

SUB : PHYSICS

MARKS : 50

CLASS : XI

TIME : 1.30 hrs.

3. Law of Motion, 4. WORK, ENERGY, POWER.

I Answer the all Questions:

POWER.

1. Force acting on the particle moving with constant speed is — ? (a) always zero (b) always Non zero. (c) need not be zero (d) cannot be concluded.
2. Two masses m_1 and m_2 are experiencing the same force where $m_1 < m_2$. The ratio of their acceleration $\frac{a_1}{a_2}$ is — ? (a) 1 (b) < 1 (c) > 1 (d) all of these.
3. The centrifugal force appears to exist — ? (a) only in inertial frames (b) only in rotating frames (c) in any accelerated frame (d) inertial & non inertial frame
4. If a person moving from pole to equator, the centrifugal acting on him — ? (a) Increase (b) decrease (c) remains same (d) a & b
5. An object of mass m begins to move on the plane inclined at an angle θ . The coefficient of static friction of inclined surface is μ_s . The maximum static friction experienced by the mass — ? (a) mg (b) $\mu_s mg$ (c) $\mu_s mg \sin \theta$ (d) $\mu_s mg \cos \theta$.
6. Who is the derived statement of "force is not required to maintain motion". (a) Aristotle (b) Galileo (c) Newton (d) Einstein.
7. The work done by the conservative force for a closed path is — ? (a) always ~~non~~ negative (b) zero (c) always positive (d) Not defined.

- 8) If the linear momentum of the object is increased by 0.1%, then the kinetic energy is increased by,
 (a) 0.1%. (b) 0.2%. (c) 0.4%. (d) 0.01%.
- 9) A spring of force constant k is cut into two pieces such that one piece is double the length of the other. Then, the long piece will have a force constant of — ?
 a) $\frac{2}{3}k$ b) $\frac{3}{2}k$ c) $3k$ d) $6k$.
- 10) What is the minimum velocity with which a body of mass ' m ' must enter a vertical loop of radius ' R ' so that it can complete the loop?
 a) $\sqrt{2gR}$ b) $\sqrt{3gR}$ c) $\sqrt{5gR}$ (d) $\sqrt{8R}$

II Answer the any 5 questions. Q.NO: 17 is compulsory.

11. What is inertia? mention their types?
12. Define impulse (or) Impulsive force.
13. Define Newton's third law.
14. State the empirical laws of static and kinetic friction?
15. Define one Newton.
16. What are the concurrent and coplanar forces?
17. Under what ^{two} condition will a car skid on a levelled ~~circular road~~? Banking of tracks?
18. Define Angle of Friction.

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II Answer any 5 questions. Q.NO. 24 is compulsory.

- 19) Write the statement of Newton's II Law?
- 20) Using free body diagram, show that it is easy to pull an object than to push it.
21. Under what condition will a car skid on a levelled circular road?
22. State the Lami's Theorem?
23. Short explain for linear conservation of momentum?
24. Consider a circular road of radius 20 meter banked at an angle of degree. with what speed a car has to move on the turn so that it will have safe run?
25. Define. Angle of Repose.
26. what are the steps ~~are~~ following for developing the free body diagram?

IV Answer ~~or~~ All the Questions.

27. Difference between centripetal force and centrifugal force. (OR)

Difference between static friction and kinetic friction.

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28 Explain the motion of blocks connected by a ~~and~~ string in (i) vertical motion,

(ii) Horizontal motion (OR)

Explain The particle moving in an inclined plane.

29, Consider a bob attached to a string, hanging from a stand. It oscillates as shown in figure.

(a) Identify the forces that act on the bob?

(b) what is the acceleration experienced by the bob?

(OR)

Explain various types of friction. Suggest a few methods to reduce friction?

THOUGHTS

Gravitation is
not responsible
for falling in Love

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