
AP – POLYCET

2017

Time : 2 Hours

Total Marks : 120

SECTION – II

PHYSICS

61. When a light ray travels from rarer medium to denser, it
- A. bends away from the normal
 - B. bends towards the normal
 - C. goes along a straight line
 - D. moves in a parabolic path
62. Pick the correct answer from the following two statements:
- (a) Focal length of a lens depends on the surrounding medium.
 - (b) Focal length of a lens changes with the object distance.
- A. Both (a) and (b) are true
 - B. Both (a) and (b) are false
 - C. Only (a) is true
 - D. Only (b) is true
63. The size of the image formed by a convex lens is same as that of the object when the object is placed

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- A. centre of curvature
 - B. between the centre of curvature and focus
 - C. beyond the centre of curvature
 - D. between focus and optic centre
64. The lens which is thin at the middle on both sides and thicker at the edges is
- A. bi-convex
 - B. concavo-convex
 - C. Plano-concave
 - D. bi-concave
65. If 40 cm each is object and image distance respectively for a convex lens, then the focal length is
- A. 80 cm
 - B. 40 cm
 - C. 20 cm
 - D. 25 cm
66. The function of the 'rods' of the retina is to
- A. adjust focal length of the eye-lens
 - B. enable pupil to expand or contract to receive light
 - C. identify the intensity of light
 - D. identify the colour of light
67. The maximum and minimum focal lengths of the eye-lens respectively are
- A. 2 cm, 1 cm
 - B. 2.5 cm, 1.5 cm

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- C. 2.5 cm, 2.27 cm
D. 25 cm, 2.27 cm
68. A doctor advised to use 4 D lens. The focal length of the lens is
A. 25 cm
B. 400 cm
C. 4 cm
D. 40 cm
69. With an increase in angle of incidence of light ray on a prism, the angle of deviation
A. remains constant
B. first increases and then decreases
C. first decreases and then increases
D. first increases and then remains constant
70. scientific work of C. V. Raman is on
A. dispersion of light
B. total internal reflection of light
C. defection of vision
D. scattering of light
71. Which among the following is responsible for an induced current in the coil?
A. Presence of galvanometer in the coil
B. Presence of magnetic flux in the coil
C. Change of magnetic flux through the coil
D. Using coil of large area of cross-section
72. A particle of charge q and mass m is moving with a speed v perpendicular to the magnetic field of

induction B . The radius of the circular path moving by the particle is

- A. mvB/q
- B. muq/B
- C. mB/vq
- D. mv/Bq

73. A coil has 200 turns. If an increase in magnetic flux through one turn of coil is 0.001 Wb in $\therefore$ 0.1 sec, then the maximum induced EMF in the coil is

- A. 0.2 v
- B. 2 v
- C. 20 v
- D. 2000v

74. A metal ring is inserted through the soft iron cylinder which is wound with copper wire. When AC is supplied between the ends of the coil,

- A. the metal ring is levitated on the coil
- B. the metal ring is levitated and falls down immediately
- C. the metal ring rotates round the cylinder without levitation
- D. None

75. 'tesla' is the SI unit for

- A. Magnetic flux
- B. magnetic flux density
- C. magnetic pole strength
- D. induced EMF

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76. Which among the following substances has the highest specific heat?
- A. Kerosene oil
 - B. Mercury
 - C. Water
 - D. Copper
77. The value of a temperature of -25°C in Kelvin scale is
- A. 248 K
 - B. 25 K
 - C. 273 K
 - D. 298 K
78. Evaporation of liquid takes place at the
- A. bottom
 - B. middle
 - C. surface
 - D. edges only
79. The angle of incidence of a light ray on a plane surface is 30° . The angle of reflection is
- A. $= 30^{\circ}$
 - B. $< 30^{\circ}$
 - C. $> 30^{\circ}$
 - D. $= 90^{\circ}$ always
80. The nature of the image formed by a concave mirror when the object is placed between mirror and focus is
- A. real, inverted

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- B. real, erected
C. virtual, inverted
D. virtual, erected
81. The radius of curvature of a concave mirror is 50 cm. Its focal length is
A. 5 cm
B. 25 cm
C. 50 cm
D. 100 cm
82. Watchmaker uses _____ to repair.
A. convex mirror
B. concave mirror
C. concave lens
D. convex lens
83. The graph between potential difference (X-axis) and current (Y-axis) for an iron spoke at
A. straight line parallel to X-axis
B. straight line parallel to Y-axis
C. straight line passing through the origin
D. curved line
84. Resistance of a material depends on its
A. temperature
B. length
C. cross-sectional area
D. All of the above

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85. If a charge q is moving against an electric force F_e through a distance d between the terminals of a battery, then the EMF is
- A. $F_e dq$
 - B. F_e/qd
 - C. $F_e d/q$
 - D. $F_e q/d$
86. Two resistors of values x and $x/2$ are connected in parallel combination. Their effective resistance is
- A. $x/3$
 - B. $3/x$
 - C. $3x/2$
 - D. $x^2/2$
87. An electric bulb is marked 40 W and 120 V. It means that in one second it converts
- A. 120 J of electric energy into heat or light
 - B. 40 J of electric energy into heat or light
 - C. 160 J of electric energy into heat or light
 - D. 3 J of electric energy into heat or light
88. The quantity which has SI unit as coulomb is
- A. electric current
 - B. electric capacitance
 - C. electric charge
 - D. electric potential
89. The refractive index of a material is 2, then the critical angle is
- A. $\sin^{-1}(2)$

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- B. $\sin^{-1}(1/2)$
 - C. $\sin^{-1}(\sqrt{2})$
 - D. $\sin^{-1}(1/\sqrt{2})$

90. The total internal reflection in diamond makes it shine, because the critical angle of diamond is
- A. very low
 - B. very high
 - C. exactly 45°
 - D. None