## One Two academy

## Std 12 Physics Unit -9

Time: 60 minutes		Maximum marks: 35
Choose the correct answer:-		5 x 1 = 5
1. A half-life period of a radioactive element A is the same as the mean lifetime of another		
radioactive element B. Initially both have the same number of atoms. Then		
(a) A and B have the same decay rate initially.	(c)A and B decay at t	he same rate always.
(b) B will decay at a faster rate than A.	(d) A will decay at a fa	aster rate than B.
2. The charge of cathode rays particles is (a) positive (b) negative (c) neutral		
3. In a hydrogen atom, the electron revolving in the fourth orbit, has angular momentum equal		
(a) $h$ (b) $\frac{h}{-}$	$(c) \frac{4h}{-}$	(d) $\frac{2h}{d}$
$\pi$	$\pi$	π
4. In the nuclear reaction $_{80}\text{Hg}^{198} + X \rightarrow _{79}\text{Au}^{198}$	$+ _{1}H^{1}$ , X-stands for	
(a) proton (b) electron	(c) neutron	(d) deutron
5. The ratio of the radii of the first three Bohr ort	Dit is, $(a) 1 \cdot 4 \cdot 0$	(1) 1 · 9 · 27
(a) $1 : 1/2 : 1/3$ (b) $1 : 2 : 3$	(c) 1 : 4 : 9	(d) $1:8:27$
Answer any three of the following questions:-		3 x 2 = 0
<ul> <li>Define the Impact parameter.</li> <li>What is the distance of closest approach?</li> </ul>		
2. Define: Curie		
8. Define: Curie. 9. Coloulate the radius of $197.4 \times$ the nucleus		
9. Calculate the fadius of $_{79}$ Au the indicidus.		
Answer any three of the following questions: $3 \times 3 = 9$		
10. Explain in detail about nuclear force.		
12. Explain $\alpha$ -decay process with an example.		
12. Explain the idea of carbon dating. 13. A radioactive sample has 2.6 $\mu$ g of pure <sup>13</sup> N which has a half life of 10 minutes. How many		
13. A radioactive sample has 2.0 $\mu$ g of pure 7 iv which has a han-life of 10 minutes. Now many		
nuclei are present initially? Also find its initial a	ctivity.	
Answer the following questions:		$3 \times 5 = 15$
14. What are callode rays. Write the properties of callode rays.		
• What is the helf life of the realizestice measure	<b>K</b>	
a. what is the half-life of the fadioactive nucleus?		
b. Explain the H Themson superiment to determine the succifie change of the electron		
OP		
Discuss the spectral series of hydrogen atoms		
16 Obtain the law of radioactivity		
0	IV.	

Explain in detail the four fundamental forces.