

Rana Abubakar Khan

If you want to learn computer programming then contact with me

truefriendlion@gmail.com

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PHY101 MID TERM PAPER SHARED BY STUDENT

PHY101- SPRING 2011 MID
mcqs was taff, and most of them was numarical type.
Following topics was in Questions
Angular Frequancy, Angular Speed, Angular Momentum?
Sound in Water, and Dopler Effects?
Rocket and uescape speed to flay in air?
Inertia is cause of?
Force or two rigid body's properties?
Momentum in a system?
Vector Multiplication? where one of them is negitive?
Sonar Waves v/s light waves to detect the object in air?
Pendulam? why it stop automatically after some time?

PHY101 MID TERM PAPER SHARED BY STUDENT

ON MAY 26, 2013 AT 4:18PM

AOA, My today's paper. 40% MCQs were from past papers. Subjective all new

1. .Flamingos have broad, webbed feet, how does it enhance its stability while standing on one leg?
2. Why a sealed bottle partially filled with a liquid can float on a basin of same liquid.?



3. A tip of tuning fork goes through 540complete vibrations in 0.800s. Find its angular frequency and period of motion.
4. (a) Why a pulse on string is considered to be transverse?

(b) If we shake one end of a taut rope three times each second, what would be the period of sinusoidal wave set up in the rope?

5. What is beat frequency when a 262-Hz tuning fork and 266-Hz tuning fork are sounded together? A 262-Hz and a 272-Hz fork?

6. was a numerical. To find out weight of astronaut.

PHY101 MID TERM PAPER SHARED BY STUDENT

ON NOVEMBER 26, 2011 AT 3:36PM

MCQS were from olD papers....
SUbjective..
bht lambe question thy ...
17 mcqz thy or 23 tak questions.. thy short
1 :period of wave find krna tha ...
2:number of revoultion find krna tha
3: Gravitational force find karni thi
4:Vrel find krna tha
5:last chapter men se tha question chapter no 21 page 60 pe statlite problem hai us men se aaya tha questions..
or mcqs mostly..past papers men se thy ... ye jo file men ne attach ki h iss men se ... half se ziada mcqs thy mcqz... men ziada numerical thy or.. units. momentum .. speed ... iss tra tmam values k .. units yad kar len.



PHY101 MID TERM PAPER SHARED BY STUDENT

ON DECEMBER 28, 2015 AT 12:48PM

Today My Phy101 Paper
Distinguish between linear momentum and angular momentum

Define Tangential stress, difference between tangential stress and shearing stress

A Machine part is undergoing SHM with a frequency of 5.00 Hz and amplitude 1.80 CM, how long does it take the part to go from x=0 to x=-1.80 cm

if the gravitational force on an object is directly proportional to its mass, why don't objects with large mass fall with greater acceleration the small ones.

con you write the basic reason of resonance, is these any rule of natural frequency in this phenomena or not ?

what is Fourier analyse, what is principle of superposition

PHY101 MID TERM PAPER SHARED BY STUDENT

Total questions = 27
Total mcq's = 22
Short Questions = 3 (3 marks)
how humanistic approach is different from psycho dynamic approach?
compare intimate and observation
how mr. sharif got deafness, he is working in a factory

Long questions = 2 (5 marks)
Name the 3 membranes that separates the brain and define what is CSF?
James bond is a famous personality, what should be the more characteristics in him which attract the people.



PHY101 MID TERM PAPER SHARED BY STUDENT

Question: 21 (Marks: 2)

If a train of freight cars, each 10m long, rolls by you at the rate of three cars each second, what is the speed of the train?

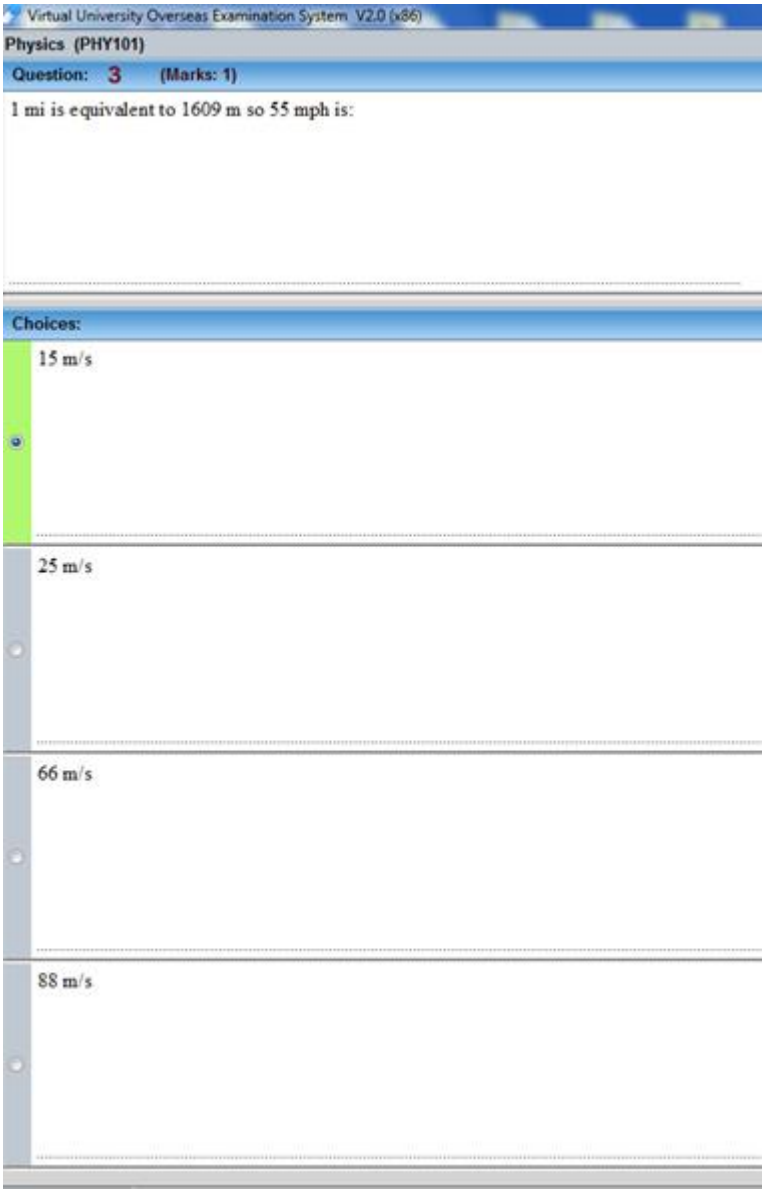






Define stress, is it a vector quantity?


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Virtual University Overseas Examination System V2.0 (x86)
Physics (PHY101)
Question: 3 (Marks: 1)
1 mi is equivalent to 1609 m so 55 mph is:
Choices:
15 m/s
25 m/s
66 m/s
88 m/s



Virtual University Overseas Examination System V2.0 (x86)

Physics (PHY101)

Question: 2 (Marks: 1)

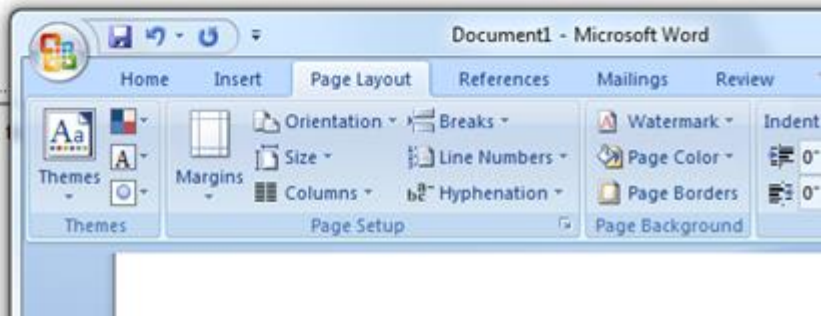
The fundamental physical quantities are

Choices:

mass, length, time, temperature, amount of a substance, current, and luminous intensity.

weight, length, time, temperature, amount of a substance, current, and luminous intensity.

mass, length,





Virtual University Overseas Examination System V2.0 (x86)

Physics (PHY101)

Question: 1 (Marks: 1) Attempte

Which of the following is a fundamental unit of the SI system of units?

Choices:

- kilogram
- gram
- kilometer
- joule



May 15,

2:00pm

Objective

A net torque applied to a rigid object always tends to produce:

Rotational equilibrium

Linear acceleration

Angular acceleration

Rotational inertia

In simple harmonic motion, the restoring force must be proportional to the:

Amplitude

Frequency

Velocity

Displacement

The unit of Stress can be written as:

Nm

Nm^2

Nm^{-2}

N/m

A mass of 1kg lift vertically through a distance of 1m by a boy. What is the work done of boy?

10J

1J

0.1J

What is the basic unit of SI system?

Gram

Kilogram

Pressure

Watt

MCQ's bs itne hi yaad hain,,,,,,

Subjective:



1. When a car drives off a cliff, why does it rotate forward as it falls?
2. A Mechanical wave can travel with or without medium? Explain
3. If a car is going around curve at constant speed, is it accelerating? If so, then in what direction?
4. A) Why is a pulse on a string considered to be transverse waves
   B) If you shake one end of a taut rope steadily three times each second, what is the period of sinusoid wave setup in the rope?
5. Steel will rapture if subjected to a shear stress of more that about 4.2 * 10^8 N/m2. What sideward force is necessary to shear a steel bolt 1 cm in diameter?

PHY101 QUIZ SOLVED SHARED BY STUDENT

Solved PHY101

An example of SOP expression is
A + B(C + D)
A'B + AC' + AB'C
(A' + B + C)(A + B' + C)
both (a) and (b)

2's complement of 5 is
1101
1011
0101
1100

How many data select lines are required for selecting eight inputs?
4
3
2
1

The boolean expression X = AB + CD represents
two ORs ANDed together
a 4-input AND gate
two ANDs ORed together
an exclusive-Or

which of the following rules states that if one input of an AND gate is always 1, the output is equal to the



other input?
A +1 =1
A +A =A
A.A = A
A.1 = A

Which one of the following is NOT a valid rule of Boolean algebra?
A + 1 = 1
A = A'
AA = A
A + 0 = A

The complement of a variable is always
0
1
equal to the variable
the inverse of the variable

The boolean expression (A +C)(AB' +AC)(A'C' + B')can be simplified to
AB'
AB + A'C
A'B + BC
AB + BC

The cell marked 6 in 4-variable K-Map represent minterm 6 or the maxterm 6 having the following binary value of variables A, B, C and D.
A=1, B=1, C=0, D=0
A=0, B=1, C=1, D=0
A=0, B=0, C=1, D=1
A=1, B=0, C=0, D=1

Adjacent 1s detector circuit will have active high output for the input
0101
1010
0011
0001



PHY101 MIDTERM PAPER (31-05-16)

PHY101 (Physics)

Created by "Bint Ë Hawa"



Total marks 40

Objective: 20 marks (20 Mcq's)

Subjective: 20 marks (6 Questions)

Tip: ***Don't forget to practice the numerical questions and memorize the units.***

ALL THE BEST!



Physics (PHY101)

Question: 1 (Marks: 1)

A horizontal shove of at least 200N is required to start moving a 800-N crate initially at rest on a horizontal floor. The coefficient of static friction is:

Choices:

- (●) 0.25
- ( ) 0.125
- ( ) 0.50
- ( ) 4.00



Physics (PHY101)

Question: 2 (Marks: 1)

A 50-N force is applied to a crate on a horizontal rough floor, causing it to move horizontally. If the coefficient of kinetic friction is 0.50, in what direction should the force be applied to obtain the greatest acceleration?

.....

Choices:

- Horizontal

  .....
- 60◦ above the horizontal

  .....
- 30◦ above the horizontal

  .....
- 27◦ above the horizontal

  correct option

  .....



Physics (PHY101)

Question: 3 (Marks: 1)

A good example of kinetic energy is provided by:

.....

Choices:

- a wound clock spring

  .....

- the raised weights of a grandfather's clock

  .....

- a tornado

  .....

- a gallon of gasoline

  .....



Physics (PHY101)

Question: 4 (Marks: 1)

A 6.0-kg block is released from rest 80m above the ground. When it has fallen 60m its kinetic energy is approximately:

.....

Choices:

- 4800 J

  .....

- 3500 J

  correct option

  .....

- 1200 J

  .....

- 120 J

  .....



Physics (PHY101)

Question: 5 (Marks: 1)

An inelastic collision is one in which:

.....

Choices:

- momentum is not conserved but kinetic energy is conserved

  .....

- total mass is not conserved but momentum is conserved

  .....

- neither kinetic energy nor momentum is conserved

  .....

- momentum is conserved but kinetic energy is not conserved

  correct option

  .....



Physics (PHY101)

Question: 6 (Marks: 1)

Ten seconds after an electric fan is turned on, the fan rotates at 300 rev/min. Its average angular acceleration is:

Choices:

- (●) 3.14 rad/s2
- ( ) 30 rad/s2
- ( ) 30 rev/s2
- ( ) 50 rev/min2
- ( ) 1800 rev/s2



Physics (PHY101)

Question: 7 (Marks: 1)

The center of mass of Earth's atmosphere is:

.....

Choices:

- a little less than halfways between Earth's surface and the outer boundary of the atmosphere

  .....
- near the surface of Earth

  .....
- near the outer boundary of the atmosphere

  .....
- near the center of Earth

  .....



Physics (PHY101)

Question: 8 (Marks: 1)

A net torque applied to a rigid object always tends to produce:

.....

Choices:

- linear acceleration

  .....

- rotational equilibrium

  .....

- angular acceleration

  .....

- rotational inertia

  .....



Physics (PHY101)

Question: 9 (Marks: 1)

The center of gravity coincides with the center of mass:

Choices:

- always

  I think this one

- never

- if the center of mass is at the geometrical center of the body

- if the acceleration due to gravity is uniform over the body



Physics (PHY101)

Question: 10 (Marks: 1)

The speed of a sound wave is determined by:

Choices:

- its amplitude
- its intensity

correct option

- the transmitting medium
- number of harmonics present



Physics (PHY101)

Question: 11 (Marks: 1)

In simple harmonic motion, the restoring force must be proportional to the:

.....

Choices:

- amplitude

  .....
- frequency

  .....
- velocity

  .....
- displacement



Physics (PHY101)

Question: 12 (Marks: 1)

In simple harmonic motion, the magnitude of the acceleration is:

.....

Choices:

- constant

  .....

- proportional to the displacement

  correct option

  .....

- inversely proportional to the displacement

  .....

- greatest when the velocity is greatest

  .....



Physics (PHY101)

Question: 13 (Marks: 1)

An object moving in a circle at constant speed:

.....

Choices:

- must have only one force acting on it

  .....

- is not accelerating

  .....

- has no change in its direction

  .....

- has an acceleration of constant magnitude

  .....



Physics (PHY101)

Question: 14 (Marks: 1)

If the total momentum of a system is changing:

Choices:

- particles of the system must be exerting forces on each other
- the system must be under the influence of gravity
- the center of mass must have constant velocity
- a net external force must be acting on the system



Physics (PHY101)

Question: 15 (Marks: 1)

A rifle of mass M is initially at rest but free to recoil. It fires a bullet of mass m and velocity v (relative to the ground). After firing, the velocity of the rifle (relative to the ground) is:

.....

Choices:

- −mv

  .....
- −Mv/m

  .....
- −mv/M

  correct option

  .....
- −v

  .....



Physics (PHY101)

Question: 16 (Marks: 1)

One revolution is the same as:

.....

Choices:

- 1 rad

  .....

- 57 rad

  .....

- π/2 r

  .....

- 2π rad

  .....



Physics (PHY101)

Question: 17 (Marks: 1)

The unit $kg \cdot m^2/s$ can be used for:

Choices:

- (●) angular momentum
- ( ) rotational kinetic energy
- ( ) rotational inertia
- ( ) torque



Physics (PHY101)

Question: 18 (Marks: 1)

In ..... object moves farther away from its original position if displaced slightly

.....

Choices:

- dynamic equilibrium

  .....

- stable equilibrium

  .....

- unstable equilibrium

  .....

- rotational equilibrium



Physics (PHY101)

Question: 19 (Marks: 1)

If the deforming force is applied along some linear dimension of a body, the corresponding stress is called

.....

Choices:

- (●) all of these
- ( ) longitudinal stress
- ( ) tensile stress
- ( ) compressive stress.



Physics (PHY101)

Question: 20 (Marks: 1)

An object moving in a circle at constant speed:

.....

Choices:

- must have only one force acting on it .....
- is not accelerating .....
- has no change in its direction .....
- has an acceleration of constant magnitude .....



Physics (PHY101)

Question: 21 (Marks: 2)

Three balls are thrown into the air simultaneously. What is the acceleration of their center of mass while they are in motion?

.....

Physics (PHY101)

Question: 22 (Marks: 2)

Define tangential stress, is there any difference between tangential and shearing stress?

.....

Physics (PHY101)

Question: 23 (Marks: 3)

A woman with mass 50 kg is standing on the rim of a large disk that is rotating at a 0.50 rev/s about an axis through its center. The disk has mass 110 kg and radius 4.0 m. Calculate the magnitude of the total angular momentum of the woman-plus-disk system. (Assume that you can treat the woman as a point)

.....



Physics (PHY101)

Question: 24 (Marks: 3)

Give some examples of materials that follow the plasticity and elasticity, define plasticity and elasticity as well.

.....

Physics (PHY101)

Question: 25 (Marks: 5)

Explain the following terms.

Steady flow, unsteady flow, compressible fluid, incompressible fluid and viscous fluid.

.....



Physics (PHY101)

Question: 26 (Marks: 5)

A bus's tire rotates at an initial angular speed of 20.5 rad/s. The driver accelerates, and after 4.5 s the tire's angular speed is 29.0 rad/s. What is the tire's average angular acceleration during the 4.5 s time interval?



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"Whoever increases in worry and sadness must recite; "Lā Ḥawla Walā Quwwata Illā Billāh.""

— Imām Ibn Qayyim | Zād al-Ma'ād (4/183)



MIDTERM EXAMINATION
Spring 2009
PHY101- Physics (Session - 2)

Question No: 1 (Marks: 1) - Please choose one

The lowest tone produced by a certain organ comes from a 3.0-m pipe with both ends open. If the speed of sound is 340m/s, the frequency of this tone is approximately:

►A. 7Hz

►B. 14 Hz

►C. 28 Hz

►D. 57 Hz

Question No: 2 (Marks: 1) - Please choose one

1. To raise the pitch of a certain piano string, the piano tuner:

►A. loosens the string

►B. tightens the string

►C. shortens the string

►D. lengthens the string

Question No: 3 (Marks: 1) - Please choose one

A force of 5000N is applied outwardly to each end of a 5.0-m long rod with a radius of 34.0 cm and a



Young's modulus of 125 × 108 N/m2. The elongation of the rod is:

►0.0020mm

►0.0040mm

►0.14mm

►0.55mm

Question No: 4 (Marks: 1) - Please choose one
A particle oscillating in simple harmonic motion is:

►never in equilibrium because it is in motion

►never in equilibrium because there is always a force

►in equilibrium at the ends of its path because its velocity is zero there

►in equilibrium at the center of its path because the acceleration is zero there

Question No: 5 (Marks: 1) - Please choose one
In simple harmonic motion, the restoring force must be proportional to the:

►amplitude

►frequency



►velocity

►displacement

Question No: 6 (Marks: 1) - Please choose one

A 160-N child sits on a light swing and is pulled back and held with a horizontal force of 100 N. The magnitude of the tension force of each of the two supporting ropes is:

►60N

►94N

►120N

►190N

Question No: 7 (Marks: 1) - Please choose one

An object attached to one end of a spring makes 20 vibrations in 10 s. Its angular frequency is:

►12.6 rad/s

►1.57 rad/s

►2.0 rad/s

►6.3 rad/s



Question No: 8 (Marks: 1) - Please choose one

For an object in equilibrium the net torque acting on it vanishes only if each torque is calculated about:

- ▶the center of mass
- ▶the center of gravity
- ▶the geometrical center
- ▶the same point

Question No: 9 (Marks: 1) - Please choose one

Ten seconds after an electric fan is turned on, the fan rotates at 300 rev/min. Its average angular acceleration is:

- ▶3.14 rad/s2
- ▶30 rad/s2
- ▶30 rev/s2
- ▶50 rev/min2
- ▶1800 rev/s2

Question No: 10 (Marks: 1) - Please choose one

A 4.0-N puck is traveling at 3.0m/s. It strikes a 8.0-N puck, which is stationary. The two pucks stick together. Their common final speed is:

- ▶1.0m/s



►1.5m/s
►2.0m/s
►2.3m/s

Question No: 11 (Marks: 1) - Please choose one
An object moving in a circle at constant speed:

►must have only one force acting on it
►is not accelerating
►is held to its path by centrifugal force
►has an acceleration of constant magnitude

Question No: 12 (Marks: 1) - Please choose one
A plane traveling north at 200m/s turns and then travels south at 200m/s. The change in its velocity is:

►400m/s north
►400m/s south
►zero
►200m/s south

Question No: 13 (Marks: 1) - Please choose one
At time t = 0 a car has a velocity of 16 m/s. It slows down with an acceleration given by −0.50t, in m/s2 for t in seconds. It stops at t =

►64 s
►32 s
►16 s
►8.0 s

Question No: 14 (Marks: 1) - Please choose one
1 mi is equivalent to 1609 m so 55 mph is:

►15 m/s
►25 m/s
►66 m/s
►88 m/s

Question No: 15 (Marks: 1)
If you walk along the top of a fence, why does holding your arms out help you to keep your balance?

because the arms keeps the movement of weight of body easy

Question No: 16 (Marks: 2)
Charge is also said to be conserved. What does it mean? Explain.

Question No: 17 (Marks: 2)
When a car drives off a cliff, why does it rotate forward as it falls?

Question No: 18 (Marks: 2)



Why does a book sitting on a table never accelerate "spontaneously" in response to the trillions of inter-atomic forces acting within it?

Question No: 19 (Marks: 3)

'Captain Planet' is somewhere between galaxies. When a gong sounds in a neighboring spaceship, Captain reacts to the sound. What is wrong with this scenario?

Question No: 20 (Marks: 3)

If you know the position vectors of a particle at two points along its path and also know the time it took to move from one point to the other, can you determine the particle's instantaneous velocity? Its average velocity? Explain

Question No: 21 (Marks: 5)

Steel will rapture if subjected to a shear stress of more that about 4.2 * 108 N/m2. What sideward force is necessary to shear a steel bolt 1 cm in diameter?

Question No: 22 (Marks: 5)

A table-tennis ball is thrown at a stationary bowling ball. The table-tennis ball makes a one-dimensional elastic collision and bounces back along the same line. After the collision, compared to the bowling ball, the table-tennis ball has (a) a larger magnitude of momentum and more kinetic energy (b) a smaller magnitude of momentum and more kinetic energy (c) a larger magnitude of momentum and less kinetic energy (d) a smaller magnitude of momentum and less kinetic energy (e) the same magnitude of momentum and the same kinetic energy.

ASSALAM O ALAIKUM all fellows
Phy101 Midterm PAPER,
MCQz & subjective
Created BY Farhan& Ali
BS (cs) 3rd sem
Hackers Group
Mandi Bahauddin
Remember us in your prayers

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Hearthacker124@gmail.com

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In simple harmonic motion, the restoring force must be proportional to the:

Mind Hacker

► Amplitude

► Frequency

► Velocity

► **Displacement**

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- ► **25 m/s**
- ► 66 m/s
- ► 88 m/s

Mind Hacker

Question No: 15 (Marks: 1)

If you walk along the top of a fence, why does holding your arms out help you to keep your balance?

Ans:

Holding your arms out increases your moment of inertia.

Question No: 16 (Marks: 2)

Charge is also said to be conserved. What does it mean? Explain.

Answer:

The principal that net electric charge is neither created nor destroyed but is transferable from one material to another.

So the Charge is also said to be conserved.

Charge conservation is a physical law that states that the change in the amount of electric charge in any volume of space is exactly equal to the amount of charge flowing into the volume minus the amount of charge flowing out of the volume. In essence, charge conservation is an accounting relationship between the amount of charge in a region and the flow of charge into and out of that region.
Mathematically, we can state the law as a continuity equation:

$$Q(t_2) = Q(t_1) + Q_{IN} - Q_{OUT}.$$

Question No: 17 (Marks: 2)

When a car drives off a cliff, why does it rotate forward as it falls?

Answer:

When the front wheels leave the cliff, the car begins to rotate forward because the front end is already beginning to fall, turn the car around the back axle. Thus by the time it is fully airborne, it is already rotating.

Remember that acceleration due to gravity is around 9. 8 meters/ second PER SECOND, so the front of the car is already falling faster than the rear!

Another idea

Well, for a while, the rear wheels are still up on the cliff, but the font wheels are in the air and nothing is holding them up. So as the centre of gravity of the car starts to fall, the front wheels go down while the rear ones are still being supported. Consequently, some rotation is put on the car. Conservation of momentum causes the car to continue to tumble forward even after the real wheels have left the top of the cliff.

Question No: 18 (Marks: 2)

Why does a book sitting on a table never accelerate "spontaneously" in response to the trillions of inter-atomic forces acting within it?

Answer:

Every one of these interatomic forces is part of an action–reaction pair within the book. These forces add up to zero, no matter how many of them there are. This is what makes Newton's *first* law apply to the book. The book has zero acceleration unless an *external* force acts on it.

Mind Hacker

Question No: 19 (Marks: 3)

'Captain Planet' is somewhere between galaxies. When a gong sounds in a neighboring spaceship, Captain reacts to the sound. What is wrong with this scenario?

Question No: 20 (Marks: 3)

If you know the position vectors of a particle at two points along its path and also know the time it took to move from one point to the other, can you determine the particle's instantaneous velocity? Its average velocity? Explain

Question No: 21 (Marks: 5)

Steel will rapture if subjected to a shear stress of more that about $4.2 * 10^8$ N/m2. What sideward force is necessary to shear a steel bolt 1 cm in diameter?

Mind Hacker

Question No: 22 (Marks: 5)

A table-tennis ball is thrown at a stationary bowling ball. The table-tennis ball makes a one-dimensional elastic collision and bounces back along the same line. After the collision, compared to the bowling ball, the table-tennis ball has (a) a larger magnitude of momentum and more kinetic energy (b) a smaller magnitude of momentum and more kinetic energy (c) a larger magnitude of momentum

and less kinetic energy (d) a smaller magnitude of momentum and less kinetic energy (e) the same magnitude of momentum and the same kinetic energy.

ASSALAM O ALAIKUM all fellows
Phy101 Midterm PAPER,
MCQz & subjective
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Question No: 2 (Marks: 1) - Please choose one

A net torque applied to a rigid object always tends to produce:

► **rotational equilibrium**

► linear acceleration

► angular acceleration

► rotational inertia

Question No: 3 (Marks: 1) - Please choose one

An object attached to one end of a spring makes 20 vibrations in 10 s. Its angular frequency is:

► 12.6 rad/s

► 1.57 rad/s

► **2.0 rad/s**

► 6.3 rad/s

Question No: 4 (Marks: 1) - Please choose one

In simple harmonic motion, the restoring force must be proportional to the:

► amplitude

► frequency

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► velocity

► **displacement**

Question No: 5 (Marks: 1) - Please choose one

Mercury is a convenient liquid to use in a barometer because:

► it is a metal

► it has a high boiling point

► it expands little with temperature

► **it has a high density**

Question No: 6 (Marks: 1) - Please choose one

The units of the electric field are:

► **J/m**
► J/(C·m)
► J/C
► J·C

Question No: 7 (Marks: 1) - Please choose one

A farad is the same as a

► **J/V**
► V/J
► C/V
► V/C

Question No: 8 (Marks: 1) - Please choose one

We desire to make an LC circuit that oscillates at 100 Hz using an inductance of 2.5H. We also need a capacitance of:

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► 1 F
► 1mF
► 1 µF
► **100 µF**

Question No: 9 (Marks: 1) - Please choose one

The wavelength of red light is 700 nm. Its frequency is _____.

► 4.30 * 10^4 Hertz
► 4.30 * 10^3 Hertz
► **4.30 * 10^5 Hertz**
► 4.30 * 10^2 Hertz

Question No: 10 (Marks: 1) - Please choose one

Which of the following statements is **NOT TRUE** about electromagnetic waves?

► Electromagnetic waves satisfy the Maswell's Equation.
► Electromagnetic waves can not travel through space.
► The receptions of electromagnetic waves require an antenna.

► **The electromagnetic radiation from a burning candle is unpolarized.**

Question No: 11 (Marks: 1) - Please choose one

Radio waves and light waves are _____.

► Longitudinal waves
► Transverse waves
► **Electromagnetic and transverse both**
► Electromagnetic and longitudinal both

Question No: 12 (Marks: 1) - Please choose one

Wien's Law states that, $_{lmax}$ = _____ K.

► 2.90 * 10^{-3} Hertz
► 2.90 * 10^{-3} s

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► 2.90 * 10^{-3} kg
► **2.90 * 10^{-3} m**

Question No: 13 (Marks: 1) - Please choose one

Interference of light is evidence that:

► the speed of light is very large
► light is a transverse wave
► **light is a wave phenomenon**
► light is electromagnetic in character

Question No: 14 (Marks: 1) - Please choose one

Fahrenheit and Kelvin scales agree numerically at a reading of:

► **-40**
► 0
► 273
► 574

Question No: 15 (Marks: 1) - Please choose one

According to the theory of relativity:

► **moving clocks run fast**
► energy is not conserved in high speed collisions
► the speed of light must be measured relative to the ether
► none of the above are true

Question No: 16 (Marks: 1) - Please choose one

Light from a stationary spaceship is observed, and then the spaceship moves directly away from the observer at high speed while still emitting the light. As a result, the light seen by the observer has:

► higher frequency and a longer wavelength than before
► **lower frequency and a shorter wavelength than before**
► higher frequency and a shorter wavelength than before
► lower frequency and a longer wavelength than before

Question No: 17 (Marks: 1) - Please choose one

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How fast should you move away from a 6.0×10^{14} Hz light source to observe waves with a frequency of 4.0×10^{14} Hz?

- ► 20c
- ► **38c**
- ► 45c
- ► 51c

Question No: 18 (Marks: 1) - Please choose one

The quantum number n is most closely associated with what property of the electron in a hydrogen atom?

- ► **Energy**
- ► Orbital angular momentum
- ► Spin angular momentum
- ► Magnetic moment

Question No: 19 (Marks: 1) - Please choose one

The quantum number m_s is most closely associated with what property of the electron in an atom?

- ► Magnitude of the orbital angular momentum
- ► **Energy**
- ► z component of the spin angular momentum
- ► z component of the orbital angular momentum

Question No: 20 (Marks: 1) - Please choose one

As the wavelength of a wave in a uniform medium increases, its speed will _____

- ► Decrease
- ► Increase
- ► **Remain the same**
- ► None of these

Question No: 1 (Marks: 1) - Please choose one

The lowest tone produced by a certain organ comes from a 3.0-m pipe with both ends open. If the speed of sound is 340m/s, the frequency of this tone is approximately:

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► A. 7Hz

► B. 14 Hz

► C. 28 Hz

► **D. 57 Hz**

Question No: 2 (Marks: 1) - Please choose one

1. To raise the pitch of a certain piano string, the piano tuner:

► **A. loosens the string**

► B. tightens the string

► C. shortens the string

► D. lengthens the string

Question No: 7 (Marks: 1) - Please choose one

An object attached to one end of a spring makes 20 vibrations in 10 s. Its angular frequency is:

► **12.6 rad/s**

► 1.57 rad/s

► 2.0 rad/s

► 6.3 rad/s

Question No: 8 (Marks: 1) - Please choose one

For an object in equilibrium the net torque acting on it vanishes only if each torque is calculated about:

► the center of mass

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► the center of gravity

► the geometrical center

► **the same point**

Question No: 9 (Marks: 1) - Please choose one

Ten seconds after an electric fan is turned on, the fan rotates at 300 rev/min. Its average angular acceleration is:

► **3.14 rad/s2**
► 30 rad/s2
► 30 rev/s2
► 50 rev/min2
► 1800 rev/s2

Question No: 10 (Marks: 1) - Please choose one

A 4.0-N puck is traveling at 3.0m/s. It strikes a 8.0-N puck, which is stationary. The two pucks stick together. Their common final speed is:

► **1.0m/s**
► 1.5m/s
► 2.0m/s
► 2.3m/s

Question No: 11 (Marks: 1) - Please choose one

An object moving in a circle at constant speed:

► must have only one force acting on it
► is not accelerating
► is held to its path by centrifugal force
► **has an acceleration of constant magnitude**

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Question No: 12 (Marks: 1) - Please choose one

A plane traveling north at 200m/s turns and then travels south at 200m/s. The change in its velocity is:

- ► 400m/s north
- ► **400m/s south**
- ► zero
- ► 200m/s south

Question No: 13 (Marks: 1) - Please choose one

At time t = 0 a car has a velocity of 16 m/s. It slows down with an acceleration given by −0.50t, in m/s2 for t in seconds. It stops at t =

- ► 64 s
- ► 32 s
- ► 16 s
- ► **8.0 s**

Question No: 14 (Marks: 1) - Please choose one

1 mi is equivalent to 1609 m so 55 mph is:

- ► 15 m/s
- ► **25 m/s**
- ► 66 m/s
- ► 88 m/s

The number of significant figures in 0.00150 is:

- ► 5
- ► 4
- ► 3
- ► 2

Question No: 2 (M a r k s: 1)

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One revolution is the same as:
2π rad
► 1 rad
► 57 rad
► π/2 rad
► π rad
► 2π rad

Question No: 3 (M a r k s: 1)
For a body to be in equilibrium under the combined action of several forces:
► All the forces must be applied at the same point
all the forces must be applied at the same point
► all of the forces form pairs of equal and opposite forces
► any two of these forces must be balanced by a third force
► the sum of the torques about any point must equal zero

PHY101 - Physics - Question No: 4 (M a r k s: 1)
A bucket of water is pushed from left to right with increasing speed across a horizontal surface.
Consider the pressure at two points at the same level in the water.
► It is the same
► It is higher at the point on the left
► It is higher at the point on the right
► At first it is higher at the point on the left but as the bucket speeds up it is lower there

PHY101 - Physics - Question No: 5 (M a r k s: 1)
An organ pipe with both ends open is 0.85m long. Assuming that the speed of
sound is 340m/s, the frequency of the third harmonic of this pipe is:
► A. 200 Hz
► B. 300 Hz
► C. 400 Hz
► **D. 600 Hz**

Question No: 6 (M a r k s: 1)
Capacitors C1 and C2 are connected in series. The equivalent capacitance is given by

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► C1C2/(C1 + C2)
► (C1 + C2)/C1C2
► 1/(C1 + C2)
► C1/C2

PHY101 - Physics - Question No: 7 (M a r k s: 1)
If the potential difference across a resistor is doubled:
► only the current is doubled
► only the current is halved
► only the resistance is doubled
► only the resistance is halved

PHY101 - Physics - Question No: 8 (M a r k s: 1)
By using only two resistors, R1 and R2, a student is able to obtain resistances of 3Ω, 4Ω, 12Ω, and 16 Ω. The values of R1 and R2 (in ohms) are:
► 3, 4
► 2, 12
► 3, 16
► 4, 12

PHY101 - Physics - Question No: 9 (M a r k s: 1)
Faraday's law states that an induced emf is proportional to:
► the rate of change of the electric field
► the rate of change of the magnetic flux
► the rate of change of the electric flux
► the rate of change of the magnetic field

PHY101 - Physics - Question No: 10 (M a r k s: 1)
A generator supplies 100V to the primary coil of a transformer. The primary has 50 turns and the secondary has 500 turns. The secondary voltage is:
► 1000V
► 500V
► 250V
► 100V

PHY101 - Physics - Question No: 14 (M a r k s: 1)
Which of the following electromagnetic radiations has photons with the

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greatest energy?
► blue light
► yellow light
► x rays
► radio waves

PHY101 - Physics - Question No: 15 (M a r k s: 1)
A virtual image is one:
► toward which light rays converge but do not pass through
► from which light rays diverge as they pass through
► toward which light rays converge and pass through
► from which light rays diverge but do not pass through

PHY101 - Physics - Question No: 16 (M a r k s: 1) vuzs
What is the unit of magnification factor?
► meter.Kelvin
► radian.Kelvin
► degree.Kelvin
► no units

Question No: 17 (M a r k s: 1)
During an adiabatic process an object does 100 J of work and its temperature decreases by 5K. During another process it does 25 J of work and its temperature decreases by 5 K. Its heat capacity for the second process is.
► 20 J/K
► 100 J/K
► 15 J/K
► 5 J/K

Question No: 18 (M a r k s: 1)
An ideal gas expands into a vacuum in a rigid vessel. As a result there is:
► a change in entropy
► a decrease of internal energy
► an increase of pressure
► a change in temperature

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Question No: 19 (M a r k s: 1)
The Stern-Gerlach experiment makes use of:
► a strong uniform magnetic field
► a strong non-uniform magnetic field
► a strong uniform electric field
► a strong non-uniform electric field
Question No: 20 (M a r k s: 1)
A large collection of nuclei are undergoing alpha decay. The rate of decay at any
instant is proportional to:
► the number of undecayed nuclei present at that instant
► the time since the decays started
► the time remaining before all have decayed
► the half-life of the decay

Question No: 1 (Marks: 1) - Please choose one

As a 2.0-kg block travels around a 0.50-m radius circle it has an angular speed of 12 rad/s. The circle is parallel to the xy plane and is centered on the z axis, a distance of 0.75m from the origin. The z component of the angular momentum around the origin is:

► **6.0kg · m2/s**

► 9.0kg · m2/s

► 11 kg · m2/s

► 14 kg · m2/s

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Question No: 21 (Marks: 3)

Two people are carrying a uniform wooden board that is 3.00 m long and weighs 160 N. If one person applies an upward force equal to 60 N at one end, at what point does the other person lift? Begin with a free-body diagram of the board.

Forces in x direction = 0
Forces in Y = F1 + F2 – W
Given:
L = 3.00 m F1 = 60 N
W = 160 N F2 = ? and x2 = ?
Sum of forces and torques = 0
Sum Force = F1 + F2 - W = 0
60N + F2 - 160 N = 0
F2 = 100 N
My pivot point is at F2.
Sum of torques = 0
Torque F1 = F1(L - x2)
Torque F2 = 0 b/c at pivot point
Torque W = W(L/2 - x2)
F1L - F1x2 + (WL)/2 - Wx2 = 0
(60)(3) - 60x2 + (160 * 3)/2 - 160x2 = 0
180-60x2 + 240-160x2 = 0
420-220x2 = 0
x2 = 1.9m

Question No: 22 (Marks: 3)

If a charged particle moves in a straight line through some region of space, can you say that the magnetic field in that region is zero?

Question No: 26 (Marks: 5)

A bike accelerates uniformly from rest to a speed of 7.10 m/s over a distance of 35.4 m. Determine the acceleration of the bike.
$2as = vf^2 – vi^2$
$2a(35.4) = (7.10)^2 – (0)^2$
$2a(35.4) = 50.41$
$A = .71\ m/s^2$

Question No: 27 (Marks: 5)

A flat loop of wire consisting of a single turn of cross-sectional area 8.00 cm^2 is perpendicular to a magnetic field that increases uniformly in

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magnitude from 0.500 T to 2.50 T in 1.00 s. What is the resulting induced current if the loop has a resistance of 2.00 W?

$E=(Bf-Bi)*A/t=(2.5-0.5)*8*10^{-4}/1=1.6*10^{-3}$ V
I=E/R=1.23 mA

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