**All India Radio (AIR & DD)Engineering Assistants Question Papers**

**126. In a resonance tube experiment the first resonance is obtained for 10 cm. of air column and**

**the second for 32 cm. The end correction for this apparatus is equal to?**

(a)0.5 cm

(b)1.0 cm

(c)1.5 cm

(d) 2 cm

Ans:b

**127. The ratio of the specific heat of air at constant pressure to its specific heat at constant**

**volume is?**

(a) zero

(b) greater than one

(c) less than one

(d) equal to one

Ans:b

**128. A convex lens has a focal length of 10 cm. When it is immersed in water it will behave**

**as?**

(a) a convex tens of 10 cm. focal length

(b) a concave lens of 10 cm. focal length

(c) a convex lens of focal length greater than 10cm.

(d) a convex lens of focal length less than 10 cm.

Ans:c

**129. Two particles having charges q1 and q2 when kept at a certain distance exert a force F on**

**each other. If the distance between the two particles is reduced to half and the charge on each**

**particle is doubled the force between the particles would be ?**

(a)2F

(b)4F

(c)8F

(d)16F

Ans:d

**130. A small magnet is placed perpendicular to a constant magnetic field. The forces acting on**

**the magnet will result in?**

(a) rotation

(b) translation

(c) no motion at all

(d) rotation as well as translation

Ans:a

**131. A hollow metallic sphere is charged. Inside the sphere?**

(a) the potential is zero but the electric field is finite

(b) the electric field is zero but the potential is finite

(c) both the electric field and the potential are finite

(d) both the electric field and the potential are zero

Ans:b

**132. Two electric lamps each of 100 watts 220 V are connected in series to a supply of 220 volts.**

**The power consumed would be:**

(a)100 Watts

(b) 200 Watts

(c)25 Watts

(d) 50 Watts

Ans:d

**133. A transformer is:**

(a) a device for stepping up D.C.

(b) a generator of current

(c) device for converting direct current into alternating current

(d) a device for stepping up or down the voltage of A.C. supply

Ans:d

**134. Transistor act as a?**

(a) conductor

(b) semi-conductor

(c) insulator

(d) thermionic valve

Ans:d

**135. The sky is blue because:**

(a) there is more blue light in the sunlight

(b) of scattering of sunlight by air molecules in the atmosphere

(c) of scattering of sunlight by dust particles in the atmosphere

(d) other colours are absorbed by heavenly bodies

Ans:b

**136. A cyclonic storm is indicated by a change in the atmospheric pressure. In atmospheric**

pressure there is a:

(a)sudden rise

(b) gradual rise

(c)sudden fall

(d) gradual fall

Ans:c

**137. The electric field inside a hollow conducting sphere will ?**

(a) increases towards the centre

(b) decreases towards the centre

(c) is finite and constant throughout

(d) is zero

Ans:d

**138. Imperfect gases are those:**

(a) which contain impurities

(b) which do not obey Charle’s and Boyle’s laws

(c) whose molecules are not spherical

(d) whose molecules cannot be regarded as point masses

Ans:b

**139. Sonar is a device for:**

(a) location and ranging of aircraft’s

(b) location and ranging submarines

(c) producing a musical note of high quality

(d) measuring frequency of musical notes

Ans:b

**140. Cyclotron is a device to produce:**

(a) atomic energy

(b) high energy electrons

(c) high energy photons

(d) high energy protons

Ans:d

**141. Which one of the following is not a vector?**

(a) Velocity

(b) Acceleration

(c) Force

(d) Energy

Ans:d

142. Two steel balls of mass 1 kg. and 2kg. and a lead ball of 10kg. are released together from

the top of tower 30 metres high. Assuming the path to be in vacuum

(a) the lead ball reaches the ground earlier

(b) the 1 kg. steel bail reaches the ground earlier

(c) all the balls reach the ground simultaneously

(d) the 2 kg. steel ball reaches the ground earlier

Ans:c

**143. After a watch has been wound, it?**

(a) has great energy stored in it

(b) possesses mechanical potential energy stored in it

(c) has eletrical energy stored in it

(d) has no energy in it

Ans:b

**144. Two plane mirrors are set at right angles and a flower is placed in any position in between**

**the mirrors. The number of images of the flower which will be seen is?**

(b) two

(d) four

(a) one

(c) three

Ans:c

**145. In which of the following cases total internal reflection cannot be obtained?**

(a) ray going from water to glass

(b) a ray going from glass to water

(c) a ray going from glass to air

(d) a ray going from water to air.

Ans:a

**146. When white light passes through a glass prism, we get a spectrum on the other side of the**

**prism. In the emergent beam the ray which is deviated least is**

(a) the violet ray

(b) the red ray

(c) the green ray

(d) the yellow ray

Ans:b

**147. Magnetic storms are due to**

(a) the rotation of the earth

(b) the revolution of the earth

(c) the rainy season

(d) the appearance off Sun spots

Ans:d

**148. For dynamo which one of the following statements is correct ?**

(a) It converts the electrical energy into light energy

(b) It converts the kinetic energy into heat energy

(c) It converts the mechanical energy into electrical energy

(d) Jt converts the electrical energy into mechanical energy.

Ans:c

**149. In a transformer the immediate cause of the induced A. C. in the secondary coil is?**

(a) a varying electric field

(b) a varying magnetic field

(e) a motion of the secondary coil

(d) efficiency of the operator

Ans:b

**150.A dynamo actually acts as a?**

(a) converter of energy

(b) source of electric charge

(c) source of magnetic charge

(d) source of energy

Ans:a

**151. Two long parallel wires P and Q are both perpendicular to the plane of the paper with**

**distance of 5 m between them. If P and Q carry current of 2.5 amp and 5 amp respectively in the**

**same direction, then the magnetic field at a point half-way between the wires is ?**

(a)3µ/2?

(b)µ/?

(c)?3µ/2?

(d)µ/2?

Ans:a

**152. A proton moving with a velocity 3 x 105 m/s enters a magnetic field of 0.3 Tesla at an angle**

**of 30° with the field. The radius of curvature of its path will be (e/m for proton – 108 C/kg)**

(a)2cm

(b) 0.5 cm

(c)0.02 cm

(d) 1.25 cm

Ans:b

**153. A charged particle of charge q and mass m enters perpendicularly in a magnetic field B.**

**Kinetic energy of the particle is E; then frequency of rotation is?**

(a)qB/m?

(b) qB/2m?

(c)qBE/2m?

(d) qB/2E?

Ans:b

**154. A galvanometer can be converted into a voltmeter by connecting?**

(a) A high resistance in parallel

(b) A low resistance in series

(c) A high resistance in series

(d) A low resistance in parallel

Ans:c

**155. A wire carries a current. Maintaining the same current it is bent first to form a circular plane**

**coil of one turn which produces a magnetic field B at the centre of the coil. The same length is**

**now bent more sharply to give a double loop of smaller radius. The magnetic field at the centre**

**of the double loop, caused by the same current is ?**

(a)4B

(b) B /4

(c) B/2

(d) 2B

Ans:a

**156.A bar magnet is oscillating in earth’s magnetic field with a period T. What happens to its**

**period of motion, if its mass is quadruped ?**

(a) Motion remains simple harmonic with new period =T/2

(b) Motion remains simple harmonic with new period = 2 T

(c) Motion remains simple harmonic with new period =4T

(d) Motion remains simple harmonic and the period stays nearly constant

Ans:b

**157. The work done in turning a magnet of magnetic moment M by an angle of 90° from the**

**meridian, is n times the corresponding work done to turn it through an angle of 60°.**

The value of n is given by

(a)2

(b) 1

(c) 0.5

(d) 0.25

Ans:a

**158 . For protecting a sensitive equipment from the external electric arc, it should be ?**

(a) Wrapped with insulation around it when passing current through it

(b) Placed inside an iron can

(c) Surrounded with fine copper sheet

(d) Placed inside an aluminium can

Ans:b

**159. If a diamagnetic substance is brought near north or south pole of a bar magnet, it is?**

(a) attracted by the poles

(b) repelled by the poles

(c) repelled by north pole and attracted by the south pole

(d) attracted by the north pole and repelled by the south pole

Ans:b

**160. Current i is flowing in a coil of area A and number of turns N, then magnetic moment of**

**the coil is M= ?**

(a) NiA

(b) Ni/A

(c)Ni/?A

(d) N2Ai

Ans:a

**161. Two magnets of magnetic moments M and 2M are placed in a vibration magnetometer, with**

**the identical poles in the same direction. The time period of vibration is T1. If the magnets are**

**placed with opposite poles together and vibrate with time period T2 then ?**

(a) T2 is infinite

(b) T2=T1

(c)T2>T1

(d) T2 is less than T1

Ans:c

**162. A diamagnetic material in a magnetic field moves**

(a) perpendicular to the field

(b) from stronger to the weaker pans of the field

(c) from weaker to the stronger parts of the field

(d) in none of the above directions

Ans:b

**163. According to Curie’s law, the magnetic susceptibility of a substance at an absolute**

**temperature T is proportional to?**

(a) T2

(b) 1/T

(c) T

(d) 1/T2

Ans:b