**Matric no: 17/MHS06/054**

**Course: Medical physics assignment**

**RADOACTIVE TRACERS.**

A radioactive tracer is a chemical compound in which one or more atoms have been replaced by a radionuclide so by virtue of its radioactive decay it can be used to detect the mechanism of chemical reactions by tracing the path that the radioisotope follows from reactant to products. Radioactive tracer can also be called **Radio tracer or Radioactive label**. It is a form of isotopic labeling. A radioactive tracer can also be used to track the distribution of a substance within a natural system such as a cell or tissue or as a flow tracer to track fluid flow. Radioactive tracers can be used to determine the location of fractures created by hydraulic fracturing in natural gas production. Radioactive tracers from the basis of a variety of imaging systems such as PET scans and technetium scans radiocarbon dating uses the naturally occurring carbon- 14 isotope as an isotopic label.

**Application of radioactive tracers in medicine.**

In medicine, tracers are applied in a number of tests, such as 99mTC in autoradiography and nuclear medicine, including single proton and emission computed tomography, positron emission tomography, and scintigraphy. The urea breath test for Helicobacter pylori commonly used a dose of 14C labeled urea to detect h. pylori infection. If the labeled urea was metabolized by h. pylori in the stomach, the patient’s breath would contain labeled carbon dioxide. In recent years, the use of substances enriched in the non- radioactive isotope 13C has become the preferred method, avoiding patient exposure to radioactivity.