20.5 QUESTIONS FROM PAST PAPERS:

Year 2011:

Q.2(i) In How many ways γ– rays produce ionization of Atoms? Explain.

Ans. A γ – rays can produce ionization in following three ways.

(i) It may lose all its energy in a single encounter with the electron of an atom (Photoelectric effect)

(ii) If may lose only a part of its energy in an encounter (Compton's effect).

(iii) Very few of very high energy γ – ray photons may impinge (make impact) directly on heavy nuclei, be stopped and annihilated giving rise to electron – positron pairs (The materialization of energy).

Wilson Cloud Chamber:

Year 2012:

Q.2(vii) Explain why the photograph of the path of Alpha particle is thick and made up of continuous lines wherever that of Beta particles is thin and made up of broken lines in the Wilson Cloud Chamber.

Year 2013, 2010, 2008, 2006, 2003 (P.M, P.E) and 2001:

Q.5(a) Describe the principles construction and working of a Wilson Cloud Chamber.

OR

Give the construction and working of a Wilson Cloud Chamber with the diagram.

G.M Tube:

Year 2007, 2004, 2002 (P.E, P.M):

Q.8(b) Describe the construction and working of a Geiger Counter.

20.6 MULTIPLE CHOICE QUESTIONS OF PAPERS:

YEAR 2013:

(i) The rate of flow of blood is determined by:

* $\boxed{{}_{11}Na^{24}}$ * ${}_{6}C^{14}$ * Cobalt – 60 * ${}_{53}I^{131}$

YEAR 2012:

(i) This narrow beam from cobalt-60 is used in treating localized cancerous tumour.

* α–rays * β–rays * ***γ–rays*** * All of these

YEAR 2009:

(i) A Geiger-Muller counter contains:

* ***Argon and Alcohol*** * Alcohol only
* Ions * Super-cooled water vapours

YEAR 2006:

(i) In treating localized cancerous tumour, we use a narrow beam of:

* α-rays from cobalt 60 * β-rays from cobalt 60
* ***γ-rays from cobalt 60*** * Laser from cobalt 60

20.7 MULTIPLE CHOICE QUESTIONS (SELF PRACTICE):

Q.1. **In treating a localized cancerous tumour a narrow beam of:**
(a) α-rays from Cobalt 60 is used **(b)** Laser beam from Cobalt 60 is used
(c) Υ-rays from Cobalt 60 is used **(d)** β-rays from Cobalt 60 is used

Q.2. **A modern technique of tracing complexity of molecules is called:**
(a) Tracer technique **(b)** Radiology
(c) Molecular technique **(d)** Polymerisation

Q.3. **Ulceration, cataract of eye and Cancer are the examples of:**
(a) Viral disease **(b)** Bacterial disease
(c) Somatic disease **(d)** Genetic disease

Q.4. **Radio active elements used as tracer in medicine are:**
(a) ${}_1H^3$ ${}_{53}I^{131}$ and ${}_6C^{14}$ **(b)** ${}_6C^{12}$ and ${}_{53}I^{131}$
(c) ${}_6C^{14}$ and **(d)** ${}_{20}Ca^{42}$ and ${}_1H^3$

Q.5. **The technique by which the absorption of CO_2, the seat of Photosynthesis and the distribution of Plant food could be traced is called:**
(a) Radiation Therapy **(b)** Polymerization
(c) Auto-Radiography **(d)** Tracer technique

Q.6. **Cancer of the thyroid glands is treated by:**
(a) ${}_1H^3$ **(b)** ${}_6C^{14}$
(c) ${}_{53}I^{131}$ **(d)** ${}_6C^{19}$

Q.7. **The age of the specimen such as dead body, wood, bone or fossil, could be measured by C^{14} called:**
(a) Carbon detector **(b)** Radio analyzer
(c) Radio Carbon dating **(d)** Radio Carbon tracer

Q.8. **Study and discovery of radio isotopes is made easier by a device called:**
(a) G. M Counter **(b)** Cloud Chamber
(c) Spectrometer **(d)** Tachometer

Q.9. **Electric field generated in G.M. tube is due to:**
(a) Ionization of alcohol **(b)** All of these
(c) Low Vapor pressure of alcohol **(d)** Low boiling point of alcohol

Q.10. **Path of track of droplets of α-particles in cloud chamber is a:**
(a) Random streak **(b)** Indefinite streak
(c) Continuous streak **(d)** Discontinuous streak

Q.11. **In an alpha decay, mass number of parent nuclei:**
(a) Remains same **(b)** Changes by 2 units
(c) Decreases by 4 units **(d)** Increases by 4 units

Q.12. **In β^+ emissions from nucleus _____ are emitted:**
(a) Proton **(b)** Neutrino
(c) Positron **(d)** Electron

Q.13. **The rate of flow of blood is determined by: (2013)**
(a) ${}_{11}Na^{24}$ **(b)** ${}_6C^{14}$
(c) Cobalt – 60 **(d)** ${}_{53}I^{131}$

Q.14. **If a small quantity of radioactive iodine ${}_{53}I^{131}$ is taken in food, most of it is deposited in:**
(a) Thyroid glands **(b)** Blood
(c) Kidneys **(d)** Brain

Q.15. **On ionizing gases, alpha particles by capturing electrons, convert into:**
(a) Energy **(b)** None of the above
(c) Helium atom **(d)** Radioactive particle

KEY

(1) Υ-rays from Cobalt 60 is used	(2) Tracer technique
(3) Somatic disease	(4) ${}_{6}C^{14}$ and
(5) Auto-Radiography	(6) ${}_{53}I^{131}$
(7) Radio Carbon dating	(8) Tachometer
(9) Low Vapor pressure of alcohol	(10) Continuous streak
(11) Decreases by 4 units	(12) Positron
(13) ${}_{11}Na^{24}$	(14) Thyroid glands
(15) Helium atom	