GROUP: FIRST		11 <sup>th</sup> CLASS – 1 <sup>st</sup> Annual 2024			MARKS:17		
		(	<b>OBJECTIVE</b>				
NOT	E: You have for	our choices for each	objective type q	uestion as A , B , (	C and D . The choice which		
		t fill that air	cla in trant of the	it anecium numbe	r. Use marker or pen to fill arks in that question.		
OUE	STION NO. 1	Cutting of mining two	L	9GK-1-24			
	The minimum veloc	ity necessary to put	a satellite into o	orbit is :			
1	(A) 7.1 Kms <sup>-1</sup>	(B) 7.9 Kms	1 (C)	7.4 Kms <sup>-1</sup>	(D) 8.7 Kms <sup>-1</sup>		
	Stoke's law holds fo	-					
		(B) Rectangula	r shape (C)	Spherical shape	(D) All shapes		
1	<ul><li>(A) Oblong shape</li><li>Product of time per</li></ul>						
	Common land	9.29	(D) 2	LTI			
	(A) Zero (B) 1 The value of 'r' for						
,			(D) 1.45	>\V/			
	(A) 1.67 (B) 1						
1 -	Laplace 's formula f		(c) $\sqrt{P/p}$	$)$ (D) $\gamma P/p$			
	(A) $\sqrt{\gamma P/p}$	(B) $\sqrt{E/p}$	(c) V1/P	(C) The	,		
6	The blue colour of s		(C) Coattoring	(D) Polarizat	tion		
	(A) Reflection	(B) Diffraction	(C) Scattering	(D) 1 Glariza			
7	Magnifying power of		1				
	(A) $f_e/f_o$ (B) $f_o$	$_{\rm o}/{\rm f_e}$ (C) ${\rm f_ef_o}$	$(D) \frac{1}{f_e f_o}$				
8	Heat is form of :			60.	ä		
0		) Momentum (G	Torque	(D) Energy			
9	Pascal is the unit of		() \V		Ŧ		
9		· ·	C) Tension	(D) Weight			
	(A) Force (B) SI unit of intensity				8		
10	7		Tole (D) Ca	andela			
			(2)				
11	1 giga is equal to	1012	$10^9$ (D) 1	018			
	(A) $10^3$ (B)	10 (C)	10 (5) -				
12	-	The state of the s	(D) j				
	(A) -1 (B) 0	ooth negative, the r		vill lie in a:	uadrant.		
13	(-)	. I had the	rd (D) Fou	ırth			
	(A) First (B) S	Second (6) Thi	f 10 ms <sup>-2</sup> has a v	relocity of 100 ms	<sup>-1</sup> . In what time its velocity		
14	will be doubled?	Offi acceleration o	1 10 1115	,			
		14 S (C) 10 S	(D) 16	S			
15	1	ject is quantitative					
13	(A) Momentum	(B) Inertia	(C) Energy	(D) Velocit	ty		
16		vhen angle betwee					
10	$(A) 0^{\circ} \qquad (B) 9$	$90^{\circ}$ (C) 180	o (D) 4	15 <sup>0</sup>			
			(-)				
17			rad (D) $\frac{\pi}{2}$	rad			
	(A) $\frac{\pi}{2}$ rad (B) $\pi$ rad (C) $2\pi$ rad (D) $\frac{\pi}{4}$ rad						
	C. C.	1 2027			APER CODE - 6475 )		
	15 (Obj) – 1 <sup>st</sup> Annual 2024 SEQUENCE – 3 (PAPER CODE – 6475)						

- <u> </u>		SECTION-I	<b>6</b>				
<b>AUES</b>	TIO						
i	Doe	s a dimensional analysis give any information of constant of proportionality that they expend					
	expr	ession? Explain.					
		the drawbacks to use the period of a pendulum as a time standard.  the uncertainty in the average value of these measurements 1.20 , 1.22 , 1.23 , 1.19  the uncertainty in the average value of these measurements 1.20 , 1.22 , 1.23 , 1.19					
iii iv		Latina Moon and Earth Where the travel little of light from Woon to Earth to 2					
v	16	e of the rectangular components of a vector is not zero. Can its magnitude be zero: Explain.	- 1				
	_	- to the plant its contor of gravity under the action of its weight:					
vii	If F₁	= 3 cm and $F_2$ = 6 cm. Let $\overline{F_1}$ is at angle 30° while $\overline{F_2}$ is lying at an angle of 120° w.1 to $\lambda$ -axis					
		timber than find their det Product	1				
viii	Mh	t is the difference hetween uniform and variable velocity. Give 3.1 unit of acceleration.					
ix		does a cricket player retrace his hands backward while catching?  what point or points in its path does a projectile have its minimum speed, its maximum speed?	ĺ				
X	At W	At what point or points in its path does a projectile have its illumination speed, where does this heat energy When a rocket re – enters the atmosphere, its nose cone becomes very hot. Where does this heat energy					
хi							
xii	Calc	ulate the work done in Kilo joules in lifting a mass of 10 Kg through a vertical height of 10 m.	6				
QUES	TIOI	NO. 3 Write short answers to any Light (b) of the following	1				
i		at are natural satellites and artificial satellites ?					
ii	Def	ne angular displacement and write its unit.  Is and a hoop start moving down from the top of an inclined plane at the same time. Which one will	be				
iii	mov	ving faster on reaching the bottom?					
iv	Cho	with $S = r\theta$	į				
v	Exp	lain the difference between laminar flow and turbulent flow.					
vi		lain what do you understand by the term viscosity? we realize an ideal simple pendulum?					
vii viii		The sale define and property and property and property and the defined and the delivery	2				
ix	Wh	at is the total distance travelled by an object moving SHW III a time equal to its period, it is amplitude to	4 ?				
x	Fyn	lain the terms node and anti-node.					
ХĬ	Wh	y does sound travel faster in solid than in gases ? at are stationary waves ? Explain.					
xii	wn	N NO. 4 Write short answers to any Six (6) of the following 1	.2				
	Ho	w would you distinguish between un-polarized and plane-polarized lights?					
i ii		to the line to the same date of interference tringer / EVNIAIN					
iii	F	dain for which colour of light, the tripge spacing in double six experiment will be maximum.					
iv	1A/h	www.id it he advantageous to use blue light with a compound inicroscope:					
V	Ho	w the power is lost in optical fibre through dispersion? Explain. a compound microscope magnification of objective and eyepiece are 5 and 50 respectively. What is the t	otal				
vi		- ifi-ation of microscope?					
vii		to the war of a gar in a car turn increase when it is driven injugit some distance;					
viii	Wh	nat happens to the temperature of the room, when an air conditioner is left furning on a table in the					
	mie	ddle of the room ? w process of Human metabolism can be explained, by the first law of thermodynamics.					
ix	НО	SECTION-II					
Note	: At	tempt any Three questions from this section 8 x 3 :					
Q.5.		What is vector product of two vectors? Why it is called cross product? Give its examples and	5				
			3				
	(B)	A truck weighing 2500 Kg and moving with velocity of 21 ms <sup>-1</sup> collides with a stationary car weighing 1000 Kg. The truck and the car move together after the impact. Calculate their common velocity.					
		1000 Kg. The truck and the car move together after the impact, calculate their common values of	5				
Q.6.	(A)	What is gravitational field? Show that gravitational field is a conservative field.	3				
	(B)	An organ Pipe has a length of 50 cm. Find the frequency of its fundamental note and the next harmonic					
		when it is open at both ends. (Speed of sound = 350 ms <sup>-1</sup> )	5				
Q.7.		What is moment of inertia. Discuss the moment of inertia of a rigid body.	3				
	(B)	A car of mass 1300 Kg is constructed using a frame supported by four springs. Each spring has a spring constant 20,000 Nm <sup>-1</sup> . If two people riding in the car have a combined mass of 160 Kg. Find the					
		frequency of vibration of the car, when it is driven over a pot hole in the road. Assume the weight is	1				
		frequency of vibration of the car, when it is diversover a pot note with the					
	/^\	evenly distributed.  State and explain Bernoulli's equation.	5				
Q.8.		A mechanical engineer develops an engine. Working between 327 °C and 27 °C and claims to have	3				
	(B)	an efficiency of 52 %.* Does he claim correctly ? Explain.	<u> </u>				
0.0	/A)	How does the magnification of an object is determined by using compound microscope?	5				
Q.9.		Sodium light $\lambda = 589$ nm is incident normally on grating having 3000 lines per centimeter. What is the	3				
	(B)	highest order of the spectrum obtained with this grating?	<u>L</u> .				
L							
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## OBJECTIVE You have four choices for each objective type question as A , B , C and D . The choice which you think is correct, fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. **QUESTION NO. 1** Open end of an organ pipe act as: (B) Antinode (C) Crest (D) Trough (A) Node The wavelength of X - rays is of the order of: (D) 10<sup>-10</sup> dm (A) 10<sup>-10</sup> mm (B) 10<sup>-10</sup> cm (C) $10^{-10}$ m Optical fibre is covered for the protection with: (D) Aluminum (C) Copper (A) Glass (B) Plastic jacket The value of triple point of water is: (D) 273.16 K<sup>-1</sup> (A) 273.16 °C (C) 273.16 K (B) 273.16 F When hot and cold water are mixed, the entropy: (C) Remains constant (D) Zero (A) Decreases (B) Increases Unit used for the factor $\sqrt{\frac{l}{a}}$ may be : (D) Radian (C) Kilogram (B) Second (A) Meter 7 Solid angle is: (C) Three dimensional (D) Four dimensional (B) Two dimensional (A) One dimensional If the magnitude of $\overline{A} \cdot \overline{B} = \frac{1}{2} AB$ then an angle between $\overline{A}$ and $\overline{B}$ is (A) 30° (B) 45° (C) 60° (D) 90° $\hat{i} \cdot (\hat{k} \times \hat{i})$ is equal to : (C) î (B) 1 Impulse has the same unit as that of: 10 (C) Mass (D) Momentum (B) Energy (A) Force 11 When an object moves with constant acceleration, the velocity – time graph is (D) Semi circle (C) Straight line (A) Parabola (B) Hyperbola 1 Kilowatt is the unit of : 12 (C) Energy (D) Weight (B) Work (A) Power The value of 'g' at the center of earth is: (B) 2 g (C) 3 g (A) infinite The expression for the angular momentum is: (C) $\overline{L} = \overline{r} \times \overline{p}$ (D) $\overline{L} = \overline{p} \times \overline{r}$ . (B) $\overline{L} = -\overline{p} \cdot \overline{r}$ (A) $\overline{L} = \overline{p} \cdot \overline{r}$ The diastolic pressure of a normal healthy person in torr is: (D) 95 - 100 (C) 90 - 95 (B) 75 - 80 (A) 70 - 75 16 If time period of a simple pendulum is double, its length will be

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(B) 1.67

The value of 'r' for diatomic gas is:

(A) Eight times

(A) 1.4

17

(B) Four times

(C) 1.29

(D) 1.73

(C) Three times

( PAPER CODE - 6478 )

(D) Two times

i The length of a floor the \$ U.52 and white is blead and \$ 0.75 or the state of th	0115	STION NO. 2 Write short answers to any Eight (8) of the following DGK-2-24	16					
What is the difference between random error and systematic error?	QUE	STION NO. 2 Write short answers to any Light (b) of the following 50,75						
<ul> <li>III Why do we find it useful to have two units for the amount of substance, the Kilogram and the mole? White the dimensions of (i) Pressure (ii) Density with force P of magnitude 10 N makes an angle of 30° with y − axis then find its x − component.</li> <li>IV What does</li></ul>	1	The length of a floor tile is 0.233 fit while its breadth is 0.176 fit. This its died in significance hot work random error and systematic error?						
<ul> <li>iv Write the dimensions of (i) Pressure (ii) Density if force for magnitude 10 N makes an angle of 30° with y – axis then find its x – component.</li> <li>ivi What does</li></ul>	1	What is the difference between random error tind systematic arrows the Kilogram and the mole?						
What does 2		Write the dimensions of (i) Pressure (ii) Density						
What does		While the difference of $\frac{1}{2}$ of magnitude 10 N makes an angle of $\frac{30}{2}$ with $v - axis$ then find its $x - component$ .						
will ta squash ball comes back to its starting point after bouncing several times, then what would be its average velocity?  What is velocity time graph?  Define impulse and show how it is related to linear momentum.  A 60 kg man runs up a long flight of stairs in 40 sec. The vertical height of the stairs is 4.5 m. Calculate his power output in watts.  What sort of energy is in the following (a) Compressed spring (b) A moving car  QUESTION NO. 3 Write short answers to any Eight (8) of the following 16  Escribe what should be the minimum velocity, for a satellite to orbit close to the Earth around it. Show that orbital angular momentum to = mvr  Show that how many minimum number of geostationary satellites are required for global coverage of T.V. transmission.  Volta person is standing near a fast moving train. Is there any danger that he will fail towards it?  Why are dimensions of AV, where 'A' is area and 'V' is velocity.  Volta are dimensions of AV, where 'A' is area and 'V' is velocity.  Why are we not realize an ideal simple pendulum?  Why does sound travel faster in solids than in gases?  Why does sound travel faster in solids than in gases?  Why does sound travel faster in solids than in gases?  Why does sound travel faster in solids than in gases?  Why does sound travel faster in solids than in gases?  Why does sound travel faster in solids than in gases?  Why difference between "Spherical wave front" and "plane wavefront"?  What is the difference between "Spherical wave front" and "plane wavefront"?  What is the difference between "Spherical wave front" and "plane wavefront"?  What is the difference between "Spherical wave front" and "plane wavefront"?  What was the conditions to observe the interference of light waves?  What will be the speed of light in water? (refractive index of water is 1.33)  One can buy a cheap microscope for use of children. The images seen in such a microscope have coloured edges. Why is this so?  Why does the pressure of a gas in a car tyre increase when it is driven through								
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What is velocity time graph?	viii	If a squash ball comes back to its starting point after bouncing several times, their what would be						
x		its average velocity?						
A60 kg man runs up a long flight of stairs in 40 sec. The vertical height or the stairs is 4.5 m. Calculate inspower output in watts.		What is velocity time graph?						
will What sort of energy is in the following		A 60 kg man runs up a long flight of stairs in 40 sec. The vertical height of the stairs is 4.5 m. Calculate his						
What sort of energy is in the following   (a) Compressed spring (b) A mowing car	XI	nower output in watts						
Describe what should be the minimum velocity, for a satellite to orbit close to the Earth around it.	xii	What sort of energy is in the following (a) Compressed spring (b) A moving car						
i Show that how many minimum velocity, for a satellite to orbit close to the Earth around it. i Show that how many minimum number of geostationary satellites are required for global coverage of T.V transmission. Orbital speed of a satellite is 7.9 Kms. **Calculate its period.** What are dimensions of AV , where 'A' is area and 'V' is velocity. A person is standing near a fast moving train. Is there any danger that he will fall towards it? Why can we not realize an ideal simple pendulum? Why can we not realize an ideal simple pendulum? Why does sound travel faster in solids than in gases? Why does sound travel faster in solids than in gases? How stationary waves are produced? Why can we not realize an ideal simple pendulum? An oil film spreading over a wet footpath shows colours, Explain how does it happen? What is the difference between 7 spherical wave front. ** and "Danawerfort. ** 7 What is the difference between 7 spherical wave front. ** and "Danawerfort. ** 7 What is the difference between 7 spherical wave front. ** and "Danawerfort. ** 7 What is the difference between ** Spherical wave front. ** and "Danawerfort. ** 7 What is the difference between ** Spherical wave front. ** and "Danawerfort. ** 7 What is the difference between ** Spherical wave front. ** and "Danawerfort. ** 7 What will be the speed of light in water ? (refractive index of water is 1.33) One can buy a cheap microscope for use of children. The images seen in such a microscope have coloured edges. Why is this so? Why the entropy of the system increases due to friction? Why does the pressure of a gas in a car tyre increase when it is driven through some distance? The oceans and our atmosphere contain large amount of heat energy but we cannot convert this energy into useful work. Why?  SECTION-II  Note: Attempt any Three questions from this section  S X 3 = 24  O,5.(A) Explain the addition of vector by rectangular components. Also write the main steps for addition.  S A car of mass 800 kg at 54 km h <sup>-1</sup> is brought to rest in 60 m. Find the	OUE	TION NO. 3. Write short answers to any Eight (8) of the following	16					
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Why can we not realize an ideal simple pendulum?   will   Explain a relation between total energy, potential energy and kinetic energy of a body oscillating with SHM.	V	What are dimensions of AV where 'A' is area and 'V' is velocity.						
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Does frequency depend on amplitude for harmonic oscillator?	10000000	Why can we not realize an ideal simple pendulum ?	M.					
Why does sound travel faster in solids than in gases ?   How stationary waves are produced ?   How do bats navigate food ?   QUESTION NO. 4 Write short answers to any Six (6) of the following	1	Explain a relation between total energy, potential energy and knietic energy of the property depends on amplitude for harmonic oscillator?						
An oil film spreading over a wet footpath shows colours. Explain how does it happen?		Why does cound travel faster in solids than in gases?						
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