Code No: A109100103 **Set No. 1**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, February– 2012

ENGINEERING MECHANICS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks:10.

I Choose the correct alternative

1. The centre of mass of body and its centroid of volume coincide when _____ is uniform through out the body [ ]
   a) Acceleration due to gravity b) density c) thickness d) area

2. If an area has an axis of symmetry then [ ]
   a) its first moment about the axis is zero b) its centroid lies on the axis c) both (a)and (b) d) none

3. The x or y coordinate of the centroid of a quarter circle arc of radius r is [ ]
   a) $4r/3\prod$ b) $3r/\prod$ c) $2r/\prod$ d) $r/\prod$

4. The centre of gravity of a right circular cone of dia d and height h lies at a distance of _____ from the base measured along the vertical radius [ ]
   a) h/2 b) h/3 c) h/4 d) h/6

5. Moment of inertia of a semi circular area of radius R about a centroidal axis parallel to it is [ ]
   a) $0.11R^4$ b) $0.055R^4$ c) $0.66R^4$ d) $0.33R^4$

6. The unit of area moment of inertia is [ ]
   a) m^4 b) kgm^2 c) kgm^3 d) kgm

7. The mass moment inertia of circular disc with mass m and radius r about any axis is [ ]
   a) mr/4 b) $mr^2/4$ c) $mr^3/4$ d) $mr^4/4$

8. A framed structure is imperfect if the number of members are ____(2j-3) where j is the no. of joints [ ]
   a) less than b) equal to c) greater than d) either (a) or(c)

9. A redundant frame is also called _____ frame [ ]
   a) perfect b) imperfect c) deficient d) none of these

10. A structure whose members are pin jointed to form triangles is called _____ [ ]
    a) bar b) strain triangle c) truss d) All the above

Cont....2

II. Fill in the Blanks:

11. The plane figure have only area, but no mass, the centre of area of such figures is known as _____

12. The _____ generated by rotating any plane curve about a non intersecting axis in its plane is equal to the product of the length of the curve and the distance traveled by its centroid

13. The centre of gravity of a solid hemisphere of radius r is at a distance of _____from its diametrical axis

14. The product of area and the square of the distance of the centre of gravity of the area from an axis perpendicular to the plane of the area is known as _____

15. The first moment of area is used to determine _____ of the area

16. _____ is the name given to the axis passing through the centroid

17. If the MI of an area with respect to the centroidal axis in the plane of the area is known, the MI with respect to any parallel axis in the plane may be determined by means of _____

18. The other name of moment of inertia is _____

19. If $n<2j-3$, where n is the number of members and j is the number of joints then the number of joints then the frame is known as _____ frame

20. The forces in the members of perfect frame can be determined by the principle of statics , and such frame frame is said to be _____

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Code No: A109100103 **Set No. 2**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, February– 2012

ENGINEERING MECHANICS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks:10.

I Choose the correct alternative

1. The centre of gravity of a right circular cone of dia d and height h lies at a distance of _____ from the base measured along the vertical radius [ ]
   a) h/2 b) h/3 c) h/4 d) h/6

2. Moment of inertia of a semi circular area of radius R about a centroidal axis parallel to it is [ ]
   a) $0.11R^4$ b) $0.055R^4$ c) $0.66R^4$ d) $0.33R^4$

3. The unit of area moment of inertia is [ ]
   a) m^4 b) kgm^2 c) kgm^3 d) kgm

4. The mass moment inertia of circular disc with mass m and radius r about any axis is [ ]
   a) mr/4 b) $mr^2/4$ c) $mr^3/4$ d) $mr^4/4$

5. A framed structure is imperfect if the number of members are ____(2j-3) where j is the no. of joints [ ]
   a) less than b) equal to c) greater than d) either (a) or(c)

6. A redundant frame is also called _____ frame [ ]
   a) perfect b) imperfect c) deficient d) none of these

7. A structure whose members are pin jointed to form triangles is called _____ [ ]
   a) bar b) strain triangle c) truss d) All the above

8. The centre of mass of body and its centroid of volume coincide when _____ is uniform through out the body [ ]
   a) Acceleration due to gravity b) density c) thickness d) area

9. If an area has an axis of symmetry then [ ]
   a) its first moment about the axis is zero b) its centroid lies on the axis c) both (a)and (b) d) none

10. The x or y coordinate of the centroid of a quarter circle arc of radius r is [ ]
    a) $4r/3\prod$ b) $3r/\prod$ c) $2r/\prod$ d) $r/\prod$

Cont....2

II. Fill in the Blanks:

11. The product of area and the square of the distance of the centre of gravity of the area from an axis perpendicular to the plane of the area is known as _____

12. The first moment of area is used to determine _____ of the area

13. _____ is the name given to the axis passing through the centroid

14. If the MI of an area with respect to the centroidal axis in the plane of the area is known, the MI with respect to any parallel axis in the plane may be determined by means of _____

15. The other name of moment of inertia is _____

16. If $n<2j-3$, where n is the number of members and j is the number of joints then the number of joints then the frame is known as _____ frame

17. The forces in the members of perfect frame can be determined by the principle of statics , and such frame frame is said to be _____

18. The plane figure have only area, but no mass, the centre of area of such figures is known as _____

19. The _____ generated by rotating any plane curve about a non intersecting axis in its plane is equal to the product of the length of the curve and the distance traveled by its centroid

20. The centre of gravity of a solid hemisphere of radius r is at a distance of _____from its diametrical axis

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Code No: A109100103 **Set No. 3**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, February– 2012

ENGINEERING MECHANICS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks:10.

I Choose the correct alternative

1. The unit of area moment of inertia is [ ]
   a) m^4 b) kgm^2 c) kgm^3 d) kgm

2. The mass moment inertia of circular disc with mass m and radius r about any axis is [ ]

   a) mr/4 b) $mr^2/4$ c) $mr^3/4$ d) $mr^4/4$

3. A framed structure is imperfect if the number of members are ____(2j-3) where j is the no. of joints [ ]
   a) less than b) equal to c) greater than d) either (a) or(c)

4. A redundant frame is also called _____ frame [ ]
   a) perfect b) imperfect c) deficient d) none of these

5. A structure whose members are pin jointed to form triangles is called _____ [ ]
   a) bar b) strain triangle c) truss d) All the above

6. The centre of mass of body and its centroid of volume coincide when _____ is uniform through out the body [ ]
   a) Acceleration due to gravity b) density c) thickness d) area

7. If an area has an axis of symmetry then [ ]
   a) its first moment about the axis is zero b) its centroid lies on the axis c) both (a)and (b) d) none

8. The x or y coordinate of the centroid of a quarter circle arc of radius r is [ ]
   a) $4r/3\prod$ b) $3r/\prod$ c) $2r/\prod$ d) $r/\prod$

9. The centre of gravity of a right circular cone of dia d and height h lies at a distance of _____ from the base measured along the vertical radius [ ]
   a) h/2 b) h/3 c) h/4 d) h/6

10. Moment of inertia of a semi circular area of radius R about a centroidal axis parallel to it is [ ]

    a) $0.11R^4$ b) $0.055R^4$ c) $0.66R^4$ d) $0.33R^4$

Cont....2

II. Fill in the Blanks:

11. _____ is the name given to the axis passing through the centroid

12. If the MI of an area with respect to the centroidal axis in the plane of the area is known, the MI with respect to any parallel axis in the plane may be determined by means of _____

13. The other name of moment of inertia is _____

14. If n<2j-3, where n is the number of members and j is the number of joints then the number of joints then the frame is known as _____ frame

15. The forces in the members of perfect frame can be determined by the principle of statics , and such frame frame is said to be _____

16. The plane figure have only area, but no mass, the centre of area of such figures is known as _____

17. The _____ generated by rotating any plane curve about a non intersecting axis in its plane is equal to the product of the length of the curve and the distance traveled by its centroid

18. The centre of gravity of a solid hemisphere of radius r is at a distance of _____from its diametrical axis

19. The product of area and the square of the distance of the centre of gravity of the area from an axis perpendicular to the plane of the area is known as _____

20. The first moment of area is used to determine _____ of the area

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Code No: A109100103 **Set No. 4**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, February– 2012

ENGINEERING MECHANICS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks:10.

I Choose the correct alternative

1. A framed structure is imperfect if the number of members are ____(2j-3) where j is the no. of joints [ ]
   a) less than b) equal to c) greater than d) either (a) or(c)

2. A redundant frame is also called _____ frame [ ]
   a) perfect b) imperfect c) deficient d) none of these

3. A structure whose members are pin jointed to form triangles is called _____ [ ]
   a) bar b) strain triangle c) truss d) All the above

4. The centre of mass of body and its centroid of volume coincide when _____ is uniform through out the body [ ]
   a) Acceleration due to gravity b) density c) thickness d) area

5. If an area has an axis of symmetry then [ ]
   a) its first moment about the axis is zero b) its centroid lies on the axis c) both (a)and (b) d) none

6. The x or y coordinate of the centroid of a quarter circle arc of radius r is [ ]
   a) $4r/3\prod$ b) $3r/\prod$ c) $2r/\prod$ d) $r/\prod$

7. The centre of gravity of a right circular cone of dia d and height h lies at a distance of _____ from the base measured along the vertical radius [ ]
   a) h/2 b) h/3 c) h/4 d) h/6

8. Moment of inertia of a semi circular area of radius R about a centroidal axis parallel to it is [ ]
   a) $0.11R^4$ b) $0.055R^4$ c) $0.66R^4$ d) $0.33R^4$

9. The unit of area moment of inertia is [ ]
   a) m^4 b) kgm^2 c) kgm^3 d) kgm

10. The mass moment inertia of circular disc with mass m and radius r about any axis is [ ]
    a) mr/4 b) $mr^2/4$ c) $mr^3/4$ d) $mr^4/4$

Cont....2

II. Fill in the Blanks:

11. The other name of moment of inertia is _____

12. If n<2j-3, where n is the number of members and j is the number of joints then the number of joints then the frame is known as _____ frame

13. The forces in the members of perfect frame can be determined by the principle of statics , and such frame frame is said to be _____

14. The plane figure have only area, but no mass, the centre of area of such figures is known as _____

15. The _____ generated by rotating any plane curve about a non intersecting axis in its plane is equal to the product of the length of the curve and the distance traveled by its centroid

16. The centre of gravity of a solid hemisphere of radius r is at a distance of _____from its diametrical axis

17. The product of area and the square of the distance of the centre of gravity of the area from an axis perpendicular to the plane of the area is known as _____

18. The first moment of area is used to determine _____ of the area

19. _____ is the name given to the axis passing through the centroid

20. If the MI of an area with respect to the centroidal axis in the plane of the area is known, the MI with respect to any parallel axis in the plane may be determined by means of _____

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