## PAPER CODE - 6472

## 11th CLASS - 12022

P	H	Y	SI	C	S	

**TIME: 20 MINUTES** 

GROUP: SECOND

OBJECTIVE

NOTE: 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 mark in that question.

$\mathbf{v}_{\mathbf{U}}$	NATION NO. 1 DGR-G 2-22
1	Which pair of physical quantity has the same dimension
	(A) Work and Power (B) Force and Torque (C) Momentum and Impulse (D) Torque and Power
2	The significant zero's in 0.04060 are
	(A) 4 (B) 3 (C) 6 (D) 2
3	$\hat{i} \cdot (\hat{j} \times \hat{k}) + \hat{j} \cdot (\hat{k} \times \hat{i}) =$
	(A) 1 (B) 2 (C) 0 (D) -1
4	If a force of 5 N is acting along x-axis, its component along x-axis is
	(A) 5 N (B) 0 N (C) 3 N (D) 4 N
5	The angle of projection for which max. height is equal to the horizontal range is
	(A) 45° (B) 67° (C) 76° (D) 56°
6	Rate of change of momentum of freely falling object is equal to
	(A) K.E (B) Momentum (C) Acceleration (D) Weight
7	When two protons are brought closer their?
	(A) P.E increases (B) K.E increases (C) P.E Decreases (D) K.E Decreases
8	A body of mass 10 kg is falling freely, its weight appears
	(A) 98 N (B) 0 N (C) 10 N (D) 9.8 N
9	Rotational K.E of disc is
	(A) $\frac{1}{2}$ mv <sup>2</sup> (B) $\frac{1}{4}$ IW <sup>2</sup> (C) $\frac{1}{4}$ mv <sup>2</sup> (D) $1/8$ mv <sup>2</sup>
10	
	(A) 9.8 N (B) 1 N (C) 98 N (D) 4.9 N
11.	
	(A) 10 cm (B) 5 cm (C) 15 cm (D) 20 cm
12	The distance between 1st node and 4th anti node is
	(A) $5 \lambda/4$ (B) $3 \lambda/4$ (C) $3 \lambda/2$ (D) $7 \lambda/4$
13	
	(A) Time period (B) Wave length (C) Amplitude (D) Frequency
14	In Michelson Interferometer, to shift bright to dark fringe, the mirror should be displaced by
	(A) $\lambda/4$ (B) $\lambda/2$ (C) $\lambda/3$ (D) $\lambda$
15	Light emitted from LED has wavelength
	(A) $1.3 \mu\text{m}$ (B) $1.2 \mu\text{m}$ (C) $1.4 \mu\text{m}$ (D) $1.5 \mu\text{m}$
16	For isothermal process
	(A) $\Delta U = 0$ (B) $Q = W$ (C) $PV = constant$ (D) All of these
17	For diatomic gas $Cv = 5/2 R$ then Cp will be
. '	(A) 3/2 R (B) 2/7 R (C) 7/2 R (D) 9/2 R

GROUP: SECOND  SUBJECTIVE SECTION-I  Why do we find it useful to have two units for the amount of a substance, the kilogram and the mole?  The period of a simple pendulum is measured by a stop watch. What type of errors are possible in the time How can the uncertainty be calculated in timing experiments?  Calculate how many seconds are there in one year?  Vi Differentiate between variable velocity and instantaneous velocity  vi A 1500 kg car has its velocity reduced from 20 ms <sup>-1</sup> to 15 ms <sup>-1</sup> . How large was the average retarding force vii Explain the circumstances in which velocity v and acceleration a of a car are  (a) antiparallel (b) perpendicular to e viii Prove that absolute temperature of an ideal gas is directly proportional to average translational kinetic ener of gas molecules  x Give at least two examples of an adiabatic process  xi Why does the pressure of a gas in a car tyre increase when it is driven through some distance?  xii Is it possible to convert internal energy into mechanical energy? Explain with an example  QUESTION NO. 3 Write short answers of any Eight (8) parts of the following  i Write the rules to find direction θ of the resultant in different quadrants  ii If one of the rectangular components of a vector is not zero, can its magnitude be zero? Explain	each other properties of the p
<ul> <li>i Why do we find it useful to have two units for the amount of a substance, the kilogram and the mole?</li> <li>ii The period of a simple pendulum is measured by a stop watch. What type of errors are possible in the time How can the uncertainty be calculated in timing experiments?</li> <li>iv Calculate how many seconds are there in one year?</li> <li>v Differentiate between variable velocity and instantaneous velocity</li> <li>vi A 1500 kg car has its velocity reduced from 20 ms<sup>-1</sup> to 15 ms<sup>-1</sup>. How large was the average retarding force explain the circumstances in which velocity v and acceleration a of a car are</li> <li>(a) antiparallel (b) perpendicular to explain the constant velocity is a special case of motion with constant acceleration. Is this statement true of gas molecules</li> <li>x Prove that absolute temperature of an ideal gas is directly proportional to average translational kinetic ener of gas molecules</li> <li>x Give at least two examples of an adiabatic process</li> <li>xi Why does the pressure of a gas in a car tyre increase when it is driven through some distance?</li> <li>xii Is it possible to convert internal energy into mechanical energy? Explain with an example</li> <li>QUESTION NO. 3 Write short answers of any Eight (8) parts of the following</li> <li>i Write the rules to find direction θ of the resultant in different quadrants</li> </ul>	e period
<ul> <li>ii</li></ul>	each other properties of the p
<ul> <li>iii How can the uncertainty be calculated in timing experiments?</li> <li>iv Calculate how many seconds are there in one year?</li> <li>v Differentiate between variable velocity and instantaneous velocity</li> <li>vi A 1500 kg car has its velocity reduced from 20 ms<sup>-1</sup> to 15 ms<sup>-1</sup>. How large was the average retarding force explain the circumstances in which velocity v and acceleration a of a car are <ul> <li>(a) antiparallel</li> <li>(b) perpendicular to explain the constant velocity is a special case of motion with constant acceleration. Is this statement true of gas molecules</li> <li>x Give at least two examples of an adiabatic process</li> <li>x Why does the pressure of a gas in a car tyre increase when it is driven through some distance?</li> <li>xii Is it possible to convert internal energy into mechanical energy? Explain with an example</li> </ul> </li> <li>QUESTION NO. 3 Write short answers of any Eight (8) parts of the following</li> <li>i Write the rules to find direction θ of the resultant in different quadrants</li> </ul>	each other properties of the p
<ul> <li>iv Calculate how many seconds are there in one year?</li> <li>v Differentiate between variable velocity and instantaneous velocity</li> <li>vi A 1500 kg car has its velocity reduced from 20 ms<sup>-1</sup> to 15 ms<sup>-1</sup>. How large was the average retarding force</li> <li>vii Explain the circumstances in which velocity v and acceleration a of a car are  (a) antiparallel (b) perpendicular to e</li> <li>viii Motion with constant velocity is a special case of motion with constant acceleration. Is this statement true of gas molecules</li> <li>x Give at least two examples of an adiabatic process</li> <li>xi Why does the pressure of a gas in a car tyre increase when it is driven through some distance?</li> <li>xii Is it possible to convert internal energy into mechanical energy? Explain with an example</li> <li>QUESTION NO. 3 Write short answers of any Eight (8) parts of the following</li> <li>i Write the rules to find direction θ of the resultant in different quadrants</li> </ul>	each other ? Disc
<ul> <li>v Differentiate between variable velocity and instantaneous velocity</li> <li>vi A 1500 kg car has its velocity reduced from 20 ms<sup>-1</sup> to 15 ms<sup>-1</sup>. How large was the average retarding force</li> <li>vii Explain the circumstances in which velocity v and acceleration a of a car are <ul> <li>(a) antiparallel</li> <li>(b) perpendicular to e</li> </ul> </li> <li>viii Motion with constant velocity is a special case of motion with constant acceleration. Is this statement true of gas molecules</li> <li>x Give at least two examples of an adiabatic process</li> <li>xi Why does the pressure of a gas in a car tyre increase when it is driven through some distance?</li> <li>xii Is it possible to convert internal energy into mechanical energy? Explain with an example</li> <li>QUESTION NO. 3 Write short answers of any Eight (8) parts of the following</li> <li>i Write the rules to find direction θ of the resultant in different quadrants</li> </ul>	each other ? Disc
<ul> <li>vi A 1500 kg car has its velocity reduced from 20 ms<sup>-1</sup> to 15 ms<sup>-1</sup>. How large was the average retarding force vii Explain the circumstances in which velocity v and acceleration a of a car are</li></ul>	each other ? Disc
<ul> <li>vii Explain the circumstances in which velocity v and acceleration a of a car are <ul> <li>(a) antiparallel</li> <li>(b) perpendicular to e</li> </ul> </li> <li>viii Motion with constant velocity is a special case of motion with constant acceleration. Is this statement true of a pass molecules</li> <li>x Give at least two examples of an adiabatic process</li> <li>xi Why does the pressure of a gas in a car tyre increase when it is driven through some distance?</li> <li>xii Is it possible to convert internal energy into mechanical energy? Explain with an example</li> <li>QUESTION NO. 3 Write short answers of any Eight (8) parts of the following</li> <li>i Write the rules to find direction θ of the resultant in different quadrants</li> </ul>	each other ? Disc
<ul> <li>(a) antiparallel (b) perpendicular to e</li> <li>viii Motion with constant velocity is a special case of motion with constant acceleration. Is this statement true in the prove that absolute temperature of an ideal gas is directly proportional to average translational kinetic energing of gas molecules</li> <li>x Give at least two examples of an adiabatic process</li> <li>xi Why does the pressure of a gas in a car tyre increase when it is driven through some distance?</li> <li>xii Is it possible to convert internal energy into mechanical energy? Explain with an example</li> <li>QUESTION NO. 3 Write short answers of any Eight (8) parts of the following</li> <li>i Write the rules to find direction θ of the resultant in different quadrants</li> </ul>	? Disc
<ul> <li>viii Motion with constant velocity is a special case of motion with constant acceleration. Is this statement true in the prove that absolute temperature of an ideal gas is directly proportional to average translational kinetic energing of gas molecules</li> <li>x Give at least two examples of an adiabatic process</li> <li>xii Is it possible to convert internal energy into mechanical energy? Explain with an example</li> <li>QUESTION NO. 3 Write short answers of any Eight (8) parts of the following</li> <li>i Write the rules to find direction θ of the resultant in different quadrants</li> </ul>	? Disc
ix Prove that absolute temperature of an ideal gas is directly proportional to average translational kinetic ener of gas molecules  x Give at least two examples of an adiabatic process  xi Why does the pressure of a gas in a car tyre increase when it is driven through some distance?  xii Is it possible to convert internal energy into mechanical energy? Explain with an example  QUESTION NO. 3 Write short answers of any Eight (8) parts of the following  i Write the rules to find direction θ of the resultant in different quadrants	ergy
of gas molecules  Give at least two examples of an adiabatic process  xi Why does the pressure of a gas in a car tyre increase when it is driven through some distance?  xii Is it possible to convert internal energy into mechanical energy? Explain with an example  QUESTION NO. 3 Write short answers of any Eight (8) parts of the following  i Write the rules to find direction θ of the resultant in different quadrants	1
x Give at least two examples of an adiabatic process xi Why does the pressure of a gas in a car tyre increase when it is driven through some distance? xii Is it possible to convert internal energy into mechanical energy? Explain with an example  QUESTION NO. 3 Write short answers of any Eight (8) parts of the following  i Write the rules to find direction θ of the resultant in different quadrants	
xi Why does the pressure of a gas in a car tyre increase when it is driven through some distance? xii Is it possible to convert internal energy into mechanical energy? Explain with an example  QUESTION NO. 3 Write short answers of any Eight (8) parts of the following  i Write the rules to find direction θ of the resultant in different quadrants	
xii Is it possible to convert internal energy into mechanical energy? Explain with an example  QUESTION NO. 3 Write short answers of any Eight (8) parts of the following  i Write the rules to find direction θ of the resultant in different quadrants	
QUESTION NO. 3 Write short answers of any Eight (8) parts of the following  i Write the rules to find direction θ of the resultant in different quadrants	
i Write the rules to find direction $\theta$ of the resultant in different quadrants	
ii If one of the rectangular components of a vector is not zero, can its magnitude be zero? Explain	
iii If all the components of the vectors $\overrightarrow{A_1}$ and $\overrightarrow{A_2}$ were reversed. How would this alter $\overrightarrow{A_1} \times \overrightarrow{A_2}$	
in all the components of the vectors $A_1$ and $A_2$ were reversed. Now would this after $A_1 \wedge A_2$	h:11
iv A disc without sliping rolls down a hill of height 10 m. If the disc starts from rest at the top of the	e mii.
What is its speed at the bottom?	
Why microwaves are preffered in communication satellites?	
vi An object has 1 j of potential energy. What does it mean? Explain	
vii What is orbital velocity? Explain how it is related to orbital radius?	
viii A force F acts through a distance L. The force is then increased to 3 F, and then acts through a fu	arther
distance 2 L. Draw the work diagram to scale	
when a rocket re-enters the atmosphere, its nose cone becomes very hot. Where does this energy	
when a rocket re-enters the atmosphere, its nose come becomes very not. Where does this energy	
come from ?	
Why Polaroid sunglasses are better than ordinary sunglasses?	
xi In Young's slits experiment, one of the slits is covered with blue filter and other with a red filter.	
What would be the pattern of light intensity on the screen?	•
xii Define fringe spacing and write its formula	•
QUESTION NO. 4 Write short answers of any Six (6) parts of the following	•
i Define the term viscosity. Give its units	
	1
ii Show that for horizontal mass spring system, elastic potential energy is given by $P.E = \frac{1}{2} kx^2$ .	
Show that for horizontal mass spring system, elastic potential energy is given by $P.E = \frac{1}{2} kx^2$ . where x is displacement	
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>iii Describe some common phenomena in which resonance plays an important role</li> </ul>	1
Show that for horizontal mass spring system, elastic potential energy is given by $P.E = \frac{1}{2} kx^2$ . where x is displacement	1
Show that for horizontal mass spring system, elastic potential energy is given by $P.E = \frac{1}{2} kx^2$ . where x is displacement  Describe some common phenomena in which resonance plays an important role  iv Given $x = 0.5 \sin \frac{\pi}{8} t$ , Find the amplitude and frequency of the mass performing simple harmonic	ic mot
<ul> <li>Show that for horizontal mass spring system, clastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic</li> <li>As a result of distant explosion, an observer senses a ground tremor and then hears the explosion.</li> </ul>	ic mot
<ul> <li>Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic</li> <li>As a result of distant explosion, an observer senses a ground tremor and then hears the explosion. the time difference.</li> </ul>	ic mot
<ul> <li>Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic</li> <li>As a result of distant explosion, an observer senses a ground tremor and then hears the explosion. the time difference.</li> <li>What features do longitudinal waves have common with transverse waves?</li> </ul>	ic mot
<ul> <li>Show that for horizontal mass spring system, clastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic that the difference.</li> <li>What features do longitudinal waves have common with transverse waves?</li> <li>What are the conditions on the path difference for constructive and destructive interference of two</li> </ul>	ic mot
<ul> <li>Show that for horizontal mass spring system, clastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic that the time difference.</li> <li>What features do longitudinal waves have common with transverse waves?</li> <li>What are the conditions on the path difference for constructive and destructive interference of two wiii</li> <li>What is the refractive index of the medium in which speed of light is 2.75×108 m/s?</li> </ul>	ic moti a. Expl
<ul> <li>Show that for horizontal mass spring system, clastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic that the difference.</li> <li>What features do longitudinal waves have common with transverse waves?</li> <li>What are the conditions on the path difference for constructive and destructive interference of two</li> </ul>	ic moti a. Expl
<ul> <li>Show that for horizontal mass spring system, clastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic that the time difference.</li> <li>What features do longitudinal waves have common with transverse waves?</li> <li>What are the conditions on the path difference for constructive and destructive interference of two what is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s?</li> <li>Explain the difference between angular magnification and resolving power of an optical instruments.</li> </ul>	ic motion. Explored wave
Show that for horizontal mass spring system, clastic potential energy is given by $P.E = \frac{1}{2} kx^2$ . where x is displacement  Describe some common phenomena in which resonance plays an important role  iv Given $x = 0.5 \sin \frac{\pi}{8} t$ , Find the amplitude and frequency of the mass performing simple harmonic  v As a result of distant explosion, an observer senses a ground tremor and then hears the explosion the time difference.  vi What features do longitudinal waves have common with transverse waves?  vii What are the conditions on the path difference for constructive and destructive interference of two what is the refractive index of the medium in which speed of light is $2.75 \times 10^8$ m/s?  Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II  Note: Attempt any Three questions from this section	ic moti a. Expl
Show that for horizontal mass spring system, clastic potential energy is given by $P.E = \frac{1}{2} kx^2$ . where x is displacement  Describe some common phenomena in which resonance plays an important role  Given $x = 0.5 \sin \frac{\pi}{8} t$ , Find the amplitude and frequency of the mass performing simple harmonic that imedifference.  Vi  What features do longitudinal waves have common with transverse waves?  What are the conditions on the path difference for constructive and destructive interference of two what is the refractive index of the medium in which speed of light is $2.75 \times 10^8$ m/s?  Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II  Note: Attempt any Three questions from this section	ic motion. Explored wave
Show that for horizontal mass spring system, elastic potential energy is given by $P.E = \frac{1}{2} kx^2$ . where x is displacement  Describe some common phenomena in which resonance plays an important role  Given $x = 0.5 \sin \frac{\pi}{8} t$ , Find the amplitude and frequency of the mass performing simple harmonic that the time difference.  What features do longitudinal waves have common with transverse waves?  What are the conditions on the path difference for constructive and destructive interference of two what is the refractive index of the medium in which speed of light is $2.75 \times 10^8$ m/s?  Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II  Attempt any Three questions from this section  8 x : 0.5 (A) Define work and give its's SI unit. How does it change with angle $\theta$ between force and displacement.	ic motion. Explored wave
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>iv Given x = 0.5 sin π/8 t , Find the amplitude and frequency of the mass performing simple harmonic the time difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>vii What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×108 m/s?</li> <li>Explain the difference between angular magnification and resolving power of an optical instruments.</li> <li>SECTION-II</li> <li>Attempt any Three questions from this section</li> <li>8 x 3 constructive and displacement.</li> <li>Define work and give its's SI unit. How does it change with angle θ between force and displacement.</li> </ul>	ic motion. Explored on wave and a = 24
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>iv Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic the time difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>vii What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s?</li> <li>Explain the difference between angular magnification and resolving power of an optical instruments.</li> <li>Note: Attempt any Three questions from this section</li> <li>8 x 2.05 (A) Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>(B) Find the angle between the two vectors A = 5î + ĵ and B = 2î + 4ĵ</li> </ul>	ic motion. Explored on wave and the sent to the sent t
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>iv Given x = 0.5 sin π/8 t , Find the amplitude and frequency of the mass performing simple harmonic the time difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>vii What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s?</li> <li>Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Attempt any Three questions from this section</li> <li>8 x x 2.05 (A) Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>(B) Find the angle between the two vectors A = 5î + ĵ and B = 2î + 4ĵ</li> <li>2.6 (A) What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space static</li> </ul>	ic motion. Explored o wave ent  3 = 24
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>iii Describe some common phenomena in which resonance plays an important role</li> <li>iv Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic that the difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>vii What are the conditions on the path difference for constructive and destructive interference of two what is the refractive index of the medium in which speed of light is 2.75×108 m/s? Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Note: Attempt any Three questions from this section</li> <li>8 x 2.05 (A) Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>(B) Find the angle between the two vectors A = 5î + ĵ and B = 2î + 4ĵ</li> <li>2.6 (A) What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space statito produce artificial gravity.</li> </ul>	ic motion. Explored on wave and the sent to the sent t
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>iv Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic that it is the result of distant explosion, an observer senses a ground tremor and then hears the explosion. The time difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>vii What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×108 m/s?</li> <li>Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Note: Attempt any Three questions from this section SECTION-II</li> <li>Attempt any Three questions from this section Sec</li></ul>	ic motion. Explored wave and $3 = 24$ $5$ $3$ $3 = 3$
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>iii Describe some common phenomena in which resonance plays an important role</li> <li>iv Given x = 0.5 sin π/8 t , Find the amplitude and frequency of the mass performing simple harmonic As a result of distant explosion, an observer senses a ground tremor and then hears the explosion the time difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>vii What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s? Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Note: Attempt any Three questions from this section 8 x in Discuss work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>(B) Find the angle between the two vectors A = 5î + ĵ and B = 2î + 4ĵ</li> <li>2.6 (A) What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space stati to produce artificial gravity.</li> <li>(B) A proton moving with speed of 1.0 × 10<sup>7</sup> m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 10<sup>6</sup> m/s. Assuming uniform deceleration, find retardation and time</li> </ul>	ic motion. Explored wave ent $3 = 24$ $5$ 3 tion 5
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>iv Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic</li> <li>v As a result of distant explosion, an observer senses a ground tremor and then hears the explosion. the time difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>wiii What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s? Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Note: Attempt any Three questions from this section</li> <li>(a) Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>(b) Find the angle between the two vectors A = 5î + ĵ and B = 2î + 4ĵ</li> <li>(c) (a) What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space station to produce artificial gravity.</li> <li>(b) A proton moving with speed of 1.0 × 10<sup>7</sup> m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 10<sup>6</sup> m/s. Assuming uniform deceleration, find retardation and time taken to pass through the paper.</li> </ul>	ic motion. Expl.  o wave  ent  5 3 tion 5
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement Describe some common phenomena in which resonance plays an important role Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic v As a result of distant explosion, an observer senses a ground tremor and then hears the explosion, the time difference.  vi What features do longitudinal waves have common with transverse waves? What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s? Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II Note: Attempt any Three questions from this section SECTION-II Section Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force (B) Find the angle between the two vectors A = 5î+ĵ and B = 2î+4ĵ</li> <li>(B) A proton moving with speed of 1.0 × 10<sup>7</sup> m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 10<sup>6</sup> m/s. Assuming uniform deceleration, find retardation and tim taken to pass through the paper.</li> <li>(A) State and explain Bernoulli's Equation</li> </ul>	ic motion. Explication 5 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>iv Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic</li> <li>v As a result of distant explosion, an observer senses a ground tremor and then hears the explosion. the time difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>vii What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s? Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Note: Attempt any Three questions from this section</li> <li>(a) Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>(b) Find the angle between the two vectors A = 5î + ĵ and B = 2î + 4ĵ</li> <li>(c) (a) What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space station to produce artificial gravity.</li> <li>(b) A proton moving with speed of 1.0 × 10<sup>7</sup> m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 10<sup>6</sup> m/s. Assuming uniform deceleration, find retardation and time taken to pass through the paper.</li> </ul>	ic motion. Explication 5 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic the time difference.</li> <li>vi As a result of distant explosion, an observer senses a ground tremor and then hears the explosion the time difference.</li> <li>What features do longitudinal waves have common with transverse waves?</li> <li>What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s?</li> <li>Explain the difference between angular magnification and resolving power of an optical instrument of the section (a) 5 (A) Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>(B) Find the angle between the two vectors A = 5î + ĵ and B = 2î + 4ĵ</li> <li>(C) (A) What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space station produce artificial gravity.</li> <li>(B) A proton moving with speed of 1.0 × 10<sup>7</sup> m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 10<sup>6</sup> m/s. Assuming uniform deceleration, find retardation and tim taken to pass through the paper.</li> <li>(C) (A) State and explain Bernoulli's Equation</li> <li>(B) The wavelength of the signals from a radio transmitter is 1500 m and the frequency is 200 KHz. What is to the signals from a radio transmitter is 1500 m and the frequency is 200 KHz. What is the signals from a radio transmitter is 1500 m and the frequency is 200 KHz.</li> </ul>	ic motion. Explication 5 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/8 t , Find the amplitude and frequency of the mass performing simple harmonic As a result of distant explosion, an observer senses a ground tremor and then hears the explosion the time difference.</li> <li>What features do longitudinal waves have common with transverse waves?</li> <li>What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×108 m/s?</li> <li>Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Attempt any Three questions from this section</li> <li>8 x in the procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space station to produce artificial gravity.</li> <li>(B) A proton moving with speed of 1.0 × 107 m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 106 m/s. Assuming uniform deceleration, find retardation and tim taken to pass through the paper.</li> <li>(2.7 (A) State and explain Bernoulli's Equation</li> <li>(B) The wavelength of the signals from a radio transmitter is 1500 m and the frequency is 200 KHz. What is the wavelength for a transmitter operating at 1000 KHz and with what speed the radio waves travel?</li> </ul>	ic motion. Explored wave $3 = 24$ stion  the
<ul> <li>Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic As a result of distant explosion, an observer senses a ground tremor and then hears the explosion, the time difference.</li> <li>What features do longitudinal waves have common with transverse waves?</li> <li>What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s?</li> <li>Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Attempt any Three questions from this section</li> <li>SECTION-II</li> <li>Attempt any Three questions from this section</li> <li>Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>B Find the angle between the two vectors A = 5î + ĵ and B = 2î + 4ĵ</li> <li>A What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space stati to produce artificial gravity.</li> <li>A proton moving with speed of 1.0 × 10<sup>7</sup> m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 10<sup>6</sup> m/s. Assuming uniform deceleration, find retardation and tim taken to pass through the paper.</li> <li>A State and explain Bernoulli's Equation</li> <li>The wavelength of the signals from a radio transmitter is 1500 m and the frequency is 200 KHz. What is the wavelength for a transmitter operating at 1000 KHz and with what speed the radio waves travel?</li> <li>Prove that total energy remains conserved in man spring system, Oscillating with SHM.</li> </ul>	ic motion. Explored on wave and $3 = 24$ sition  the
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement Describe some common phenomena in which resonance plays an important role iv Given x = 0.5 sin π/8 t, Find the amplitude and frequency of the mass performing simple harmonic As a result of distant explosion, an observer senses a ground tremor and then hears the explosion the time difference. What features do longitudinal waves have common with transverse waves? What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s? Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II Section Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force (B) Find the angle between the two vectors A = 5î + ĵ and B = 2î + 4ĵ</li> <li>2.6 (A) What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space station to produce artificial gravity.</li> <li>(B) A proton moving with speed of 1.0 × 10<sup>7</sup> m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 10<sup>6</sup> m/s. Assuming uniform deceleration, find retardation and tim taken to pass through the paper.</li> <li>2.7 (A) State and explain Bernoulli's Equation</li> <li>(B) The wavelength of the signals from a radio transmitter is 1500 m and the frequency is 200 KHz. What is twavelength for a transmitter operating at 1000 KHz and with what speed the radio waves travel?</li> <li>2.8 (A) Prove that total energy remains conserved in man spring system, Oscillating with SHM.</li> <li>(B) In a double slit experiment the second order maximum occur at θ = 0.25°. The wavelength is 650 nm.</li> </ul>	ic motion. Explored on wave and $3 = 24$ sition  the
<ul> <li>iii Show that for horizontal mass spring system. clastic potential energy is given by P.E = ½ kx². where x is displacement Describe some common phenomena in which resonance plays an important role Given x = 0.5 sin π/8 t , Find the amplitude and frequency of the mass performing simple harmonic As a result of distant explosion, an observer senses a ground tremor and then hears the explosion the time difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>What is the refractive index of the medium in which speed of light is 2.75×108 m/s? Explain the difference between angular magnification and resolving power of an optical instrumen SECTION-II</li> <li>Note: Attempt any Three questions from this section SECTION-II</li> <li>Note: Attempt any Three questions from this section Secti</li></ul>	ic motion. Expl.  o wave  ent  5 3  ion  5  the
<ul> <li>ii Show that for horizontal mass spring system, elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>iv Given x = 0.5 sin π/s t, Find the amplitude and frequency of the mass performing simple harmonic As a result of distant explosion, an observer senses a ground tremor and then hears the explosion the time difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>viii What is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s?</li> <li>ix Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Note: Attempt any Three questions from this section</li> <li>8 x : 0.5 (A) Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>(B) Find the angle between the two vectors A = 5t + f and B = 2t + 4f</li> <li>2.6 (A) What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space statito produce artificial gravity.</li> <li>(B) A proton moving with speed of 1.0 × 10<sup>7</sup> m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 10<sup>6</sup> m/s. Assuming uniform deceleration, find retardation and tim taken to pass through the paper.</li> <li>2.7 (A) State and explain Bernoulli's Equation</li> <li>(B) The wavelength of the signals from a radio transmitter is 1500 m and the frequency is 200 KHz. What is twavelength for a transmitter operating at 1000 KHz and with what speed the radio waves travel?</li> <li>2.8 (A) Prove that total energy remains conserved in man spring system, Oscillating with SHM.</li> <li>(B) In a double slit experiment the second order maximum occur at θ = 0.25°. The wavelength is 650 nm. Determine the slit separation</li> <li>2.9 (A) Define molar specific heat of a gas at constant pressure (C<sub>p</sub>) and at con</li></ul>	ic motion. Explored on wave and the state of
<ul> <li>Show that for horizontal mass spring system. elastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>Describe some common phenomena in which resonance plays an important role</li> <li>Given x = 0.5 sin π/6 t, Find the amplitude and frequency of the mass performing simple harmonic As a result of distant explosion, an observer senses a ground tremor and then hears the explosion. the time difference.</li> <li>wi</li> <li>What features do longitudinal waves have common with transverse waves?</li> <li>What are the conditions on the path difference for constructive and destructive interference of two What is the refractive index of the medium in which speed of light is 2.75×108 m/s?</li> <li>Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Note: Attempt any Three questions from this section</li> <li>Q.5 (A) Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>(B) Find the angle between the two vectors A = 5t + f and B = 2t + 4f</li> <li>Q.6 (A) What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space stati to produce artificial gravity.</li> <li>(B) A proton moving with speed of 1.0 × 10<sup>7</sup> m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 10<sup>6</sup> m/s. Assuming uniform deceleration, find retardation and tim taken to pass through the paper.</li> <li>Q.7 (A) State and explain Bernoulli's Equation</li> <li>(B) The wavelength of the signals from a radio transmitter is 1500 m and the frequency is 200 KHz. What is the wavelength for a transmitter operating at 1000 KHz and with what speed the radio waves travel?</li> <li>Q.8 (A) Prove that total energy remains conserved in man spring system, Oscillating with SHM.</li> <li>(B) In a double slit experiment the second order maximum occur at θ = 0.25°. The wavelength is 650 nm. Determine the slit separation</li></ul>	ic motion. Expl.  o wave  ent  5 3  ion  5  the
<ul> <li>ii Show that for horizontal mass spring system, clastic potential energy is given by P.E = ½ kx². where x is displacement</li> <li>iii Describe some common phenomena in which resonance plays an important role</li> <li>iv Given x = 0.5 sin π/s t, Find the amplitude and frequency of the mass performing simple harmonic As a result of distant explosion, an observer senses a ground tremor and then hears the explosion the time difference.</li> <li>vi What features do longitudinal waves have common with transverse waves?</li> <li>what is the refractive index of the medium in which speed of light is 2.75×10<sup>8</sup> m/s?</li> <li>Explain the difference between angular magnification and resolving power of an optical instrument SECTION-II</li> <li>Note: Attempt any Three questions from this section</li> <li>Q.5 (A) Define work and give its's SI unit. How does it change with angle θ between force and displacement. Discuss work done by variable force</li> <li>(B) Find the angle between the two vectors A = 5t + f and B = 2t + 4f</li> <li>Q.6 (A) What procedure you suggest to produce artificial gravity. Derive a relation for the frequency of space statito produce artificial gravity.</li> <li>(B) A proton moving with speed of 1.0 × 10<sup>7</sup> m/s passes through a 0.020 cm thick sheet of paper and emerges with a speed of 2.0 × 10<sup>6</sup> m/s. Assuming uniform deceleration, find retardation and tim taken to pass through the paper.</li> <li>Q.7 (A) State and explain Bernoulli's Equation</li> <li>(B) The wavelength of the signals from a radio transmitter is 1500 m and the frequency is 200 KHz. What is twavelength for a transmitter operating at 1000 KHz and with what speed the radio waves travel?</li> <li>Q.8 (A) Prove that total energy remains conserved in man spring system, Oscillating with SHM.</li> <li>(B) In a double slit experiment the second order maximum occur at θ = 0.25°. The wavelength is 650 nm. Determine the slit separation</li> <li>Q.9 (A) Define molar specific heat of a gas at constant pressure (C<sub>p</sub>) and at constant volu</li></ul>	ic motion. Explored on wave ent $3 = 24$ sition $5$ the

Note that the state of the stat