TIIP	w.Padasalai.Net	asi District Common	ww Examinations	w.CBSEtips.in
	Common (Quarterly Examinatio	n - September 20	22
Standard - 11 2.7-09-22				
Time A	lowed: 3.00 Hours	PHYSICS	5 M	laximum Marks: 70
PART - I				
Answe	The velocity of a	antiolo Materia		15×1=15
1)	dimension of b is		tant t is given by	$v = at + bt^2$. The
2)	a) (L) Significant figure o	f 0.06900 is	c) LT ⁻²	d) LT-3
3)	If the length and ti and 3% respective gravity is a) 4%	ime period of an ose	cillating pendulum measurement of	d) 3 have errors of 1% acceleration due to
4)	If a particle execut	tes uniform arcular	c) 6% motion in the xy	d) 7% plane in clock wise
	a) +y direction	b) +z direction	in c) -z direction	d) -x direction
5)	If \bar{A} and \bar{B} are two	o vectors \bar{A} and \bar{B} :	such that $\vec{A} = \hat{i} + \hat{j}$	\hat{j} and $\vec{B} = \hat{i} - \hat{j}$. The
	angle between the	two vectors A and	d 🛱 is	Marshall and the
6)	a) 0°	b) 60°	c) 90°	d) 120°
	ground in time t. V	Vertically upwards Vhich V-t graph. Sh	with an velcoity ows the motion co	V. it comes back to prrectly?
	a)	b) V		d)
-				
/)	Force acting on the	e particle moving w	ith constant spee	d is
	a) always zero		b) need not be	zero
, 8)	The centifugal force appears to exist			
	a) only in inertial frames b) only in rotating frames			
-	c) in any accelerat	ed frames	d) both in inertial a	and non inertial frames
9)	What will be the sa	fe turn condition if t	the vehicle on a le	veled articular road
	mv ²	v ²	11 . Bar	what is the state of the
10)	a) $\frac{1}{r} \leq \mu \text{sing}$	rg	c) √µsrg≥v	d) all of the above
10)	whose height is 80 kinetic energies wil	and another of mas m. After a fall of 40 i Il be in the ratio of	s 2 kg are dropped m each towards ea	from a tall building arth, their respective
	a) √2:1	b) 1:√2	c) 2:1	d) 1:2
11)	LED lamps will glow			
12)	a) 1000 hrs 1 hp is	b) 6000 hrs	c) 50000 hrs	d) 600 hrs
. 13)	a) 764 w	b) 674 w	c) 746 w	d) 447 w
15)	halved, the angular	s with an angular momentum becom	momentum L. If es	its kinetic energy is
	a) L	b) L/2	c) 2L	d) 4/5
14)	A particle is moving	with a constant ve	elocity along a line	e parallel to positive
	x axis. The magnitude of its angular momentum with respect to the orig			
1834	a) zero		b) increasing wi	th x
	c) decreasing with	*	a) remaining co	nstant

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15) A cyclist while negotiating a circular path with speed 10 ms⁻¹ is found to bend an angle by 30° with vertical and if $g = 10 \text{ ms}^{-2}$ the radius of the circular path is a) 69.28 m b) 5.773 m c) 0.5773 m d) 17.32 m

PART - II

Answer any six questions. Q.No. 24 is compulsory.

- 16) Differentiate Accuracy and Precision.
- 17) Write down the kinematic equations for angular motion.
- 18) Define one Newton.
- 19) A football player kicks a 0.8 kg ball and imparts it a velocity 12 ms⁻¹. The contact between the foot and ball is one for one sixth of a second. Find the average kicking force.
- Define coefficient of restitution.
- 21) What is called conservative force?
- 22) State parallel axis thearom.
- 23) Give any two examples of torque in day-to-day life.
- 24) Water in a bucket tied with rope is whirled around in a vertical circle of radius 0.5 m calculate the mimimum velocity at the lowest point so that the water does not spill from it in the course of motion $(g = 10 \text{ ms}^{-2})$

PART-III

Answer any six questions. Q.No. 33 is compulsory.

6×3=18 25) Assuming that the frequency γ of a vibrating string may depend up on (i) Applied force (F) (ii) Length (ℓ)

(iii) mass per unit length (m) prove that $\gamma \alpha \frac{1}{\ell} \sqrt{\frac{F}{m}}$ using dimensional analysis.

- 26) Derive the expression for total acceleration in the non-uniform circular motion.
- 27) Write a short note on the scalar product between two vectors.
- 28) Show that impulse is the change of momentum.
- 29) Derive the relation between momentum and kinetic energy.
- 30) What is difference between sliding and slipping.
- 31) Explain the principle of homogenicity of dimensions what are its uses?
- 32) Derive an expression for potential energy near the surface of the earth. 33) Consider a circular road of radius 20 m banked at an angle of 15° with what speed a car has to move on the twin. So that it will have safe turn.

SIVAKUMBR. M. STAT-IV Matric HSS Vallam-627829

Answer the all questions:

- 5×5=25 34) What do you mean by probagation of errors? Explain the probagation of errors in addition and multiplication. (OR)
 - Derive the kinematic equations of motion for constant acceleration.
- 35) Briefly explain the origin of Friction. Show that in an inclined plane, angle of friction is equal to angle ropose. (OR)
 - Explain in detail in various types of errors,
- 36) Discuss rolling on inclined plane and arrive at the expression for the acceleration. (OR)
 - Arrive at an expression for elastic collision in one dimension.

37) Derive the equation of motion, range and maximum height reached by the particle thrown at an oblique angle with respect to the horizontal directions.

(OR) Derive the expression for moment of inertia of a rod about its center and perpendicular to the rod.

38) State and explain work energy principle mention any three examples for it.

(OR) Explain the need for banking of tracks.

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6×2=12