

# TALEEMI DUNYA

## Test Syllabus: Unit # 10

St. Name		Test	PHYSICS	T. Marks	30	Time	60 Min
F.Name		Class	12 <sup>th</sup>	T. Code	U#10	T. Date	

NOTE: Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that Question with Marker or Pen ink. Cutting or filling two or more circles will result in zero mark in that question. **6x1=6.**

1	Which of the following is similar to electron?						
(a)	$\beta$ - particle	(b)	$\alpha$ - particle	(c)	Neutron	(d)	Proton
2	The force which is responsible for the breaking up of the radioactive element is:						
(a)	Weak nuclear force	(b)	Strongnuclear force	(c)	Electromagnegtic force	(d)	Gravitational force
3	Half life of Uranium-239 is:						
(a)	26.5 minutes	(b)	24.5 minutes	(c)	25.5 minutes	(d)	23.5 minutes
4	Relation for half life of any radioactive element is:						
(a)	$T_{\frac{1}{2}} = \lambda(0.693)$	(b)	$\lambda = T_{\frac{1}{2}}(0.693)$	(c)	$T_{\frac{1}{2}} = \frac{0.693}{\lambda}$	(d)	$T_{\frac{1}{2}} = \frac{\lambda}{(0.693)}$
5	$\alpha$ - particle carries a charge:						
(a)	-e	(b)	+2e	(c)	-2e	(d)	No charge
6	In the reaction $X + {}_8^{17}O \rightarrow {}_2^4He, X$ is:						
(a)	${}_1^1H$	(b)	${}_1^2H$	(c)	${}_1^0e$	(d)	${}_{-1}^0e$

[www.taleemidunya.com](http://www.taleemidunya.com)

### Q.2 Write short answers of the following questions.

(8x2=16)

1. What are the reasons of unstability of heavy nuclei?
2. In  ${}_{92}^{236}U$ , find (a) Atomic number (b) Charge Number (c) Number of Neutrons (d) Number of Electrons.
3. What is radioactive decay? Give an example.
4. Describe a brief account of interaction various types of radiations with matter.
5. Explain how  $\alpha$  and  $\beta$  particles may ionize an atom without directly hitting electrons. What is the difference in the atom of the two ionization?
6. What are the uses of nuclear reactor?
7. Explain the working of control rods in a nuclear reactor.
8. What are baryons and mesons? How they are formed?

### Q.2 Write long answers of the following questions.

(4+4=8)

- (a) Describe the principle construction and uses of G.M Counter for detecting nuclear radiations.
- (b) Radiation from a point source obeys inverse square law. If count rate at a distance of 1.0 m from Geiger counter is 360 counts per minute. What will be its count rate at 3.0 m from the source?