}_4 \rightarrow \text{ZnSO}_4 + \text{Fe}$
- (b) $2\text{KI} + \text{Cl}_2 \rightarrow 2\text{KCl} + \text{I}_2$
- (c) $\text{Zn} + \text{MgSO}_4 \rightarrow \text{ZnSO}_4 + \text{Mg}$
- (d) $\text{Mg} + \text{CuSO}_4 \rightarrow \text{MgSO}_4 + \text{Cu}$

21: Which of the following represents ketones?

- (a) -C=O(b) -OH
- (c) -CHO
- (d) -COOH

22: Which of the following is not an aliphatic hydrocarbon?

- (a) ethene
- (b) ethane
- (c) propyne
- (d) benzene

23: Buckminsterfullerene is an example of _____ of carbon

- (a) an isomer
- (b) an isotope
- (c) an allotrope
- (d) a functional group

24: Who prepared urea the first time by heating ammonium cyanate?

- (a) Wöhler
- (b) Lavoisier
- (c) Fuller
- (d) Habër

25: Butanone is a four-carbon compound with the functional group

- (a) carboxylic acid.

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

- (b) aldehyde.
- (c) ketone.
- (d) alcohol.

26. What are the constituents of alloy solder?

- (a) Copper, zinc
- (b) Copper, tin
- (c) Lead, Zinc
- (d) Lead, tin

27. By which reaction metal is obtained from metal oxide?

- (a) Liquefaction
- (b) Reduction
- (c) Calcination
- (d) Roasting

28. Which non-metallic element is in liquid form?

- (a) Carbon
- (b) Hydrogen
- (c) Bromine
- (d) Phosphorus

29. Which of the following non-metal is good conductor of electricity?

- (a) Graphite
- (b) Phosphorus
- (c) Hydrogen
- (d) Bromine

30. Which of the following is not a half-metal?

- (a) Silicon,
- (b) boron,
- (c) arsenic
- (d) chlorine

III – MATHEMATICS

31 The sum of a number and its reciprocal is $17/4$. Find the number

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

32 Construct a quadratic equation whose roots are $\sqrt{3}$ and $3\sqrt{3}$

- 1) $x^2 - 4\sqrt{3}x - 9 = 0$
- 2) $x^2 - 12x + 9 = 0$
- 3) $x^2 - 4\sqrt{3}x + 9 = 0$
- 4) None of these.

33 Fifteen years from now, Mohan's age will be four times his present age. What is Mohan's present age.

- 1) 4
- 2) 5
- 3) 6
- 4) 7

34 Two numbers are in the ratio 5:3. If they differ by 18. What are the numbers

- 1) 18 : 36
- 2) 24 : 42
- 3) 45 : 27
- 4) 30 : 48

35 Find the value of p , for which the equation $px^2 - 8x + 4 = 0$, has two roots

- 1) 16
- 2) -16
- 3) 4
- 4) -4

36 If $\tan 2A = \cot(A - 18^\circ)$, then the value of A is

- 1) 18°
- 2) 36°
- 3) 24°
- 4) 27°

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

37 $\cos\left(\frac{\pi}{2} + \theta\right)$ is equal to

- 1) $\sin\theta$ 2) $-\sin\theta$ 3) $\cos\theta$ 4) $-\cos\theta$

38 If $\sin A = \cos B$, Then $A+B$ equals to

- 1) 30° 2) 45° 3) 60° 4) 90°

39 The height of a tree is equal to its shadow. The angle of elevation of the source of height is.

- 1) 0° 2) 30° 3) 45° 4) None of these

40 In the first quadrant, which one of the following is true

- 1) $\cos\theta$ increases when θ increases 2) $\cos\theta$ decreases when θ increases
3) $\cos\theta$ remains constant 4) $\cos\theta$ does not depend on θ

41 Surface area of a cube is 1014cm^2 , its volume will be..

- 1) 2179cm^3 2) 2279cm^3 3) 2297cm^3 4) 2197cm^3

42 Two spheres have their surface areas in the ratio 9:16, their volumes are in the ratio of

- 1) 64:27 2) 27:64 3) 81:64 4) 3:4

43 Total Surface Area of a cylinder is

- 1) $\pi r^2 h$ 2) $2\pi r h + 2\pi r^2$ 3) $2\pi r h$ 4) none of these

44 The height and radius of a cone are doubled. The volume of the cone becomes

- 1) Double 2) 3 times 3) 4 times 4) 8 times

45 Curved Surface Area of Frustum is

- 1) $\pi R^2 l + \pi r^2 l$ 2) $\pi R^2 l - \pi r^2 l$ 3) $\pi R l + \pi r l$ 4) $\pi R l - \pi r l$

IV – TECHNICAL

46. "Maximum power output is obtained from a network when the load resistance is equal to the output resistance of the network as seen from the terminals of the load". The above statement is associated with

- (a) Millman's theorem
(b) Thevenin's theorem
(c) Superposition theorem
(d) Maximum power transfer theorem

47. "Any number of current sources in parallel may be replaced by a single current source whose current is the algebraic sum of individual source currents and source resistance is the parallel combination of individual source resistances". The above statement is associated with

- (a) Thevenin's theorem
(b) Millman's theorem
(c) Maximum power transfer theorem
(d) None of the above

48. "In any network containing more than one sources of e.m.f. the current in any branch is the algebraic sum of a number of individual fictitious currents (the number being equal to the number of sources of e.m.f.), each of which is due to separate action of each source of e.m.f., taken in order, when the remaining sources of e.m.f. are replaced by conductors, the resistances of which are equal to the internal resistances of the respective sources". The above statement is associated with

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

- (a) Thevenin's theorem
 - (b) Norton's theorem
 - (c) Superposition theorem
 - (d) None of the above
49. Kirchoff s law is applicable to
- (a) passive networks only
 - (b) a.c. circuits only
 - (c) d.c. circuits only
 - (d) both a.c. as well d.c. circuits
50. Application of Norton's theorem to a circuit yields
- (a) equivalent current source and impedance in series
 - (b) equivalent current source and impedance in parallel
 - (c) equivalent impedance
 - (d) equivalent current source
51. A closed path made by several branches of the network is known as
- (a) branch
 - (b) loop
 - (c) circuit
 - (d) junction
52. The form factor is the ratio of
- (a) peak value to r.m.s. value
 - (6) r.m.s. value to average value
 - (c) average value to r.m.s. value
 - (d) none of the above
53. The period of a sine wave is _____ seconds.Its frequency is
- (a) 20 Hz
 - (b) 30 Hz
 - (c) 40 Hz
 - (d) 50 Hz
54. The peak value of a sine wave is 200 V. Its average value is
- (a) 127.4 V
 - (b) 141.4 V
 - (c) 282.8 V
 - (d) 200V
55. In a series resonant circuit, the impedance of the circuit is
- (a) minimum
 - (b) maximum
 - (c) zero
 - (d) none of the above
56. Pure inductive circuit

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

- (a) consumes some power on average
(b) does not take power at all from a line
(c) takes power from the line during some part of the cycle and then returns back to it during other part of the cycle
(d) none of the above
57. The minority carrier concentration is largely a function of
(a) forward biasing voltage
(b) reverse biasing voltage
(c) temperature
(d) the amount of doping
58. Tesla is a unit of
(a) field strength
(b) inductance
(c) flux density
(d) flux
58. A permeable substance is one
(a) which is a good conductor
(b) which is a bad conductor
(c) which is a strong magnet
(d) through which the magnetic lines of force can pass very easily
59. In the left hand rule, forefinger always represents
(a) voltage
(b) current
(c) magnetic field
(d) direction of force on the conductor
60. Which of the following is a ferromagnetic material?
(a) Tungsten
(b) Aluminium
(c) Copper
(d) Nickel
61. Laminations of core are generally made of
(a) Cast iron
(b) carbon
(c) silicon steel
(d) stainless steel
62. Iron losses in a D.C. machine are independent of variations in
(a) speed
(b) load
(c) voltage
(d) speed and voltage
63. Brushes of D.C. machines are made of

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

- (a) carbon
(b) soft copper
(c) hard copper
(d) all of above
64. The demagnetising component of armature reaction in a D.C. generator
(a) reduces generator e.m.f.
(b) increases armature speed
(c) reduces interpoles flux density
(d) results in sparking trouble
65. In a D.C. machine stray loss is the sum of
(a) total copper loss and mechanical loss
(b) armature copper loss and iron loss
(c) shunt field copper loss and mechanical loss
(d) iron loss and mechanical loss
66. Which D.C. motor will be preferred for machine tools ?
(a) Series motor
(b) Shunt motor
(c) Cumulative compound motor
(d) Differential compound motor
67. Starters are used with D.C. motors because
(a) these motors have high starting torque
(b) these motors are not self-starting
(c) back e.m.f. of these motors is zero initially
(d) to restrict armature current as there is no back e.m.f. while starting
68. If a D.C. motor is connected across the A.C. supply it will
(a) Run at normal speed
(b) not run
(c) run at lower speed
(d) burn due to heat produced in the field winding by eddy currents
69. A three point starter is considered suitable for
(a) shunt motors
(b) shunt as well as compound motors
(c) shunt, compound and series motors
(d) all D.C. motors
70. Which of the following motor has the poorest speed regulation ?
(a) Shunt motor
(b) Series motor
(c) Differential compound motor
(d) Cumulative compound motor
71. Is a negatively charged particle present in an atom.

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

- (a) Proton
(b) Neutron
(c) Electron
(d) None of the above
72. Commonly used conducting materials are
(a) copper
(b) aluminium
(c) both (a) and (b)
(d) copper and silver
73. The conductivity of a conductor can be increased by
(a) decreasing its temperature
(b) increasing its temperature
(c) decreasing its vibration
(d) increasing its vibration
74. Which of the following variety of copper has the best conductivity ?
(a) Induction hardened copper
(b) Hard drawn copper
(c) Pure annealed copper
(d) Copper containing traces of silicon
75. Which of the following is the poorest conductor of electricity ?
(a) Carbon
(b) Steel
(c) Silver
(d) Aluminium
76. Which of the following material is not a semiconductor?
(a) Silica
(b) Germanium
(c) Selenium
(d) Gallium-arsenide
77. Thermocouples are mainly used for the measurement of
(a) temperature
(b) resistance
(c) eddy currents
(d) coupling co-efficient
78. The forbidden gap in an insulator is
(a) large
(b) small
(c) nil
(d) any of the above
79. In conductors conduction of electricity takes place due to movement of
(a) electrons only
(b) positive ions only

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

- (c) negative ions only
(d) positive and negative ions
80. For germanium the forbidden energy gap is
(a) 0.15eV
(b) 0.25eV
(c) 0.5eV
(d) 0.7eV
81. The minority carrier concentration is largely a function of
(a) Forward biasing voltage
(b) reverse biasing voltage
(c) temperature
(d) the amount of doping
82. For a hole which of the following statements is incorrect?
(a) Holes can exist in certain semiconductors only
(b) Holes can exist in any material including conductors
(c) Holes may constitute an electric current
(d) Holes can be considered as a net positive charge
83. Copper, even though costly, finds use in the windings of electrical machines because
(a) copper points offer low contact resistance
(b) copper can be easily soldered and welded
(c) copper windings are less bulky and the machines become compact
(d) all of the above
84. Which of the following variety of copper has the best conductivity?
(a) Induction hardened copper
(b) Hard drawn copper
(c) Pure annealed copper
(d) Copper containing traces of silicon
85. The materials having low retentively are suitable for making
(a) weak magnets
(b) temporary magnets
(c) permanent magnets
(d) none of the above
86. A machine that converts electrical energy into mechanical energy is called
(a) Electric generator
(b) Electric motor
(c) Both a and b
(d) None of the above
87. Which of the following does not change in a transformer?
(a) Current
(b) Voltage
(c) Frequency

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

(d) All of the above

88. In a transformer the energy is conveyed from primary to secondary

- (a) Through cooling coil
- (b) through air
- (c) by the flux
- (d) none of the above

89. The rating of transformer may be expressed in _____.

- (a) kW
- (b) kVAR
- (c) kVA
- (d) Horse power.

89. E.M.F Equation of the Transformer is _____.

- (a) $E_1 = 4.44 f N_1 \Phi_m$, $E_2 = 4.44 f N_2 \Phi_m$
- (b) $E_1 = 4.44 f N_1 B_m A$, $E_2 = 4.44 f N_2 B_m A$
- (c) $E_1 = 4.44 N_1 \Phi_m / T$, $E_2 = 4.44 N_2 \Phi_m / T$
- (d) All of the above

90. What would happen if a power transformer designed for operation on 50 Hz (frequency) were connected to a 500 Hz (frequency) source of the same voltage?

- (a) Current will be too much high
- (b) Transformer may start to smoke and burn
- (c) Eddy Current and Hysteresis loss will be excessive
- (d) No effect

91. The mini drafter serves the purpose of everything except

- (a) Scales
- (b) Protractor
- (c) Compass
- (d) set square

92. Which of the following compass is used to draw very large circles?

- (a) Beam
- (b) Large
- (c) Bow
- (d) Drop

93. Which of the following is softest pencil?

- (a) 2B
- (b) 1B
- (c) HB
- (d) H

94. The designation of sheet of size 594 x 841 is

- (a) A₀
- (b) A₁
- (c) A₂
- (d) A₃

MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - ELECTRICAL ENGINEERING

95. The projection showing the front in the true shape and size is
- (a) isometric
 - (b) Perspective
 - (c) oblique
 - (d) Axonometric
96. What type of line has precedence over all other types of lines?
- (a) Hidden line
 - (b) Centre line
 - (c) Visible line
 - (d) None of the above
97. Which is not a principal view?
- (a) Front
 - (b) Bottom
 - (c) auxiliary
 - (d) Left side
98. Inclined planes in a three-view drawing will appear as
- (a) Two surfaces and one edge
 - (b) One surface and two edges
 - (c) Three edges
 - (d) Foreshortened in each view
99. When a surface of an object is inclined to a plane of projection, it will appear in the view
- (a) Foreshortened
 - (b) In true size and shape
 - (c) As a line
 - (d) As a point
100. The top view of an object should typically be drawn
- (a) To the right of the front view
 - (b) Directly below the front view
 - (c) Anywhere on the
 - (d) On a separate piece of paper