Sahih al-Bukhari :
Book of Invocations :
Hadith #6306

#1 THE BEST PRAYER TO SEEK FORGIVENESS!

اللَّهُمَّ أَنْتَ رَبِّي ، لا إِلَهَ إِلَّا أَنْتَ

O Allaah, you are my Lord.
There is none worthy of worship in truth except you

خَلَقْتَنِي وَأَنَا عَبْدُكَ

You created me and I am your slave

وَأَنَا عَلَى عَهْدِكَ وَوَعْدِكَ مَا اسْتَطَعْتُ

and I am abiding to Your covenant and promise as best as I can

أَعُوذُ بِكَ مِنْ شَرِّ مَا صَنَعْتُ

I seek refuge in you from the evil that I have committed

أَبُوءُ لَكَ بِنِعْمَتِكَ عَلَيَّ

I acknowledge Your favors upon me

وَأَبُوءُ بِذَنْبِي

and I confess to you my sins

فَاغْفِرْ لِي

so forgive me

فَإِنَّهُ لا يَغْفِرُ الذُّنُوبَ إِلَّا أَنْتَ

verily no one forgives sins except you

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?

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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)

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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?

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

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