SUBJECT : PHYSIO 1. Velo acco 2. The Ass 3. For velo with 4. For funo 5. For par 6. An who	cs TOPIC: ocity v of a eleration of the e instantaneo uming that particle m ocity as a fun- h velocity 2 m a particle mo ction of time. a particle mo ticle is v ₀ at x object movin ere v is the in	KINEMATICS WI particle ma he particle. us velocity of article was at noving along ction of posi n/s. oving along X Given that, a oving along X = 0, then find g with a spe- nstantaneous	oving alor oving alor of a particl t origin at t g + X-axis, tion? Given X-axis, acce at t = 0, x = X-axis, acce d speed as eed of 5m/ s speed. Th	ng X-axis le varies t = 0, find accelera n that, in eleration 0 and v = eleration a functio 's is deco he time	TIME: s varies as v with position x the relation be ation is given a nitially particle i is given as a = v = 2. n is given as a = v = on of x. elerated at a ra (in s) when its	DATE: $= \sqrt{(8x-5)} m/s.$ Find as $v = 2x + 7.$ tween x and t. s a = 6x + 5. Find the s at origin and moving v. Find the position as a $2v^2$. If the speed of the te given by $\frac{dv}{dt} = -\frac{1}{30}v^2,$ speed become $3m/s$ is					
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6. An whe	object movin ere v is the in	g with a spe nstantaneou	eed of 5m/ s speed. T	/s is deco he time	elerated at a ra (in s) when its	te given by $\frac{dv}{dt} = -\frac{1}{30}v^2$, speed become 3m/s is					
7. The is ti	e motion of a l ime in second	body in giver . If the body	n by the eq was at rest	uation $\frac{d}{d}$ t at $t = 0$ i	$\frac{v}{tt} = 6 - 3v$, where its terminal velo	e v is speed in m/s and <i>t</i> ocity (In m/s) is					
8. The velo	e acceleration ocity as a = - $\sqrt{1-1}$	\sqrt{v} . Find its in	le moving nitial speed	rectiline 1 (in m	early varies wit /s) if it stops aft	h the magnitude of its ter $t_0 = 4$ from starting.					
9. A pa pro whi	A particle is projected with velocity v_0 along X-axis. The deceleration of the particle is proportional to the square of the distance from the origin, i.e. $a = \alpha x^2$. The distance at which the particle stops is										
(a)	$\sqrt[3]{\frac{3v_0^2}{\alpha}}$	(b)	$\sqrt[3]{\frac{v_0^2}{2\alpha}}$	(c)	$\sqrt[3]{\frac{3v_0^2}{2\alpha}}$	(d) $\sqrt[3]{\frac{v_0^2}{\alpha}}$					
10. The acc	e velocity v eleration of tl	of a moving ne particle at	g particle t x = 5 unit	varies w will be	vith displaceme	ent as $x = \sqrt{v+1}$, the					
(a)	$\sqrt{6}$ Unit	(b)	24 Unit	(c)	240 Unit	(d) 25 Unit					
11. For x =	the motion o 0. then at what	f a particle, v at time t. x =	velocity v d 20?	lepends	on displacemen	t x as v = $\frac{20}{3x-2}$. If at t = 0,					
(a) 12. In t is gi	7s he one-dimer iven by x ² + 2	(b) isional motio x = t. Choose	14s on of a par the correc	(c) ticle, the ct statem	28s relation betwee ent.	(d) 35s en position x and time t					
(a)	The retardati	on of the par	rticle is $\frac{1}{4(x-x)}$	$\frac{1}{(+1)^3}$							
(b)	The accelerat	tion of the pa	article is $\frac{1}{(x+x)}$	+1) ³							
(c) '	The uniform	velocity of th	e particle i	is $\frac{1}{(x+1)^3}$							

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SUBJECT :	PHYSICS	TOPIC: KINEM	ATICS W	ITH CALCULUS		TIME:			DATE:				
13.	The velocity of a particle moving along positive X-axis varies as $v = \alpha \sqrt{x}$, where α is a constant. If particle is at $x = 0$ at $t = 0$, what will be the average velocity of particle during the time, it moves a distance s?												
14	$(a) \frac{1}{2} \sqrt{s}$	ites of a month	(D)	$\frac{-\pi}{\alpha}\sqrt{S}$		(C)	$\mathbf{u}_{\mathbf{v}}\mathbf{s}$	th a V	$(a) - \frac{\alpha}{\alpha}$				
14.	a velocity $\alpha \sqrt{x}$, whe was located (a) $v = \frac{\alpha^2}{2}$	re α is a pos ed at the poin $\frac{t}{2}$	itive c it x = 0 (b)	onstant. Assu , find the time $v = \alpha^2 t$	ming t e deper	hat at hat at idence (c)	the mo of velo $v = \frac{\alpha t}{c}$	ment t city.	t = 0, the particle (d) $v = \alpha t$				
15.	The dece	leration expe	erience	ed by a movi	ng mot	tor bo	2 at. aftei	r its er	ngine is cut off is				
	given by $\frac{dv}{dt} = -kv^3$, where k is constant. If v_0 is the magnitude of the velocity at cut-off, the magnitude of the velocity at a time t after the cut-off is												
	(a) $\frac{v_0}{2}$		(b)	V 0		(c)	v ₀ e ^{-k/t}		(d) $\frac{v_0}{\sqrt{2v_0^2kt+1}}$				
16.	If the velo be	ocity of a part	ticle is	given by v =	(180 -	16x) ^{1/}	² m/s, t	hen its	acceleration will				
	(a) 0.5 m/	/ S ²	(b) 8	m/s ²		(c) -8	m/s ²		(d) 4 m/s ²				
17.	The displ are positi	The displacement x of a particle varies with time t, $x = ae^{-\alpha t} + be^{\beta t}$, where a, b, α and β are positive constants. The velocity of the particle will											
	(a) go on decreasing with time(b) be independent of α and β (c) drop to zero when $\alpha = \beta$ (d) go on increasing with time												
18.	A point moves in a straight line with retardation d which depends on velocity of particle v as d = $C\sqrt{v}$, where C is a positive constant. If initial velocity of the particle is v_0 , then total distance travelled by the particle before stopping is												
	(a) $\frac{3}{3C} v_0^{1/2}$		(b)	$\frac{3}{3c}v_0^{3/2}$		(c)	$\frac{2}{c}v_0^{3/2}$		(d) $\frac{v_0}{c}$				
19.	A particle k(1-cosw particle?	e moves in th t), where k ar	e xy-p nd ω a	lane and its c re constants.	oordin What i	ates a s the n	re givei nagnitu	n by x de of a	= k sinωt and y = cceleration of the				
	(a) Zero	a) Zero (b)		kω		(c) kω²		(d) k²ω					
20.	The relat where x is	ion 3t = $\sqrt{3x}$ s in metre and	+ 6 d d t in s	escribes the o econd. The dis	displac splacei	ement nent, v	of a pa when ve	article locity i	in one direction, is zero, is				
	(a) 25 m		(b) 1 2	2 m		(c)	5 m		(d) zero				
21.	The posit the veloc	ion vector of ity vector an	a parti d acce	icle is given as eleration vect	s r = (t² or bec	- 4t + omes	6)î + (t ⁱ perpend	²) <i>ĵ</i> . The dicular	e time after which to each other is				
	(a) 1s		(b) 2:	S	(c)	1.5 s		(d) No	t possible				