Physics - ICS Part 2 Physics Chapter 21 Short Questions Preparation

Q1. Name the basic forces of nature.

Ans 1: The basic forces of nature are

1. Gravitational force
2. Electromagnetic force
3. Weak nuclear force
4. Strong nuclear force

Q2. Why are heavy nuclei unstable?

Ans 1: Heavy nuclei are unstable because their binding energy per nucleon is less than lighter nuclei.So less energy is required to break heavy nuclei and they become unstable.

Q3. Describe the principle of operation of solid state detector?

Ans 1: A solid state detector is a specially designed p-n junction operating under a reversed bias in which electron-hole pairs are produced by the incident radiation to cause a current pulse to flow through the external circuit.

Q4. How alpha and beta may ionize an atom without directly hitting the electrons?

Ans 1: As alpha and beta are electrically charged particle,so they can cause ionization without hitting an atom either by,repellings the electron of target particle.

Q5. Discuss the advantage and disadvantage of nuclear power compare to the use of fossil fuel generated power.

Ans 1: Advantage and disadvantage of nuclear power are given below compared to the use of fossil generated power.
Advantage:

1. Much more energy is produced.
2. Produces no environmental pollution.
3. Electricity produced in this way is far cheaper than fossil fuel generated power.

Disadvantage :

1. Uranium mining is more dangerous than coal mining.
2. Nuclear waster is very injurous and harmful to living things.
3. Nuclear waste can not be transported through area of population whereas fossil fuel can be.

Q6. State two characteristics of beta particle.

Ans 1: They are negatively charged particle.

Their penetration power is high.

Q7. What is self-quenching in Geiger Muller Counter?

Ans 1: A small amount of gas is added into the GM counter is called self quenching or internal quenching,In GM counter the phenomena of quenching is to save the counter from spurious or false counts.

Q8. What factor make a Fusion reaction difficult to achieve?

Ans 1: A fusion reaction requires large energy and temperature ,up to million degrees centigrades,So a fusion reaction is difficult to achieve.

Q9. What information if revealed by the length and shape of track of an incident particle in Wilson Cloud Chamber?

Ans 1: In a wilson cloud chamber

1. Alpha particle have larger mass and greater ionizing power so its path is straight.
2. Beta particle have less mass and less ionizing power,so its path is thinner shorter and discontinuous.
3. Gamma particle have no mass and high penetrating power,so its leaves no definite track along its path,

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Q10. Differentiate between Baryons and Mesons.

Ans 1: Baryons:The particle equal in mass greater than protons are called baryons.It is made by 3 quarks.

Ans 2: Mesons: The particle which are lighter in mass than protons are called mesons,A pair of quark and an antiquark makes as meson.
