

Academic year 2024-2025 Quarter 2 Examination Physics G12

- 1. What term describes a change in the speed of an object in circular motion?
 - a. tangential speed

- c. centripetal acceleration
- b. tangential acceleration
- d. centripetal force

A child rides a bicycle in a circular path with a radius of 2.0 m. The tangential speed of the bicycle is 2.0 m/s. The combined mass of the bicycle and the child is 43 kg.

- 2. What kind of force provides the centripetal force on the bicycle?
 - a. gravitational force c. air resistance d. normal force
 - b. friction
- 3. Tides are caused by
 - a. differences in the gravitational force of the sun at different points on Earth.
 - b. differences in the gravitational force of the moon at different points on Earth.
 - c. differences in Earth's gravitational field strength at different points on Earth's surface.
 - d. fluctuations in the gravitational attraction between Earth and the moon.
- Why does an astronaut weigh less on the moon than on Earth? 4.
 - a. The astronaut has less mass on the moon.
 - b. The astronaut is farther from Earth's center when he or she is on the moon.
 - c. The gravitational field strength is less on the moon's surface than on Earth's surface.
 - d. The astronaut is continually in free fall because the moon orbits Earth.
- 5. An object's tendency to resist acceleration is measured by the object's
 - c. gravitational field strength. gravitational mass. a.
 - b. inertial mass. d. weight.
 - Which of the following confirms that gravitational mass and inertial mass are equivalent? 6.
 - a. Free-fall acceleration is the same throughout the universe.
 - b. Free-fall acceleration is the same at all points where the gravitational field strength is the same.
 - c. Newton's second law is valid throughout the universe.
 - d. An object's weight can change with location, but the object's mass remains constant.
 - 7. Which of the following equations expresses Newton's law of universal gravitation?

a.

$$F_{c} = \frac{mv_{t}^{2}}{r}$$
b.

$$F_{g} = \frac{m_{I}m_{2}}{r}$$
c.

$$g = G\frac{m_{g}}{r^{2}}$$
d.

$$F_{g} = G\frac{m_{I}m_{2}}{r^{2}}$$

- 8. A heavy bank-vault door is opened by the application of a force of 3.0×10^2 N directed perpendicular to the plane of the door at a distance of 0.80 m from the hinges. What is the torque?
 - a. 120 N•m c. 300 N•m
 - b. 240 N•m d. 360 N•m
- 9. What quantity measures the output force of a machine relative to the input force?
 - a. torque c. mechanical advantage
 - b. leverage d. efficiency

 10.	When a gas is poured out of one container into another container, which of the following does <i>not</i> occur?a. The gas flows into the new container.b. The gas changes shape to fit the new container.c. The gas spreads out to fill the new container.			
 11.	d. The gas keeps its original volume.Which of the following statements is true accorda. Pressure in a fluid is greatest at the walls ofb. Pressure in a fluid is greatest at the center of	ling the f the	g to Pascal's principle? container holding the fluid. e fluid.	
	c. Pressure in a fluid is the same throughout thed. Pressure in a fluid is greatest at the top of the	e fl e fl	luid. luid.	
 12.	Each of four tires on an automobile has an area of 0.026 m ⁴ in contact with the ground. The weight of the automobile is 2.6×10^{4} N. What is the pressure in the tires?			
	a. 3.1×10 ⁶ Pa b. 1.0×10 ⁶ Pa	c. d.	2.5 × 10 ⁵ Pa 6.2 × 10 ⁴ Pa	
 13.	A force of 230 N applied on a hydraulic lift raise exerted on a 7.0 m piston, what is the area of the	es a he I	an automobile weighing 6500 N. If the applied force is piston beneath the automobile?	
	a. $2.0 \times \frac{10}{2}$ m b. 4.0 m	d.	0.25 m 0.0050 m 5	
 14.	The gauge pressure for the air in a balloon equal 10° Pa, what is the absolute pressure of the air i a 0° Pa	ls 1 nsi c	.01 \times 10 Pa. If atmospheric pressure is equal to 1.01 \times de the balloon?	
	b. 5.05×10^4 Pa	d.	$\begin{array}{c} 1.01 \times 10_{5} \text{ Pa} \\ 2.02 \times 10 \text{ Pa} \end{array}$	
 15.	what does the net force between two levels in aa. the weight of the fluid above the top levelb. the weight of the fluid between the levelsc. the force applied to the fluid's surfaced. the force applied to the fluid's sides	flu	id equal?	
 16.	Which of the following properties is <i>not</i> character	eris	stic of an ideal fluid?	
	a. laminar flow b. turbulent flow	c. d.	incompressible	
 17.	Which of the following is <i>not</i> an example of lam a. a river moving slowly in a straight line	nina	ar flow?	
	b. smoke rising upward in a smooth column th	rou	ıgh air	
	c. water flowing evenly from a slightly openedd. smoke twisting as it moves upward from a fi	i fa ire	ucet	
 18.	As the temperature of a substance increases, its	vol	ume tends to increase due to	
	a. thermal equilibrium. b. thermal energy.	c. d.	thermal expansion. thermal contraction.	
 19.	A substance registers a temperature change from	n 20	0°C to 40°C. To what incremental temperature change does	
	this correspond?	C	36 K	
	b. 40 K	d.	313 K	
 20.	A calorimeter is used to determine the specific h water is known, what quantities must be measured	neat ed?	capacity of a test metal. If the specific heat capacity of	
	a. metal volume, water volume, initial and fina b metal mass water mass initial and final term	il te	emperatures of metal and water ratures of metal and water	
	c. metal mass, water mass, final temperature of metal and water			
d. metal mass, water mass, heat added to or removed from water and metal				

 21.	. A slice of bread contains about 4.19×10^5 J of energy. If the specific heat capacity of a person is		
	4.19×10^3 J/kg•°C, by how many degrees Cels	ius	would the temperature of a 70.0 kg person increase if all
	the energy in the bread were converted to heat?		
	a. 2.25°C	c.	1.43°C
	b. 1.86°C	d.	1.00°C
 22.	Which equation describes the net work done for	r a c	complete cycle of a heat engine?
	a. $W_{net} = Q - \Delta U$	c.	$W_{net} = Q_c - Q_k$
	b. $W_{net} = Q_k - Q_c$	d.	$W_{net} = P \Delta V$
 23.	The requirement that a heat engine must give u	p so	me energy at a lower temperature in order to do work
	corresponds to which law of thermodynamics?		
	a. first	c.	third
	b. second	d.	No law of thermodynamics applies.
 24.	An ideal heat engine has an efficiency of 50 per	rcen	t. Which of the following statements is <i>not</i> true?
	a. The amount of energy exhausted as heat eq	uals	the energy added to the engine as heat.
	b. The amount of work done is half the energy	y ad	ded to the engine as heat.
	c. The amount of energy exhausted as heat is		the energy added to the engine as neat.
25	d. The amount of energy exhausted as heat eq	uais	s the work done.
 25.	when a drop of ink mixes with water, what hap	open	is to the entropy of the system?
	a. The system's entropy increases, and the top b. The system's entropy decreases, and the top	ar ei Fol o	ntropy of the universe increases.
	c. The system's entropy decreases, and the tot	al e	ntropy of the universe decreases
	d. The system's entropy decreases, and the to	tal e	entropy of the universe decreases.
26	A mass attached to a spring vibrates back and f	orth	At the equilibrium position the
 20.	a. acceleration reaches a maximum.	C.	net force reaches a maximum.
	b. velocity reaches a maximum.	d.	velocity reaches zero.
27.	A mass-spring system can oscillate with simple	hai	monic motion because a compressed or stretched spring
 	has which kind of energy?		
	a. kinetic	c.	gravitational potential
	b. mechanical	d.	elastic potential
 28.	For a system in simple harmonic motion, which	ı of	the following is the number of cycles or vibrations per unit
	of time?		
	a. amplitude	c.	frequency
	b. period	d.	revolution
 29.	If a pendulum is adjusted so that its frequency of	char	ges from 10 Hz to 20 Hz, its period will change from n
	seconds to		
	a. $n/4$ seconds.	c.	2 <i>n</i> seconds.
	b. $n/2$ seconds.	d.	4 <i>n</i> seconds.
 30.	One end of a taut rope is fixed to a post. What t	ype	of wave is produced if the free end is quickly raised and
	lowered one time?		
	a. puise wave	C.	sine wave
21	Uther a machanical many's amplitude is reduced	u.	iolightudinal wave
 51.	when a mechanical wave's amplitude is reduce	a b	y name on the energy the wave carries in a given time interval
	a. doubled.	c.	decreased to one-half.
	b. increased by a factor of 1.4.	d.	decreased to one-fourth.

 32.	The superposition of mechanical waves can be observed in the movement of				
	a. bumper cars.	c.	electromagnetic radiation.		
	b. water waves in a ripple tank.	d.	violin bows in an orchestra.		
 33.	Waves arriving at a fixed boundary are				
	a. neither reflected nor inverted.	c.	reflected and inverted.		
	b. reflected but not inverted.	d.	inverted but not reflected.		
 34.	. Waves arriving at a free boundary are				
	a. neither reflected nor inverted.	c.	reflected and inverted.		
	b. reflected but not inverted.	d.	inverted but not reflected.		
35.	A student sends a pulse traveling on a taut rope with one end attached to a post. What will the student				
	observe?				
	a. The pulse will not be reflected if the rope i	s fre	e to slide up and down on the post.		
	b. The pulse will be reflected and inverted if	the r	ope is free to slide up and down on the		
	post.				
	c. The pulse will be reflected and inverted if	the r	ope is fixed to the post.		
	d. The pulse will not be inverted if the rope is	s fix	ed to the post.		
 36.	The highness or lowness of a sound is perceive	ed as			
	a. compression.	c.	ultrasound.		
	b. wavelength.	d.	pitch.		
 37.	Pitch depends on the of a sound wave.				
	a. frequency	c.	power		
	b. amplitude	d.	speed		
 38.	The point at which a ray crosses a wave front c	corre	sponds to a of a sound wave.		
	a. wavelength	c.	trough		
	b. compression	d.	source		
 39.	Which of the following decibel levels is nearest to the value that you would expect for a running vacuum				
	cleaner?				
	a. 10 dB	c.	70 dB		
	b. 30 dB	d.	120 dB		
 40.	When an air column vibrates in a pipe that is o	pen	at both ends,		
		0	only odd harmonics are present		
	a. all narmonics are present.	υ.	only oud narmonics are present.		

Physics High School



Student Name:	
Student Class:	