Physics - ICS Part 2 Physics Chapter 19 Short Questions Preparation

Q1. What are black body radiations and how can you get a black body?

Ans 1: An objects that absorbs all radiations falling on it,at all wavelength is called a black body.
When a body is heated ,it emits radiation its emission is called black body.
Black body is solid that has hollow cavity within it and a small hole through which radiations can enter or escape.The inside is blackened with suit to make it as good an absorber and as a bad reflector as possible.

Q2. What are conclusion made from the pair production?

Ans 1: Pair production is the creation of an elementary particle and its antiparticle,Pair production offers refers specifically to a photon creating an electron positron pair near a nucleus but can more generally refer to any particle antiparticle pair creation.
Energy can be converted into mass according to $E=mc^2$

Q3. Will the bright light ejects more from metal surface than dimmer light of tha same colour?

Ans 1: Since intensity number of electrons.
and bright lightis more intensethan dimmer one.So bright light will ejects more electrons than dimmer light.

Q4. Why can red light be used in a photographic dark room when developing films,but a blue or white light can not?

Ans 1: As we known red light has longest wavelength in visible spectrum,therefore it has less energy than that of blue or white light.So red light is least scattered on account of its large wavelength.Hence photographic films and the materials concerned are less affected in the presence of red light than high energy blue of white light.

Q5. Write at least two justification for light to behave as wave and as a particle.

Ans 1: Interference and diffraction confirms wave nature of light while photoelectric effect and compton effect confirms particle nature of light.

Q6. Is it possible to create a single electron from energy?Explain

Ans 1: No it is not possible to create a single electron from energy.Creation of single electron will be against the law of conservation of charge and the law of conservation of momenteum.In pair production an electron positron pair is produces.

Q7. Can an object move with the speed of light?

Ans 1: As an object approaches the speed of light,its masses rises abruptly.If an object tries to travel 186,000 miles per

seconds,its mass become infinite and so does the energy required to move it, For this reasons ,no normal object can be travel as fast as or faster than the speed of light.

Q8. Does the dilation mean that time really passes more slowly in moving system or that it only seems to pass more slowly.Explain briefly.

Ans 1: According to dilation formula

$t=\sqrt{1-\frac{v^2}{c^2}}$"

This relation show that a clock moving with respect to an observe appears to move slow then it does when it is at rest with respecttohim.So the moving clocks just appears to run slowly to the observer at rest.Hence time dilation is an apparent change and it only seems to pass more slowly but not actually.

Q9. Which has the lower energy quanta,radio waves or x rays?Explain

Ans 1: Energy of quanta is given as E=hf-hc/lamda

Radio waves length has longer wavelength,Therefore radio waves has lower energy quanta.

Q10. A satellite is orbiting around earth.Is its frame of reference inertial or non-inertial ?Justify your answer.

Ans 1: The motion of the satellite is synchronized with the earth so it is in the same frame of reference in which earth lies.Hence the frame of reference will be inertial.
