

#### Guess Paper – 2009

Class – X

Subject –PHYSICS

**Q1.**a)The weights of two bodies are 3N and 3Kgf respectively. What is the mass of each body?

b)State Newtons second law of motion

c)Find the weight of a body at the centre of the earth?

d)State the energy change in i)photographic film ii)electric cell

e)Draw the diagram of human leg showing the position of LOAD,FULCRUM and EFFORT

**Q2** a)What are high tension wires?Give one characteristic of these wires

b)A metal wire has a resistance of 20 ohm per metre.Find the total resistance of two lengths of this wire,each 1.5m long and connected in parallel

c)What do you mean by mechanical energy?Name its two forms.

d)A force of  $10^6$  dynes acts on a body of mass 500gm at rest.Find the velocity of the body at the end of 2secs.

e)Write the SI and CGS unit of power.How are they related?

**Q.3** a)Explain why?Violet light is deviated more than red light on entering the prism.

b)Can a metal emit electrons at all temperatures?Explain your answer.

c)Explain the principle of hot cathode ray tube.

d)Why is the core of an electromagnet made of iron?

e)Draw a ray diagram for  $180^\circ$  deviation of light path through a prism.

**Q.4** a)Derive a relation between SI and CGS unit of force.

b)Define critical angle?How does it related to refractive index?

c) A lighter body and a heavier body have same momentum. Find mathematically, which have more K.E.

d) Name the invisible spectra. How their presence can be detected?

e) The ratio between amplitude of two waves is 4:9. What is the ratio of their intensities?

**Q.5** a) State two conditions necessary for resonance.

b) Define one commercial unit of electrical energy.

c) State the advantages of a ring circuit.

d) Calculate the resistance which must be connected to 12 ohm resistance to provide an effective resistance of 8 ohm?

e) Differentiate between damped and forced vibration.

**Q.6** a) What is an echo? State two conditions for the formation of an echo.

b) How many alpha particles to be emitted from  $U^{238}_{92}$  to get  $Pb^{206}_{82}$ .

c) Why switch is connected to a live wire?

d) State two characteristics of a parallel circuit.

e) Why the earth pin in a three pin plug is made longer and thicker?

**Q.7a)** What do you mean by rating 220V-1000W for a device?

b) State two precautions to be followed in a nuclear reactor.

c) What is the effect of increase in pressure on the melting point of ice and boiling point of water.

d) Draw a diagram of lever when it is used as a force multiplier.

e) Draw a labelled diagram of a step down transformer.

**Q.8** a) Write two differences between total internal reflection and reflection from a plane mirror.

b) State two properties of infrared radiations which are different from visible light.

c) A cell supplies a current of 0.6A through a 2 ohm coil and a current of 0.3A through a 8 ohm coil. Calculate the E.M.F and internal resistance of the coil.

d) Give an example when work done by a body is i) negative (ii) zero.

e) State the work energy principle.

**Q.9** a) What do you mean by linear resistor? State the V-I relation graphically.

b) The surface of an empty test tube kept in a beaker filled with water shines like a mirror. Explain?

c) State two differences between d.c motor and a.c generator.

d) A 25W and 100W bulb are connected in parallel to a.c mains. Which bulb will glow brighter and why?

e) A fuse wire rated 5A. What does it mean?

**Q.10** a) What do you understand by weightlessness?

b) How can you convert an ac generator to a dc motor?

c) Why in the generating station there is step up transformer? What is the principle of a transformer?

d) What is eddy current? How the energy loss due to eddy current can be minimized?

e) State two cases when there is no refraction of light takes place.