

Online Assessment (Even Sem/Part-I/Part-II Examinations 2019 - 2020)

Course Name - Engineering Mechanics

Course Code - DEE203

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Answer all the questions. Each question carry one mark.

9. 1. The unit of force in C. G. S. units is

Mark only one oval.

- kilogram
- N/m²
- watt
- None of these

10. 2. Forces are called concurrent when their lines of action meet in

Mark only one oval.

- Four point
- two points
- plane
- None of these

11. 3. A force acting on a body may

Mark only one oval.

- introduce internal stresses
- balance the other forces acting on it
- retard its motion
- All of these

12. 4. Effect of a force on a body depends upon

Mark only one oval.

- magnitude
- direction
- position or line of action
- all of these

13. 5. The algebraic sum of the resolved parts of a number of forces in a given direction is equal to the resolved part of their resultant in the same direction. This is as per the principle of

Mark only one oval.

- forces
- independence of forces
- dependence of forces
- resolution of forces

14. 6. Which of the following do not have identical dimensions?

Mark only one oval.

- Momentum and impulse
- Torque and energy
- Torque and work
- Moment of a force and angular momentum

15. 7. Which of the following is not the unit of pressure?

Mark only one oval.

- kg/cm²
- pascal
- atmospheric pressure
- Newton

16. 8. The weight of a body is due to

Mark only one oval.

- centripetal force of earth
- gravitational pull exerted by the earth on an object from a definite height
- gravitational force of attraction towards the center of the earth
- forces experienced by body in atmospheric altitude

17. 9. Which of the following is not a scalar quantity?

Mark only one oval.

- time
- mass
- volume
- acceleration

18. 10. A number of forces acting at a point will be in equilibrium if

Mark only one oval.

- their total sum is zero
- two resolved parts in two directions at right angles are equal
- sum of resolved parts in any two perpendicular directions are both zero
- all of them are inclined equally

19. 11. According to law of triangle of forces

Mark only one oval.

- three forces acting at a point will be in equilibrium
- three forces acting at a point can be represented by a triangle, each side being proportional to force
- if three forces acting upon a particle are represented in magnitude and direction by the sides of a triangle, taken in order, they will be in equilibrium
- if three forces acting at a point are in equilibrium, each force is proportional to the sine of the angle between the other two

20. 12. The units of moment of inertia of mass are

Mark only one oval.

kg m²

m⁴

kg/m²

kg/m

21. 13. If the resultant of two equal forces has the same magnitude as either of the forces, then the angle between the two forces is

Mark only one oval.

30°

60°

90°

120°

22. 14. In actual machines, mechanical advantage is _____ velocity ratio

Mark only one oval.

Equal to

Less than

Greater than

None of these

23. 15. Two coplanar couples having equal and opposite moments

Mark only one oval.

- balance each other
- produce a couple and an unbalanced force
- are equivalent
- cannot balance each other

24. 16. The coefficient of friction depends on

Mark only one oval.

- area of contact
- nature of surface
- rigidity of surfaces
- materials of surfaces

25. 17. The product of either force of couple with the arm of the couple is called

Mark only one oval.

- resultant couple
- moment of the forces
- resulting couple
- moment of the couple

26. 18. The center of gravity of a uniform lamina lies at

Mark only one oval.

- the center of heavy portion
- the bottom surface
- the mid-point of its axis
- all of these

27. 19. The center of gravity of a triangle lies at the point of

Mark only one oval.

- concurrence of the medians
- intersection of its altitudes
- intersection of bisector of angles
- intersection of diagonals

28. 20. The C.G. of a right circular solid cone of height h lies at the following distance from the base

Mark only one oval.

- $h/5$
- $J/2$
- $h/4$
- none of these

29. 21. Pick up the incorrect statement from the following

Mark only one oval.

- The C.G. of a circle is at its center
- The C.G. of a triangle is at the intersection of its medians
- The C.G. of a rectangle is at the inter-section of its diagonals
- The C.G. of a semicircle is at a distance 0.25 mm from its base

30. 22. Frictional force depends on _____

Mark only one oval.

- surface area in contact
- roughness of surface
- both (surface area in contact) and (roughness of surface)
- none of these

31. 23. Angle of friction is the

Mark only one oval.

- angle between normal reaction and the resultant of normal reaction and the limiting friction
- ratio of limiting friction and normal reaction
- the angle of inclined plane at which a a body just begins to slide down the plane
- none of these

32. 24. The ratio of limiting friction and normal reaction is known as

Mark only one oval.

- coefficient of friction
- angle of friction
- angle of repose
- sliding friction

33. 25. A boat sails across a river with a velocity of 10 km/hr. If resultant boat velocity is 14 km/hr, then what is the velocity of river water?

Mark only one oval.

- 17.20 km/hr
- 10 km/hr
- 9.79 km/hr
- 4.88 km/hr

34. 26. The rate of change of _____ with respect to time is called as jerk

Mark only one oval.

- displacement
- momentum
- acceleration
- None of these

35. 27. If a material has no uniform density throughout the body, then the position of centroid and center of mass are _____

Mark only one oval.

- identical
- not identical
- independent upon the density
- unpredictable

36. 28. According to Lami's theorem, a body is in equilibrium condition if each force among three _____ are proportional to sine angle between other two

Mark only one oval.

- coplanar, collinear forces
- collinear, non-concurrent forces
- coplanar, non-concurrent forces
- coplanar, concurrent forces

37. 29. If a block returns to its original position after slight tilt then it is in state of

Mark only one oval.

- unstable equilibrium
- neutral equilibrium
- weightlessness
- None of these

38. 30. Where will be the centre of gravity of a uniform rod lies?

Mark only one oval.

- At its end
 - At its middle point
 - At its centre of its cross sectional area
 - Depends upon its material
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