SHIKSHA CLASSES

Subject : Chemistry **Question Paper** **Total Marks :20**

Class : XI **13 : Nuclear Chemistry and Radioactivity** **Time : 1 Hour**

SECTION A

Q.1 : Choose the correct option : 4

i) The radioactive isotope used in the treatment of Leukemia is

a) $^{60}C_o$ b) ^{226}Ra

c) ^{32}P d) ^{131}I

ii) The process by which nuclei having low masses are united to form nuclei with large masses is

a) chemical reaction b) nuclear fission

c) nuclear fusion d) chain reaction

iii) The process during which there is no change in atomic number of parents nucleus .....

a) alpha emission b) beta emission

c) positron emission d) gamma emission

iv) The correct order of penetrating power is .....

a) $\gamma >> \beta > \alpha$ b) $\gamma = \beta = \alpha$

c) $\alpha > \beta > \gamma$ d) $\alpha = \beta > \gamma$

Q.2 : Answer the following : 2

i) What is nuclear chemistry?

ii) Define : mess defect

SECTION B

: Answer the following : (ANY 2) 4

Q.3 : What is nuclear potential. What are its consequences?

Q.3 : Define half life of radio element. Derive an expression for half life of radioelement?

Q.4 : Explain γ decay process in radioactivity.

SECTION C

: Answer the following : (ANY 2) 6

Q.5 : The half life of $^{20q}P_0$ is 102y. How much of 1 mg sample of polonium decays in 62y?

Q.6 : Derive an expression for decay constant for a radioactive element.

Q.7 : Derive an expression for nuclear binding energy.

SECTION D

: Answer the following : (ANY 1) 4

Q.8 : How are nuclides classified on the basis of number of neutrons and protons?

Q.9 : Define the following :

i) Radio activity

ii) Radioactive elements.

iii) Name the radioations emitted by radioactive elements.

iv) What is rate of radioactive decay?

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