MCQs l	F.Sc. P	hysics
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	Chapte	Physics 12 er 21 – NUCLEAR PHYSICS	
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MCQs Related to t	he Article "21.1 ATOM	IIC NUCLEAUS"	
1. Neutron and p	broton are commonly l	known as	
(a) Nucleons	(b) Meson	(C) Boson	(d) Quartz
2. The mass of p. (a) $1.(75 \times 10^{-19})$	Foton is equal to: $1 - 27 h$	$(a) 0 1 \times 10^{-31} ha$	(d) Name of these
(a) $1.0/5 \times 10^{-1}$	$kg = (0) 1.073 \times 10^{-1} k$	$(g = (c) 9.1 \times 10^{-5} Kg$	(a) None of these
(a) 1 6606 x 10^{-27}	ass scale (1 μ) is equa ka	(b) 1 7606 x 10^{-27}	ka
(c) 1 8606 × 10^{-27}	kg ka	(d) None of these	
4 The number of	f neutrons in ²³⁸ 11 is:	(u) None of these	
(a) 92	(h) 238	(c) 146	(d) 330
5. The numbers	of protons in an atom	are always equal to the	e number of:
(a) Neutrons	(b) Electrons	(c) Positrons	(d) Mesons
6. Charge on neu	itron is		
(a) $1.6 \times 10^{-19} C$	(b) $-1.6 \times 10^{-19} C$	(c) No definite charg	ge (d) Zero
7. Mass of neutro	on is		
(a) $1.67 \times 10^{-13} k_s$	g (b) $1.67 \times 10^{-27} kg$	g (c) $9.1 \times 10^{-31} kg$	(d) $1.67 \times 10^{-19} kg$
8. The number o	of protons in any atom	are always equal to th	e number of:
(a) Electrons	(b) Neutrons	(c) Positrons	(d) Mesons
9. According to v	which one of following	law, the density of nu	cleus is uniform ?
(a) J.J. Thomson		(b) Rutherford's Mo	del
(c) Bohr's Model	-	(d) All of above laws	5
10. The number o	of neutrons in $\frac{7}{3}Li$ is:		
(a) 3	(b) 7	(c) 4	(d) 2
	MCQ # 1: (a) MCQ # 2: (MCO # 6: (d) MCO # 7: (b) MCQ # 3: (a) MCQ b) MCO # 8: (a) MCO	# 4: (c) MCQ # 5: (b) # 9: (a) MCO # 10: (c)
MCQs Related to t	he Article "21.2 ISOTO)PES"	
1 Nucloi boying	the came mass number	1 . 1100	1
1. Nuclei naving	the same mass number	er but different atomic	number are
(a) Isomers	(b) Isobars	(c) Isotones	(d) Isotopes
(a) Isomers2. Hydrogen is a	(b) Isobars Iso called:	(c) Isotones	(d) Isotopes
 (a) Isomers 2. Hydrogen is a (a) Deutrium 	(b) Isobars Iso called: (b) Tritium	(c) Protium	(d) Isotopes (d) All of these
 (a) Isomers 2. Hydrogen is a (a) Deutrium 3. A mass spectr 	(b) Isobars Iso called: (b) Tritium ograph sorts out	(c) Isotones (c) Protium	(d) Isotopes (d) All of these
 (a) Isomers 2. Hydrogen is a (a) Deutrium 3. A mass spectr (a) Molecules 	(b) Isobars Iso called: (b) Tritium ograph sorts out (b) Ions	(c) Protium (c) Elements	(d) Isotopes (d) All of these (d) Isotopes
 Nuclei naving (a) Isomers Hydrogen is a (a) Deutrium A mass spectr (a) Molecules Both xenon ar 	(b) Isobars Iso called: (b) Tritium ograph sorts out (b) Ions id cesium each have	(c) Isotones (c) Protium (c) Elements	(d) Isotopes (d) All of these (d) Isotopes
 (a) Isomers 2. Hydrogen is a (a) Deutrium 3. A mass spectr (a) Molecules 4. Both xenon ar (a) 24 isotopes 	(b) Isobars Iso called: (b) Tritium ograph sorts out (b) Ions nd cesium each have (b) 28 isotopes	 c) Isotones (c) Protium (c) Elements (c) 32 isotopes 	(d) Isotopes (d) All of these (d) Isotopes (d) 36 isotopes
 1. Nuclei having (a) Isomers 2. Hydrogen is a (a) Deutrium 3. A mass spectr (a) Molecules 4. Both xenon ar (a) 24 isotopes 5. Number of iso 	(b) Isobars Iso called: (b) Tritium ograph sorts out (b) Ions Id cesium each have (b) 28 isotopes Itopes of Neon gas are:	(c) Isotones (c) Protium (c) Elements (c) 32 isotopes	(d) Isotopes (d) All of these (d) Isotopes (d) 36 isotopes
 (a) Isomers 2. Hydrogen is a (a) Deutrium 3. A mass spectr (a) Molecules 4. Both xenon ar (a) 24 isotopes 5. Number of iso (a) 2 	(b) Isobars Iso called: (b) Tritium ograph sorts out (b) Ions nd cesium each have (b) 28 isotopes topes of Neon gas are: (b) 3	 c) Isotones (c) Protium (c) Elements (c) 32 isotopes (c) 4 	(d) Isotopes (d) All of these (d) Isotopes (d) 36 isotopes (d) 1
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radium due to

4. The value of 1 μ mass = ____

(a) 931 MeV	(b) 932 MeV	(c) 933	MeV	(d) 934 MeV	
	MCQ # 1: (b)	MCQ # 2: (d)	MCQ # 3: (b)	MCQ # 4: (a)	

MCOs Rola	ted to the Arti	cle "21 <i>4</i> RAI	λισαςτινιτν	·))			
1 Which	one of the fell	owing is simi	lar to cloctro	nci			
$\mathbf{I} \mathbf{W} = \mathbf{D} \mathbf{C} \mathbf{T}$		R _ particlas		narticlos	(d) Noutrin	2	
2 Which	ules (D)	p = particles	$(c) \gamma - particles (d) Neutrino$				
2. Wind	(h)	(b) Let d (c) Aluminum (d) Meter					
(a) wood	(U) A norticlo ic	Leau	(C) Alui	a thon its ma	(u) water		
5. When a p-particle is emitted out of any nucleus, then its mass number is:							
(a) increased (b) Remain same (c) Decrease (a) infinity							
4. $\gamma - EIIII$	ssion from the	characters of a	an atom caus	es:			A 0 77
(a) Change	in Z (b)	Change in A	(c) Chai	nge in both A		No change in A	A & Z
5. Marie C	urie and Pier	re Curie disc	overed two n	ew radioacti	ve elements v	which are:	
(a) Uranium	i & Radium		(b) Plat	inum and Rad	lium		
(c) Poloniur	n and Radium		(d) Cry	pton and Radi	um		
6. Which o	of the followin	ng have no ch	arge:				
(a) α – rays	(b)	β - rays	(c) γ - r	ays	(d) Cathode	rays	
7. The cha	rge on an alp	ha particle is	:				
(a) +2 <i>e</i>	(b)	-2e	(c) + <i>e</i>		(d) –2 <i>e</i>		
8. When a	lpha particle	is emitted ou	it of any nucl	eus, then due	to law of cor	servation of	matter, the
mass n	umber of the	nucleus is de	creases by:				
(a) 1	(b)	2	(c) 3		(d) 4		
9. The ele	ment formed	by radioactiv	ve decay is ca	lled:			
(a) Father e	lement (b)	Mother eleme	ent (c) Pare	ent element	(d) Daughte	r element	
10. Which o	of the followir	ng equation r	epresents β -	-decay?			
(a) $^{A}_{Z}X \rightarrow {}_{Z+}$	$A_{1}^{A}Y + {}_{-1}^{0}e$		(b) ^A ZX ·	$\rightarrow {}^{A-1}_{Z}Y + {}^{0}_{-1}e$			
(c) ${}^{A}_{Z}X \rightarrow {}^{A+}_{Z+}$	${}^{1}_{1}Y + {}^{0}_{-1}e$		(d) $\frac{A}{Z}X$	$A^{-1}_{Z+1}Y + {}^{0}_{-1}e$			
11. By emit	ting β – parti	cle and γ – pa	article simult	aneously, the	e nucleus cha	nges its char	ge by:
(a) Losses b	y1 (b)	Increases by	1 (c) Incr	eases by 2	(d) Remain	same	
12. Radioa	ctivity happen	ns due to disi	ntegration of				
(a) Nucleus	(b)	Mass	(c) Elec	trons	(d) Protons		
13. An α – J	particle conta	ins:					
(a) 1 protor	& 1 neutron		(b) 1 pr	oton & 2 neut	ron		
(c) 2 proton	& 1 neutron		(d) 2 pr	oton & 2 neut	ron		
MCQ # 1: (b)	MCQ # 2: (b)	MCQ # 3: (b)	MCQ # 4: (d)	MCQ # 5: (c)	MCQ # 6: (c)	MCQ # 7: (a)	MCQ # 8: (d)
MCQ # 9: (d)	MCQ # 10: (a)	MCQ # 11: (b)	MCQ # 12: (a)	MCQ # 13: (d)			
MCQs Relat	ed to the Arti	cle "21.5 HAL	F LIFE"				
1. The rate	e of decay of a	radioactive	substance:				
(a) Remains	s constant with	time	(b) Incr	eases with tin	ne		
(c) Decrease	es with time		(d) May	v increase or d	lecrease with t	time	
2. Half-life	e of the iodine	e-131 is 8 day	s and its wei	ght is 20 mg.	After 4 half-l	ives, the amo	ount left
undeca	yed will be:						
(a) 2.5 mg	(b)	1.25 mg	(c) 0.62	5 mg	(d) 0.3112 r	ng	
3. The rec	iprocal of dec	ay constant ((λ) of a radio	active eleme	nt is:		

(a) Half-life	(b) Mean Life	(c) Total life	(d) Curie			
4. The half-life of	radon gas is:					
(a) 1620 years	(b) 4.5×10^9 years	(c) 3.8 days	(d) 23.5 minutes			
5. The half-life of	uranium-238 is:					
(a) 1620 years	(b) 4.5×10^9 years	(c) 3.8 days	(d) 23.5 minutes			
6. Half-life of Radium is 1590 years. In how many years shall the earth loss all his						
radioactiva da						

radioactive decay? (a) 1590×10^6 years (b) 1590×10^{12} years (c) 1590×10^{24} years (d) Never 7. The unit of decay constant λ is: (a) m (a) m (b) m^{-1} (c) s^{-1} (d) $m s^{-1}$

8. A sample	e contains N	radioactive n	uclei. After 4	half-lives, n	umber to nuc	lei decayed w	vill be:		
(a) $\frac{N}{16}$	(b)	15N 16	(c) $\frac{N}{8}$		(d) $\frac{7N}{8}$				
9. The half-life of a radioactive element depends upon:									
(a) Pressure	(b)	Temperature	(c) Amo	ount of Substa	nce (d) I	No external inf	luence		
10. After tw	o half-lives, t	he number o	f undecayed	nuclei of an e	lement are:				
(a) N	(b)	<u>N</u> 2	(c) $\frac{N}{4}$		$(d)\frac{3N}{4}$				
11. Radioac	tive material	s can be iden	tified by mea	suring their					
(a) Hardness	; (b)	Density	(c) Mas	S	(d) Half life				
12. If a radio	oactive isoto	pe of silver ha	ave a half-life	of about 7.5	days. After 1	15 days the re	emaining		
isotope	of its origina	l is							
(a) 25%	(b)	50%	(c) 7.5%	6	(d) 15%				
13. The rela	tion betweer	n the decay co	onstant λ and	half life T _{1/2}	is given by:				
(a) $T_{1/2} = \frac{0.6}{2}$. <u>93</u> (b)	$T_{1/2} = 1.43 \lambda$	(c) <i>T</i> _{1/2}	= 0.693λ	(d) $T_{1/2} = \frac{1}{2}$	43 λ			
14. Radioac	tive decay ob	eys which on	e of the follo	wing data?					
(a) $N = N_o \epsilon$	$e^{-\lambda t}$ (b)	$N = N_o e^{\lambda t}$	(c) $N =$	$N_0 e^{-\frac{\lambda t}{2}}$	(d) $N_o = N_o$	e ^{-λt}			
15. Hal- life	of radium-22	26 is:							
(a) 1820 yea	rs (b)	1920 years	(c) 162	0 years	(d) 1680 ye	ars			
MCQ # 1: (c)	MCQ # 2: (b)	MCQ # 3: (b)	MCQ # 4: (c)	MCQ # 5: (b)	MCQ # 6: (d)	MCQ # 7: (c)	MCQ # 8: (b)		
MCQ # 9: (d)	MCQ # 10: (c)	MCQ # 11: (d)	MCQ # 12: (a)	MCQ # 13: (a)	MCQ # 14: (a)	MCQ # 15: (c)			

MCQs Related to the Article "21.6 INTERACTION OF RADIATION WITH MATTER"

1. The mass of beta	a particles is equal to t	the mass of				
(a) Protons	(b) Electrons	(c) Neutrons	(d) Boron			
2. Which particle ha	as large range in air:					
(a) α –particles	(b) β –particles	(c) γ –rays	(d) Neutrons			
3. Speed of β –par	ticles is nearly equal t	0:				
(a) $1 \times 10^8 m s^{-1}$	(b) $1 \times 10^7 \ m \ s^{-1}$	(c) $3 \times 10^8 m s^{-1}$	(d) $1 \times 10^6 \ m \ s^{-1}$			
4. The charge on β	–particle is:	HOPE				
(a) + <i>e</i>	(b) − <i>e</i>	(c) +2 <i>e</i>	(d) $-2e$			
5. γ –rays emitted	from radioactive elem	ent have speed:				
(a) $1 \times 10^{18} m s^{-1}$	(b) $1 \times 10^7 m s^{-1}$	(c) $3 \times 10^8 m s^{-1}$	(d) $4 \times 10^{19} m s^{-1}$			
6. Cobalt—60 is the	e source for:					
(a) α –particles	(b) β –particles	(c) γ –rays	(d) Neutrons			
7. How many times	, the $lpha$ –particle is mo	ore massive than elect	rons?			
(a) 6332	(b) 7332	(c) 8332	(d) 9332			
8. Which one of the	following radiation p	ossesses maximum pe	enetrating power?			
(a) α – rays	(b) β - rays	(c) γ - rays	(d) All have equal penetrating power			
9. Which one of the	following possesses r	naximum velocity?				
(a) α - rays	(b) β - rays	(c) γ - rays	(d) All of the above have same speed			
10. During an encou	nter with an atom α - j	particle knocks out				
(a) Protons	(b) Electrons	(c) Neutrons	(d) Nothing			
11. β -particle ionize	es an atom					
(a) Through direct col	lision	(b) Through electrosta	atic attraction			
(c) Through electrosta	atic repulsion	(d) All of above	d) All of above			
12. The penetration	power of β - particle a	is compared to α -part	ticle is			
(a) 10 times more	(b) 100 times more	(c) 100 times less	(d) 10 times less			
13. A α - particle can	produce fluorescence	e in				
(a) ZnS		(b) Barium Palatino cy	vanide			
(c) Calcium tunzstate		(d) All of above				
14. Average distance	e covered by α - partic	le in air before its ioni	izing power ceases is called its			
(a) Trajectory	(b) Range	(c) Firing level	(d) Limit			
15. β -particles posse	ess greater penetratio	on power then that of a	a-particle due to its			
(a) Smaller ionization	power	(b) Energy is n	ot conserved			
(c) Neither greater no	r smaller ionization pov	wer (d) Same ioniz	ation power			

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16. Pair pro	duction can	take places of	nly with						
(a) X-rays	(b)	(b) γ - rays (c) UV-rays			(d) IR-rays				
17. The α - p	oarticle ioniz	es the particl	es in its way	and adopt th	e path which	is			
(a) Curved	(b)	(b) Straight (c) Zig–Zag			(d) None of these				
18. Neutron	interact wit	h materials c	ontaining hy	drogen atoms	s and knock o	out			
(a) Electron	(b)) Proton	(c) Pho	ton	(d) None of	these			
19. Neutron	produce ion	nization by kn	ocking out p	roton which i	is				
(a) Direct ion	nization (b)) Indirect ioniz	ation (c) Both	1	(d) None of	these			
20. γ - rays a	are absorbed	l by a sheet of	f						
(a) 1-5 mm c	of lead (b)) 1-10 cm of lea	ad (c) 5 -1	0 mm of lead	(d) None of	these			
21. Ultravio	let radiatior	i cause							
(a) Sum burr	n (b)) Blindness	(c) Skin	Cancer	(d) All of them				
22. Neutron	s are partici	ilarly more da	amaging to						
(a) Legs	(b)) Heart	(c) Eyes	5	(d) Brain				
23. Electron	is an antipa	rticle of:							
(a) Proton	(b)) Photon	(c) Posi	tron	(d) Deutron				
24. Which o	f the followi	ng has no cha	rge?						
(a) Alpha ray	vs (b)) Beta rays	(c) Gam	ima rays	(d) Cathode rays				
MCQ # 1: (b)	MCQ # 2: (c)	MCQ # 3: (a)	MCQ # 4: (b)	MCQ # 5: (c)	MCQ # 6: (c)	MCQ # 7: (b)	MCQ # 8: (c)		
MCQ # 9: (c)	MCQ # 10: (b)	MCQ # 11: (c)	MCQ # 12: (b)	MCQ # 13: (d)	MCQ # 14: (b)	MCQ # 15: (a)	MCQ # 16: (b)		
MCO # 17: (b)	MCO # 18: (b)	MCO # 19: (b)	MCO # 20: (b)	MCO # 21: (d)	MCO # 22: (c)	MCO # 23: (c)	MCO # 24: (c)		

MCQs Related to the Article "21.7 RADIATION DETECTORS"								
1. A detector that can count fast and operate at low voltage is:								
(a) G M coun	(a) G M counter (b) Solid State Detector (c) Wilson Cloud Chamber							
2. In Wilso	2. In Wilson cloud chamber, we use:							
(a) Alcohol v	apours (b)	Neon gas	(c) Brou	nine gas	(d) Water va	apours		
3. The α –	particles hav	e tracks		67				
(a) Thick	(b)	Straight	(c) Con	tinuous	(d) All a, b 8	2 C		
4. The β –	particles hav	e tracks	-10	PE				
(a) Thin	(b)	Discontinuou	s (c) Con	tinuous	(d) Both a &	b b		
5. The γ –	rays have		100	000				
(a) Thick tra	cks (b)	Thin tracks	(c) No c	lefinite tracks	(d) Continue	ous tracks		
6. β – parti	cles in Wilso	on cloud cham	iber have:					
(a) zigzag or	erratic path		(b) Cur	ved path				
(c) Circular I	Path		(d) Ellij	otical path				
7. A high p	otential diffe	erence of	is us	ed in G.M. co	unter.			
(a) 400 V	(b)	1000 V	(c) 500	0 V	(d) 4000 V			
8. Geiger c	ounter is sui	table for	_					
(a) Fast cour	nting		(b) Extr	emely fast cou	unting			
(c) Slow cour	nting		(d) All s	ituations				
9. A device	for produci	ng high veloci	ity nuclei is _					
(a) Cloud cha	amber		(b) Line	ear acceleratio	n			
(c) A mass sp	pectrograph		(d) Wils	son cloud				
10. The que	nching of gas	s by a quench	ing gas is cal	led				
(a) Quenchir	ıg (b)	Self quenchin	g (c) Ford	ed quenching	(d) None of	these		
11. The dea	d time of Gei	ger Muller co	unter is of th	e order of				
(a) Micro sec	cond (b)	Milli second	(c) Mor	e than millised	cond (d) I	None of these		
12. A device	which show	s the visible j	path of ionizi	ng particle is	called:			
(a) GM count	ter (b)	Solid Detecto	r (c) Scal	er	(d) Wilson (<u>Cloud Chambe</u>	r	
MCQ # 1: (b)	MCQ # 2: (a)	MCQ # 3: (d)	MCQ # 4: (d)	MCQ # 5: (c)	MCQ # 6: (a)	MCQ # 7: (a)	MCQ # 8: (c)	
MCQ # 9: (b)	MCQ # 10: (b)	MCQ # 11: (c)	MCQ # 12: (d)					
MCOs Dalat	ad to the Art	ala "24 0 MU		TONC"				
MUQS Kelat	eu to the Arti	101e 21.8 NU	LEAK KEAU	10105		•		
1. When N	itrogen is bo	mbard by alp	ha particles,	nitrogen nuc	leus changes	into:		
(a) Oxygen	(b)	Carbon	(c) Beri	um	(d) Helium			
2. Complet	e the reactio	$n \qquad _{Z} X^{A} \rightarrow$	$X_{Z+1} + \beta^{\circ} +$	$\dots + Q$				

(a) Neutrino (b) Antineutrino (c) α - particle (d) None

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3. A nuclide 86	<i>R</i> ²²⁰ decays to a new nu	clide by two $lpha$ -emissi	ons, the nuclide S is
(a) $_{84}S^{212}$	(b) $_{82}S^{212}$	(c) $_{80}S^{220}$	(d) None
4. An α - particl	le is emitted from ₈₈ Ra	²²⁶ , what is the mass ar	d atomic number of the daughter
(a) $A = 224 \& 7 =$	-84 (h) $4-220$ & $7-$	80 (c) $4 - 222 & 7 - 3$	(d) 4 - 226 & 7 - 87
$\begin{array}{c} (a) A = 224 \& 2 \\ \hline 5 & \text{Neutron was} \end{array}$	discovered hv	100 (C) A = 222 C Z = 0	$\int (u) A = 220 \& 2 = 07$
(a) Rutherford	(b) Chadwick	(c) Becquerel	(d) Curie
(u) Rutherioru	MCQ # 1: (a) MCQ # 2:	(a) MCQ # 3: (b) MCQ	# 4: (c) MCQ # 5: (b)
MCQs Related to	the Article "21.9 NUCI	EAR FISSION"	
1. The quantity	of ${}^{235}_{92}U$ in naturally of	curing urinium is:	
(a) 0.1 %	(b) 0.2 %	(c) 0.3 %	(d) 0.7 %
2. In fast reacto	or, ²³⁸ U nuleus abasort	os fast neutrons and is	ultimately transformed intoby
emitting β –	radiation:		
(a) $^{235}_{92}U$	(b) $^{239}_{94}Pu$	(c) $\frac{^{208}}{^{82}}Pb$	(d) $^{232}_{90}Th$
3. Nuclear fission	on chain reaction is co	ntrolled by using:	
(a) Steel rod	(b) Graphite rods	(c) Cadmium rod	Patinum rods
4. For chain rea	action to buildup, the s	ize of the radioactive t	arget should be
(a) Greater than t	he critical size	(b) Less than the cr	itical size (c) Equal to critical size
5. Energy libera	ated when one atom of	U-235 undergoes fissi	on reaction is
(a) 200 MeV	(b) 40 MeV	(c) 30 MeV	(d) 20 MeV
6. Tick the corr	ect statement		
(a) Moderator slo	w down the neutron	(b) Moderator brin	g the neutrons to rest
(c) Moderator abs	sorb the neutron	(d) Moderator refle	ct the neutron
7. Fission nucle	ear reaction leads to a	stability.	
(a) Lesser	(b) Greater	(c) Medium	(d) None
8. Plutonium ca	an be fissioned by		
(a) Slow neutron	(b) Fast neutron	(c) Very slow neutr	on (d) None of these
	14.1		
9. In liquid met	al fast breeder reactor	, the type of uranium u	used is
 9. In liquid met (a) 92U²³⁵ 10. If an a summer 	(b) 92U ²³⁸	the type of uranium u (c) 92U ²³⁴	(d) ₉₂ U ²³⁹
 9. In liquid met (a) 92U²³⁵ 10. If one or more the reaction 	cal fast breeder reactor (b) ₉₂ U ²³⁸ re of the neutrons emit	c, the type of uranium u (c) ₉₂ U ²³⁴ ted during fission can	(d) 92U ²³⁹ be used to build up further fission then
 9. In liquid met (a) 92U²³⁵ 10. If one or mor the reaction (a) Fission reaction 	cal fast breeder reactor (b) ₉₂ U ²³⁸ re of the neutrons emit is self-sustained and is	c, the type of uranium u (c) ₉₂ U ²³⁴ ted during fission can known as	(d) 92U ²³⁹ be used to build up further fission then
 9. In liquid met (a) 92U²³⁵ 10. If one or more the reaction (a) Fission reaction 	(b) 92U ²³⁸ re of the neutrons emit is self-sustained and is on (b) Fusion reaction	c, the type of uranium u (c) ₉₂ U ²³⁴ ted during fission can s known as n (c) Chain reaction	<pre>(d) 92U²³⁹ be used to build up further fission then (d) Chemical reaction</pre>
 9. In liquid met (a) 92U²³⁵ 10. If one or more the reaction (a) Fission reaction 11. The breakage 	cal fast breeder reactor (b) ${}_{92}U^{238}$ re of the neutrons emit is self-sustained and is on (b) Fusion reaction e of U^{235}_{92} produces the fra-	c, the type of uranium u (c) 92U ²³⁴ ted during fission can known as n (c) Chain reaction agments as	<pre>(d) 92U²³⁹ be used to build up further fission then (d) Chemical reaction</pre>
 9. In liquid met (a) 92U235 10. If one or more the reaction (a) Fission reaction (a) Kr and Ba 	cal fast breeder reactor (b) ${}_{92}U^{238}$ re of the neutrons emit is self-sustained and is on (b) Fusion reaction e of U^{235}_{92} produces the fra- (b) Sn and Mo	c, the type of uranium u (c) 92U ²³⁴ ted during fission can known as (c) Chain reaction agments as (c) Xe and Sr	<pre>(d) 92U²³⁹ be used to build up further fission then (d) Chemical reaction (d) All of them</pre>
 9. In liquid met (a) 92U²³⁵ 10. If one or more the reaction (a) Fission reaction (a) Kr and Ba 12. The fuel / f	cal fast breeder reactor (b) ${}_{92}U^{238}$ re of the neutrons emit is self-sustained and is on (b) Fusion reaction e of U^{235}_{92} produces the fra- (b) Sn and Mo els used in the reactor	c, the type of uranium u (c) 92U ²³⁴ ted during fission can known as (c) Chain reaction agments as (c) Xe and Sr are nowadays	<pre>used is (d) 92U²³⁹ be used to build up further fission then (d) Chemical reaction (d) All of them</pre>
 9. In liquid met (a) 92U235 10. If one or more the reaction (a) Fission reaction (a) Fission reaction (a) Kr and Ba 12. The fuel / fue (a) Plutonium - 2 	cal fast breeder reactor (b) ${}_{92}U^{238}$ re of the neutrons emit is self-sustained and is on (b) Fusion reaction e of U^{235}_{92} produces the fra- (b) Sn and Mo els used in the reactor 39 (b) Uranium – 233	c, the type of uranium u (c) 92U ²³⁴ ted during fission can known as (c) Chain reaction agments as (c) Xe and Sr are nowadays (c) Uranium – 235	 (d) 92U²³⁹ (e) 92U²³⁹ (f) Chemical reaction (f) All of them (f) All of these
 9. In liquid met (a) 92U²³⁵ 10. If one or more the reaction (a) Fission reaction (a) Kr and Ba 12. The fuel / fuel (a) Plutonium - 2 13. In nuclear reaction 	cal fast breeder reactor (b) ${}_{92}U^{238}$ re of the neutrons emit is self-sustained and is on (b) Fusion reaction (b) Fusion reaction ${}_{92}^{235}$ produces the fra- (b) Sn and Mo els used in the reactor 39 (b) Uranium – 233 eactor, Urinium is enrice	c) y ₂ U ²³⁴ ted during fission can known as n (c) Chain reaction agments as (c) Xe and Sr are nowadays (c) Uranium – 235 ched upto:	<pre>used is (d) 92U²³⁹ be used to build up further fission then (d) Chemical reaction (d) All of them (d) All of these</pre>
 9. In liquid met (a) 92U235 10. If one or more the reaction (a) Fission reaction (a) Kr and Ba 12. The fuel / fue (a) Plutonium - 2 13. In nuclear reaction (a) 1% to 2 % 	cal fast breeder reactor (b) ${}_{92}U^{238}$ re of the neutrons emit is self-sustained and is on (b) Fusion reaction e of U^{235}_{92} produces the fra- (b) Sn and Mo els used in the reactor 39 (b) Uranium – 233 eactor, Urinium is enrico (b) 1% to 3 %	c) Ye and Sr are nowadays (c) 2% to 3 %	 (d) 92U²³⁹ (e) 92U²³⁹ (f) Chemical reaction (f) All of them (g) All of these (h) 2% to 4 %
 9. In liquid met (a) 92U²³⁵ 10. If one or more the reaction (a) Fission reaction (a) Fission reaction (a) Kr and Ba 12. The fuel / fue (a) Plutonium - 2 13. In nuclear reaction (a) 1% to 2 % 	cal fast breeder reactor (b) ${}_{92}U^{238}$ re of the neutrons emit is self-sustained and is on (b) Fusion reaction (b) Fusion reaction ${}_{92}^{235}$ re of ${}_{92}^{235}$ produces the fra- (b) Sn and Mo els used in the reactor 39 (b) Uranium – 233 eactor, Urinium is enrice (b) 1% to 3 % # 2: (b) MCQ # 3: (c) # 10. (c) MCQ # 11. (d)	c, the type of uranium u (c) 92U ²³⁴ ted during fission can s known as n (c) Chain reaction agments as (c) Xe and Sr are nowadays (c) Uranium – 235 ched upto: (c) 2% to 3 % MCQ # 4: (a) MCQ # 5: (a)	ised is (d) 92U239 be used to build up further fission then (d) Chemical reaction (d) All of them (d) All of these (d) 2% to 4 % MCQ # 6: (a) MCQ # 7: (b) MCQ # 8: (b)
 9. In liquid met (a) 92U235 10. If one or more the reaction (a) Fission reaction (a) Fission reaction (a) Kr and Ba 12. The fuel / fue (a) Plutonium - 2 13. In nuclear reaction (a) 1% to 2 % 	cal fast breeder reactor (b) ${}_{92}U^{238}$ re of the neutrons emit is self-sustained and is on (b) Fusion reaction (b) Fusion reaction ${}_{92}^{235}$ produces the fra- (b) Sn and Mo els used in the reactor 39 (b) Uranium – 233 eactor, Urinium is enrice (b) 1% to 3 % # 2: (b) MCQ # 3: (c) # 10: (c) MCQ # 11: (d)	c) Ye and Sr are nowadays (c) 2% to 3% (c) 2% to 3% (c) 2% to 3% (c) 40 (c) 2% to 3% (c) 40 (c) 41 (c) 2% to 3% (c) 40 (c) 41 (c) 41 (c) 40 (c) 41 (c	ised is (d) 92U239 be used to build up further fission then (d) Chemical reaction (d) All of them (d) All of these (d) 2% to 4 % MCQ # 6: (a) MCQ # 7: (b) MCQ # 8: (b)
 9. In liquid met (a) 92U235 10. If one or more the reaction (a) Fission reaction (a) Fission reaction (a) Fission reaction (a) Kr and Ba 12. The fuel / fuel (a) Plutonium - 2 13. In nuclear reaction (a) 1% to 2 % MCQ # 1: (d) MCQ MCQ # 9: (b) MCQ	cal fast breeder reactor (b) ${}_{92}U^{238}$ re of the neutrons emit is self-sustained and is on (b) Fusion reaction (b) Fusion reaction ${}_{92}^{235}$ produces the fra- (b) Sn and Mo els used in the reactor 39 (b) Uranium – 233 eactor, Urinium is enrice (b) 1% to 3 % # 2: (b) MCQ # 3: (c) # 10: (c) MCQ # 11: (d) the Article "21.10 FUS	c, the type of uranium u (c) 92U ²³⁴ ted during fission can sknown as n (c) Chain reaction agments as (c) Xe and Sr are nowadays (c) Uranium – 235 ched upto: (c) 2% to 3 % MCQ # 4: (a) MCQ # 5: (a) MCQ # 12: (d) MCQ # 13: (d) ION REACTION"	ised is (d) 92U239 be used to build up further fission then (d) Chemical reaction (d) All of them (d) All of these (d) 2% to 4 % MCQ # 6: (a) MCQ # 7: (b) MCQ # 8: (b)
 9. In liquid met (a) 92U235 10. If one or more the reaction (a) Fission reaction (a) Fission reaction (a) Fission reaction (a) Kr and Ba 12. The fuel / fuel (a) Plutonium - 2 13. In nuclear reaction (a) 1% to 2 % MCQ # 1: (d) MCQ MCQ # 9: (b) MCQ MCQs Related to 1. The energy e	cal fast breeder reactor (b) ${}_{92}U^{238}$ re of the neutrons emit is self-sustained and is on (b) Fusion reaction (b) Fusion reaction e of U^{235}_{92} produces the fra- (b) Sn and Mo els used in the reactor 39 (b) Uranium – 233 eactor, Urinium is enrice (b) 1% to 3% # 2: (b) MCQ # 3: (c) # 10: (c) MCQ # 11: (d) the Article "21.10 FUS emitted from sun is due	c) Ye and Sr are nowadays (c) 2% to 3% (c) 2% to 3% (c) 2% to 3% (c) 2% to 3% (c) 4 (a) MCQ # 12: (d) MCQ # 13: (d) ION REACTION"	<pre>ised is (d) 92U²³⁹ be used to build up further fission then (d) Chemical reaction (d) All of them (d) All of these (d) 2% to 4 % MCQ # 6: (a) MCQ # 7: (b) MCQ # 8: (b) </pre>
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Antiproton (b) Positron (c) Gamma rays (d) Photon
Color television (while operating) emits:
α -rays (b) β -rays (c) γ -rays (d) X -rays
MCQ # 1: (d) MCQ # 2: (d) MCQ # 3: (b) MCQ # 4: (d)
COs Delated to the Article "21 12DIOLOCICAL EFEECTS OF DADIATION"
The SL unit for redioactivity is called
Curie (b) Becquerel (c) Bel (d) None of these
One joule of energy absorbed in a body per kilogram is equal to:
One rad (b) One rem (c) One grav (d) One sievert
One curie is equal to:
$3.70 \times 10^{-10} Bq$ (b) $3.70 \times 10^{10} Bq$ (c) $1 Bq$ (d) $10^3 Bq$
One gray (G_{v}) is equal to
$1 J^{-1} k g^{-1}$ (b) $1 J^{-1} k g^{-2}$ (c) $1 J k g^{-2}$ (d) $1 J k g^{-1}$
The average of background radiation to which we are exposed per year:
2 mSv (b) 1 mSv (c) 3 mSv (d) 0.01 Sv
Absorbed dose D is defined as:
) m/E (b) E/C (c) C/m (d) E/m
SI unit of absorbed dose is:
) Gray (b) Roentgen (c) Curie (d) Rem
The maximum safe limit weekly dose for persons working in a nuclear reactor is:
nSv (b) 2 mSv (c) 3 mSv (d) 4 mSv
I ne old and new units of absorbed dose are related by:
1 Gy = 10 rad (b) $1 Gy = 100 rad$ (c) $1 Gy = 1000 rad$ (d) $1 Gy = 10000 rad$
MCQ # 1: (b) MCQ # 2: (c) MCQ # 3: (b) MCQ # 4: (d) MCQ # 5: (a)
MCQ # 6: (d) $MCQ # 7: (a)$ $MCQ # 8: (a)$ $MCQ # 9: (b)$
CQs Related to the Article "21.13 BIOLOGICAL AND MEDICAL USES OF RADIATION"
The mass useful tracer isotone for the treatment of thursd gland is:
The mose useful tracer isotope for the treatment of thyroid giand is.
Cobalt-60 (b) Carbon-14 (c) Iodine-131 (d) Strontium-90
Cobalt-60 (b) Carbon-14 (c) Iodine-131 (d) Strontium-90 Circulation of blood can be studied by: (c) Colored and the studied by:
Cobalt-60(b) Carbon-14(c) Iodine-131(d) Strontium-90Circulation of blood can be studied by:) Sodium-24(b) strontium-90(c) Carbon-14(d) Iodine-131
Cobalt-60 (b) Carbon-14 (c) Iodine-131 (d) Strontium-90 Circulation of blood can be studied by: Sodium—24 (b) strontium—90 (c) Carbon—14 (d) Iodine—131 operties
Cobalt-60 (b) Carbon-14 (c) Iodine-131 (d) Strontium-90 Circulation of blood can be studied by: (d) Iodine-131 Sodium-24 (b) strontium-90 (c) Carbon-14 (d) Iodine-131 operties Strontium -90 is used as (c) w. particle source. (d) Neutrons source.
Cobalt-60 (b) Carbon-14 (c) Iodine-131 (d) Strontium-90 Circulation of blood can be studied by: (d) Iodine-131 Sodium-24 (b) strontium-90 (c) Carbon-14 (d) Iodine-131 operties Strontium -90 is used as (d) Neutrons source (b) β - particle source (c) γ - particle source (d) Neutrons source
The mose useful tracer isotope for the treatment of thyroid grand is.) Cobalt-60(b) Carbon-14(c) Iodine-131(d) Strontium-90(c) Carbon-14(d) Iodine-131Operties(d) Iodine-131Strontium -90 is used as(c) γ - particle source(d) Neutrons source(d) Strontium -90 is used as(c) γ - particle source(d) Neutrons source(f) β - particle source(c) γ - particle source(d) Neutrons source(f) β - rays(f) β - rays(f) γ - rays
The mose useful tracer isotope for the treatment of thyroid grand is.Cobalt-60(b) Carbon-14(c) Iodine-131Circulation of blood can be studied by:Sodium—24(b) strontium—90(c) Carbon—14(d) Iodine—131opertiesStrontium -90 is used as(b) β - particle source(c) γ - particle source(d) Neutrons sourceRadiations are used for the treatment of skin of a patient is(a - rays(b) β - rays(c) X - rays(d) γ - raysThe most useful tracer isotope in agriculture is:
The mose useful tracer isotope for the treatment of thyroid grand is.Cobalt-60(b) Carbon-14(c) Iodine-131Circulation of blood can be studied by:Sodium—24(b) strontium—90(c) Carbon—14(d) Iodine—131opertiesStrontium -90 is used as β - particle source(b) α - particle source(c) γ - particle source(d) Neutrons sourceRadiations are used for the treatment of skin of a patient is α - rays(b) β - rays(c) X - rays(d) γ - raysThe most useful tracer isotope in agriculture is:Cobalt 60(b) Strontium - 90(c) Carbon 14(d) Nickel - 63
The mose useful tracer isotope for the treatment of thyrotic grant is.) Cobalt-60(b) Carbon-14(c) Iodine-131(d) Strontium-90(c) Carbon-14(d) Iodine-131) Sodium-24(b) strontium-90(c) Carbon-14(d) Iodine-131operties $\mathbf{Strontium}$ -90 is used as(d) Neutrons source) β - particle source(b) α - particle source(c) γ - particle source(d) Neutrons source Radiations are used for the treatment of skin of a patient is) α - rays(b) β - rays(c) X - rays(d) γ - rays The most useful tracer isotope in agriculture is:) Cobalt 60(b) Strontium - 90(c) Carbon 14(d) Nickel - 63MCQ # 1: (c)MCQ # 2: (a)MCQ # 3: (a)MCQ # 4: (b)MCQ # 5: (c)
The mose useful tracer isotope for the treatment of thy fold galard is.) Cobalt-60(b) Carbon-14(c) Iodine-131(d) Strontium-90Circulation of blood can be studied by:) Sodium—24(b) strontium—90(c) Carbon—14(d) Iodine—131opertiesStrontium -90 is used as) β - particle source (b) α - particle source (c) γ - particle source (d) Neutrons sourceRadiations are used for the treatment of skin of a patient is) α - rays(b) β - rays(c) X - rays(d) γ - raysThe most useful tracer isotope in agriculture is:) Cobalt 60(b) Strontium - 90(c) Carbon 14(d) Nickel - 63MCQ # 1: (c)MCQ # 2: (a)MCQ # 3: (a)MCQ # 4: (b)MCQ # 5: (c)
The mose useful tracer isotope for the treatment of thyrotic grant is.) Cobalt-60(b) Carbon-14(c) Iodine-131(d) Strontium-90(c) Carbon-14(d) Iodine-131) Sodium-24(b) strontium-90(c) Carbon-14(d) Iodine-131operties S S S Strontium -90 is used as A - particle source (b) A - particle source (c) γ - particle source (d) Neutrons sourceRadiations are used for the treatment of skin of a patient is $ A - rays$ (b) β - rays(c) $X - rays$ (d) γ - rays(b) β - rays(c) Carbon 14(d) Nickel - 63(Cobalt 60(b) Strontium - 90(c) Carbon 14(d) Nickel - 63(CQ # 1: (c) MCQ # 2: (a) MCQ # 3: (a) MCQ # 4: (b) MCQ # 5: (c)CQs Related to the Article "21.14 BASIC FORCES OF NATURE"
The mose disensitivater isotope for the freatment of thy fold grand is.) Cobalt-60(b) Carbon-14(c) Iodine-131(d) Strontium-90Circulation of blood can be studied by:) Sodium-24(b) strontium-90(c) Carbon-14(d) Iodine-131opertiesStrontium -90 is used as) β - particle source (b) α - particle source (c) γ - particle source (d) Neutrons sourceRadiations are used for the treatment of skin of a patient is) β - particle source (b) β - rays(c) X - rays(d) γ - rays) α - rays(b) β - rays(c) X - rays(d) γ - raysThe most useful tracer isotope in agriculture is:) Cobalt 60(b) Strontium - 90(c) Carbon 14(d) Nickel - 63(CQs Related to the Article "21.14 BASIC FORCES OF NATURE"MCQ # 5: (c)
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Incluine inset useful tracer isotope for the treatment of thyroth grand is.0 cobalt-60(b) Carbon-14(c) Iodine-131(d) Strontium-90Circulation of blood can be studied by:0 sodium—24(b) strontium—90(c) Carbon—140 pertiesStrontium -90 is used asStrontium -90 is used as(d) Neutrons source(d) a particle source(b) α - particle source(c) γ - particle source(d) Neutrons sourceRadiations are used for the treatment of skin of a patient is(a - rays(b) β - rays(c) X - rays(d) γ - raysThe most useful tracer isotope in agriculture is:0 cobalt 60(b) Strontium - 90(c) Carbon 14(d) Nickel - 63MCQ # 1: (c)MCQ # 2: (a)MCQ # 3: (a)MCQ # 4: (b)MCQ # 5: (c)Cys Related to the Article "21.14 BASIC FORCES OF NATURE"Dr. Abdus Salam unified electromagnetic force and(b) Weal Nuclear Force(d) Gravitational ForceMagnetic Force(d) Gravitational ForceStrong nuclear force
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The mose useful tracer isotope for the treatment of Hyrond grand is. (d) Strontium-90 Girculation of blood can be studied by: Sodium—24 (b) strontium—90 (c) Carbon—14 (d) Iodine—131 operties Strontium -90 is used as
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3. Types	of quarks a	ire:							
(a) 4		(b) 6 (c) 8				((d) 10		
4. Sub ato	Sub atomic particles are divided into								
(a) Photon		(b) Leptons	(c) Hao	drons	((d) All a,	b & c	
5. The building block of protons and neutrons are called									
(a) Ions		(b) Electrons	(c) Pos	sitrons	(d) Quar	ks	
6. The pa	rticles equ	al in mass or g	reater th	ian pr	otons are c	called	l:		
(a) Baryon	S	(b) Hadrons	(c) Fer	mions	((d) Meso	ns	
7. Electro	ons are:								
(a) Hadron	S	(b) Leptons	(c) Qua	arks	((d) Baryo	ons	
8. Which	of the follo	wing belong to	o "hadro	ns" gr	oup:				
(a) Proton		(b) Electron	(c) Mu	ons	((d) Neut	rinos	
9. Two do	own and on	ie up quark ma	ıke:						
(a) Proton		(b) High energ	y photon		(c) Positro	ns (d) Neut	ron	
10. Which	of the follo	wing is not ha	dron:						
(a) Muons		(b) Protons	(c) Neı	utrons	((d) Meso	ns	
11. Hadro	ns are the p	particle include	ed						
(a) Protons	5	(b) Neutrons	(c) Me	sons	((d) All of	these	
12. Lepton	's particles	s which experie	ence no s	strong	g nuclear fo	rce a	re		
(a) Electron	ns	(b) Muons	(c) Neı	utrinos	((d) All of	these	
13. The ch	arges on th	ie quarks are							
(a) One uni	t	(b) Half unit	(c) Fra	ction	((d) None	of these	
14. Meson	is made fro	om							
(a) A pair o	of quarks	(b) A pair of an	ti quarks		(c) A pair o	of qua	rks and	anti quarks	
15. Three	up quarks	combine to for	m a new	parti	cle, the cha	irge o	n this p	article is:	
(a) 1 e		(b) 2 e	(c) 3 e		((d) 4 e		
MCQ # 1: (c)	MCQ # 2: (a)	MCQ # 3: (b)	MCQ # 4: (d)	MCQ # 5: (d)	MCQ	# 6: (a)	MCQ # 7: (b)	MCQ # 8: (a)
MCQ # 9: (d)	MCQ # 10: (a)	MCQ # 11: (d)	MCQ # 12:	(d)	MCQ # 13: (c)	MCQ	# 14: (c)	MCQ # 15: (b)	
				1			.,	,	
			100	1					