BON SECOURS ARTS & SCIENCE COLLEGE FOR WOMEN
Rukmanipalayam, Mannargudi
SEMESTER II
DEPARTMENT OF PHYSICS
MECHANICS

TWO MARK QUESTIONS

1. Define angle of projection.
2. What is time of flight of a projectile?
3. A body is thrown with a velocity 10 m/s at an inclination 30 degree from Earth's surface. Find the greatest height attained by the body.
4. What is impulse of a force?
5. Write a note on holograph?
6. What is centrifugal force? Give an example?
7. What is meant by equipotential surface?
8. Define co-efficient of restitution for the impact of a sphere on a fixed horizontal plane.
9. When will be the time period of a compound pendulum minimum?
10. Define impulse of a force.
11. Find the centre of gravity of a hollow hemisphere of radius 2m and mass 2kg.
12. Where does the centre of pressure of a triangular lamina lie when the vertex just touches the liquid surface and base horizontal?
13. Define 'Impulsive force'.
14. What is angle of projection?
15. Define moment of inertia of a body?
16. Find the gravitational potential on the surface of a spherical shell of Radius 1 m and mass 20 kg.
17. Where does the centre of gravity of a solid tetrahedron lie in it?
18. Define: Gravitational potential at a point.
19. In Boy's method for finding "G", two smaller spheres and two larger spheres are used. Name the materials of those spheres.
20. State the Laws of friction?
21. Define centre of pressure?
22. What is Fortin's barometer?

23. Define coefficient of restitution?

24. Give some examples of impulsive force?

25. Define: Torque.

26. What is meant by radius of gyration?

27. Write some merits of Boy'smethod?

28. Define gravitational potential energy?

29. What is mean by atmospheric energy?

30. State Bernoulli's theorem?

31. What do you understand about addition of velocities?

32. What is meant by Newtonian relativity?

33. Define centripetal force.

34. Why atmospheric pressure varies with altitude?

35. Write any three advantages of Boys method.

36. Why the atmospheric pressure decreases with increase of altitude?

37. Define centrifugal force.

38. What is moment of inertia.

39. Write a note on Fortin's barometer.

40. Write any two laws of friction.

41. Define metacentre.

42. What is an impulsive force?

43. What is meant by oblique impact?

44. Define acceleration due to gravity 'g'.

45. What is gravitational energy?

FIVE MARKQUESTIONS

1. Obtain an expression for the range of a projectile on an inclined plane?

2. Discuss the loss of kinetic energy due to direct impact?

3. Deduce an expression for normal acceleration?

4. Discuss the motion of a carriage on a banked up curve?

5. Explain the gravitational potential due to a point mass?

6. Discuss i) Escape velocity ii) Orbital velocity.

7. Describe the centre of suspension and center of oscillation of a compound pendulum?

8. Explain the Kater's pendulum?

9. Explain the function of a faulty barometer?

10. Explain the center of gravity of a solid tetrahedron?

11. What are the similarities and differences between potential and logistic growth?

12. Write a note on
    i) Direct impact of two smooth spheres?
    ii) Oblique impact two smooth spheres?
    iii) Loss in KE due to oblique impact

13. Write a note on i) laws of impact
    ii) Reduced mass

14. Calculate the center of gravity of a hollow tetrahedron?

15. Determine the position of center of pressure of a rectangular lamina immersed vertically in Liquid?

16. Obtain the expression for friction of equilibrium of a body on rough plane inclined to the Horizontal.

17. Derive an expression to find the centre of gravity of a hollow hemisphere.

18. Explain briefly centre of pressure of a rectangular lamina.

19. Show that for a given velocity of projection there are in general two angles of projection to obtain a given horizontal range.

20. Explain the variation of 'g' with latitude, depth.

21. Obtain the kepler's laws of planetary motion.

22. State and prove the perpendicular axes.

23. Explain with detail the friction clutch .

24. Show that the velocity at any point in the path of a projectile is equal in magnitude to that acquired by it in falling freely from the direction to that point.

25. Explain the impact of a smooth sphere on smooth fixed horizontal plane.

26. State Newton's law of gravitation and define gravitation constant.

27. How does the atmospheric pressure change with altitude?

28. State and explain all the three laws of impact.

29. Show that the centre of suspension and centre of oscillation are interchangeable for a compound pendulum.

30. A rectangular lamina is immersed vertically in a liquid with one side at the surface. Find its centre of pressure.

31. A triangular lamina is immersed vertically in a liquid with its vertex at the surface and its base remaining horizontal. Find its centre of pressure.

32. Derive an expression for time period of compound pendulum.

33. Write a note on reversibility of centre of oscillation.

34. Derive the continuity equation of flow.

35. What is centre of pressure? Explain.

36. State the laws of impact and explain.

37. Derive an expression for the direct impact of a smooth sphere on a horizontal smooth plane.

38. Give an account on the reversibility of centre of oscillation.

39. Find the velocity of a two smooth spheres after direct impact.

40. Find the centre of gravity of solid hemisphere.

41. Explain Kepler's laws of planetary motion

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TEN MARK QUESTIONS

1. Explain oblique impact of a smooth sphere on a fixed smooth plane?

2. Discuss the variation of 'g' with height, depth and latitude of earth?

3. Describe the gravitational field due to i) spherical cell ii) solid sphere?

4. Explain the equilibrium of a body on a rough plane inclined to the horizontal?

5. Obtain an expression for the center of gravity of a solid tetrahedran?

6. What is hotograph? Using hotograph explain how will you determine the centripetal acceleration of a particle describing uniform motion?

7. Determine the value of G- using Boys method?

8. What is meant by compound pendulum how will you determining the value of 'g' and time period?

9. Explain with detail the method of determination of meta centric height of a slip?

10. Obtain the expression for motion of a carriage on a curved track.

11. Describe the compound pendulum and Kater's pendulum.

12. State and prove thermos of perpendicular and parallel axes.

13. Describe the barometer due to i) Fortin's barometer ii") Faulty barometer.

14. Explain upsetting of a carriage.

15. Briefly explain equilibrium of a body on a rough plane inclined to the horizontal.

16. Determine theoritically the centre of pressure of a vertical triangular lamina.

17. A particle is projected with a velocity u at an angle (alpha) to the horizontal. Find an expression for the range of the particle on a plane inclined at (Beta) to the horizontal. Find also the time of flight.

18. Derive expressions for the centre of gravity,
(a) a hollow hemisphere
(b) a solid hemisphere.

19. How does the atmospheric pressure change with altitude? Explain the reasons for variation.

20. Write a note on:
(a) A Projectile
(b) Reduced mass.

21. Write short notes on the determine of, (a) Velocity (b) Quantity of flow in stream lined motion of a liquid.

22. Write a note on:
(a) Laws of impact
(b) Direct and oblique impacts
(c) Reduced mass.

23. Discuss conservation of angular momentum.