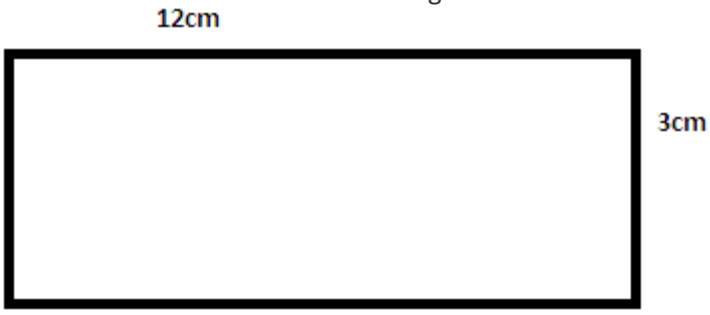
SET 1

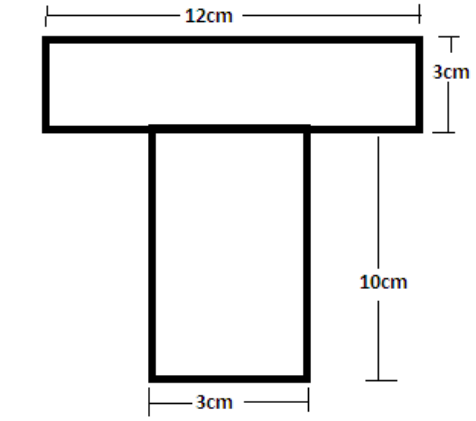
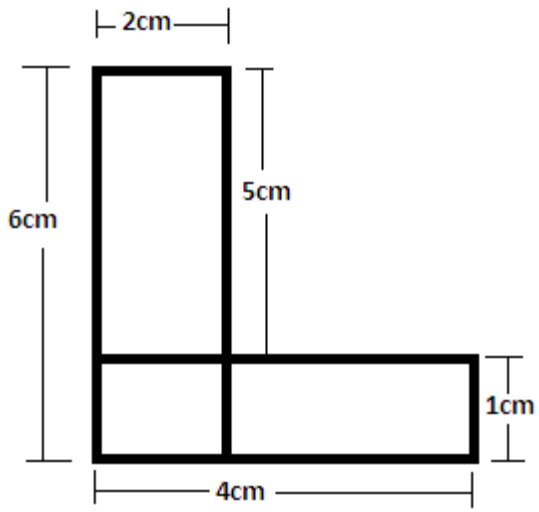
Sl. No.	Question		Marks	CO
1.	_____ is the branch of Civil Engineering which deals with measurement of relative positions of an object on earth's surface by measuring the horizontal distances, elevations, directions, and angles.		1	1
	(a) Surveying	(b) Geotechnical Engineering		
	(c) Transportation Engineering	(d) Construction Technology		
2.	The mixture of cement and sand with water is called _____		1	1
	(a) brick	(b) concrete		
	(c) steel	(d) mortar		
3.	The mixture of cement, sand and aggregates with water is called _____		1	1
	(a) mortar	(b) concrete		
	(c) steel	(d) brick		
4.	_____ is the branch of Civil Engineering which involves assessing slope stability, study of soil properties and the risk of landslides, rock fall and avalanches.		1	1
	(a) Geotechnical Engineering	(b) Structural Engineering		
	(c) Transportation Engineering	(d) Construction Technology		
5.	The effect of a couple is unchanged if_____		1	2
	(a) The couple is replaced by another pair of forces, whose rotational affects are the same	(b) The couple is rotated through any angle		
	(c) The couple is shifted to any other position	(d) All of these		
6.	_____ has same magnitude as that of the Resultant but opposite in direction to it, acting on same line of action of resultant.		1	2
	(a) equilibrant	(b) couple		
	(c) point force	(d) moment		
7.	Which of the following is the unit of Moment?		1	2
	(a) kN	(b) kN-m		
	(c) kN/m^2	(d) $kN-m^2$		
8.	Moment of a force depends on _____		1	2
	(a) Moment centre only	(b) Lever arm only		
	(c) Moment centre and lever arm	(d) None of the above		
9.	The loading generally acts upon the _____ of the body.		1	3
	(a) Centroid	(b) Symmetrical centre		
	(c) Rotational centre	(d) Construction Technology		
10.	A simple support offers only _____ reaction normal to the axis of the beam.		1	3
	(a) Horizontal	(b) Vertical		
	(c) Inclined	(d) Moment		
11.	_____ support develops support moment.		1	3
	(a) Hinged	(b) Simple		
	(c) Fixed	(d) Roller		

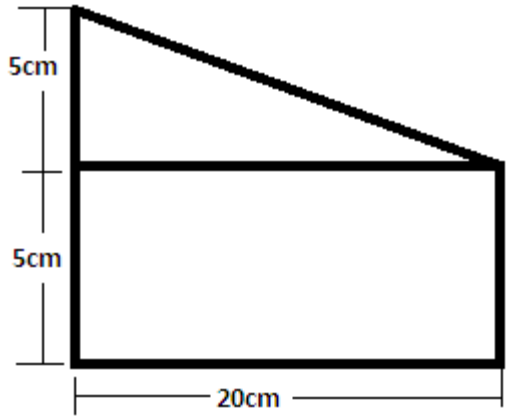
12.	Example for cantilever beam is _____		1	3
	(a) Railway sleepers	(b) Roof slab		
	(c) Bridges	(d) Chejja		
13.	Friction always.....		1	4
	(a) opposes the motion	(b) both of these		
	(c) helps the motion	(d) none of the above		
14.	Which one of these characteristics does a smooth surface has		1	4
	(a) Frictionless	(b) some times less & some time more force		
	(c) more frictional force	(d) less frictional force		
15.	Friction force exerts in the case of		1	4
	(a) Non-Contact Surface	(b)Magnetic Force		
	(c) Contact Surface	(d)Non-Magnetic Force		
16.	The frictional resistance is developed due to _____ of the surface irregularities at the contact surfaces of two bodies		1	4
	(a) Binding	(b) Interlocking		
	(c) Collision	(d) Non interlocking		
17.	The point through which the whole weight of the body acts is called _____		1	5
	(a) Inertial point	(b) Center of gravity		
	(c) Centroid	(d) None of the above		
18.	The point at which the total area of a plane figure is assumed to be concentrated is called _____		1	5
	(a) Inertial point	(b) Centre of gravity		
	(c) Central point	(d) Centroid		
19.	Where will be the center of gravity of a uniform rod lies?		1	5
	(a) At its center of its cross sectional area	(b) At its end		
	(c) At its middle point	(d) Depends upon its material		
20.	Centroidal coordinate of the following section is? 		1	5
	(a) (6, 3)	(b) (6, 6)		
	(c) (6, 1.5)	(d) (1.5, 3)		

SET 2

Sl. No.	Question	Marks	CO
1.	_____ is a branch of Civil Engineering dealing primarily with the design and construction of bridges, buildings and dams	1	1

	(a) Transportation Engineering	(b) Structural Engineering		
	(c) Geotechnical Engineering	(d) Construction Technology		
2.	_____ is a branch of Civil Engineering concerned with the conveyance of liquids through pipes and channels, especially as a source of mechanical force or control		1	1
	(a) Water Resources Engineering	(b) Environmental Engineering		
	(c) Hydraulics	(d) Construction Technology		
3.	_____ is a branch of Civil Engineering that involves the design of new systems and equipment that help manage human water resources.		1	1
	(a) Construction Technology	(b) Hydraulics		
	(c) Environmental Engineering	(d) Water Resources Engineering		
4.	The primary objective of _____ is to create an optimal soil moisture regime for maximizing crop production and quality.		1	1
	(a) Irrigation Engineering	(b) Hydraulics		
	(c) Geotechnical Engineering	(d) Environmental Engineering		
5.	_____ is applied while trying to turn a key into a lock.		1	2
	(a) couple	(b) non-coplanar force		
	(c) momentum	(d) coplanar force		
6.	Couple is formed due to two _____		1	2
	(a) unlike, perpendicular and non-collinear forces of different magnitude	(b) like, parallel and non-collinear forces of same magnitude		
	(c) like, perpendicular and collinear forces of different magnitude	(d) unlike, parallel and non-collinear forces of same magnitude		
7.	Cycle pedaling is an example of _____		1	2
	(a) cyclic loading	(b) moment		
	(c) collinear forces	(d) couple		
8.	A couple produces _____		1	2
	(a) motion Combined translatory and rotational	(b) Rotational motion		
	(c) Translatory motion only	(d) Horizontal motion		
9.	Hinge support is called as _____		1	3
	(a) Ball joint	(b) Swivel joint		
	(c) Pin joint	(d) Socket joint		
10.	For a simply supported beam, moment at the support is always _____		1	3
	(a) Minimum	(b) Maximum		
	(c) Zero	(d) One		
11.	A hinged support doesn't offer resistance against _____		1	3
	(a) rotation	(b) horizontal movement		
	(c) vertical movement	(d) horizontal & vertical movement		
12.	Roller support is same as _____		1	3
	(a) Hinged Support	(b) Simply support		
	(c) Roller Support	(d) Fixed Support		
13.	The friction experienced by a body when it is in equilibrium is known a		1	4
	(a) Dynamic Friction	(b) Sliding Friction		

	(c) Static Friction	(d) Rolling Friction		
14.	The Friction experienced by a body when it is moving is called		1	4
	(a) Sliding Friction	(b) Dynamic Friction		
	(c) Static Friction	(d) Rolling Friction		
15.	The dynamic friction experienced by a body when it slides over a plane is called		1	4
	(a) Rolling Friction	(b) Static Friction		
	(c) Dynamic Friction	(d) Sliding Friction		
16.	The dynamic friction experienced by a body when it rolls over a surface		1	4
	(a) Sliding Friction	(b) Static Friction		
	(c) Rolling Friction	(d) Dynamic Friction		
17.	Where will be the centroid of the T section lie from the base shown in the figure?  		1	5
	(a) At 8.545cm	(b) At 6.5 cm		
	(c) At 5 cm	(d) At 9.25 cm		
18.	Location of centroid of the L-section shown in the figure is  		1	5
	(a) (2.24 cm, 3.68 cm)	(b) (1.45 cm, 3.24 cm)		
	(c) (1.64 cm, 3.28 cm)	(d) (1.28 cm, 2.64 cm)		

19.	Where will be the centroid of the figure lies?  		1	5
	(a) (3.66cm, 8.84cm)	(b) (3.45cm, 4.52cm)		
	(c) (8.88 cm ,3.88 cm)	(d) (3.88cm, 8.88cm)		
20.	The use of centroid comes in picture as if the non-uniform loading is of the type of parabola then what will be the best suited answer among the following?		1	5
	a) The net force will act at the centroid of the parabola	b) The net force will act the centre of the parabola		
	c)The net force will act on the base of the loading horizontally	d)The net load will not be formed as all the forces will be cancelled		

SET 3

Sl. No.	Question		Marks	CO
1.	_____ deals with a detailed study of planning, design, construction and maintenance of different types of roadways, railways, airports and runways, harbours, bridges and tunnels.		1	1
	(a) Environmental Engineering	(b) Transportation Engineering		
	(c) Geotechnical Engineering	(d) Structural Engineering		
2.	_____ provides methods and facilities for waste water management, water and air purification, waste disposal and recycling, and other purposes pertaining to human health and benefit.		1	1
	(a) Irrigation Engineering	(b) Hydraulics		
	(c) Geotechnical Engineering	(d) Environmental Engineering		
3.	Which of the following is not a basic idealization of Engineering Mechanics?		1	1
	(a) Particle	(b) Continuum		
	(c) Self Weight	(d) Rigid Body		
4.	_____ is an idealized body which may have finite or negligible mass and whose size and shape can be ignored without sacrificing the accuracy.		1	1
	(a) Continuum	(b) Particle		

	(c) Rigid Body	(d) Point Force		
5.	If the arm of the couple is doubled, its moment will be _____		1	2
	(a) doubled	(b) remain the same		
	(c) halved	(d) zero		
6.	Which of the following conditions changes the effect of couple?		1	2
	(a) Addition of another couple of same magnitude	(c) Shifting of couple to a parallel plane		
	(b) Rotation of couple by some angle in its plane	(d) Shifting of couple to a new position in its plane		
7.	Moment of Couple does not depend on _____		1	2
	(a) Arm of the couple	(b) Moment centre		
	(c) Moment centre and Arm of the couple	(d) All of these		
8.	Two couples are said to be equivalent if their _____		1	2
	(a) Rotation is same	(b) Magnitudes are same		
	(c) Moments are equal	(d) Signs are equal		
9.	Hinged supports offer _____ and_____ reactions.		1	3
	(a) Moment, Couple	(b) Moment, Horizontal		
	(c) Moment, Vertical	(d) Vertical, Horizontal		
10.	Which of the following are statically determinate beams?		1	3
	(a) Cantilever, overhanging and simply supported beam	(b) Cantilever, overhanging and fixed beam		
	(c) Fixed, continuous and propped cantilever beam	(d) Fixed, continuous and simply supported beam		
11.	In a simply supported beam, moment at the support _____		1	3
	(a) is zero, if it does not carry couple at the end	(b) is zero, if the beam has uniformly distributed load only		
	(c) is zero, if the beam has concentrated loads only	(d) may or may not be zero		
12.	_____ is a horizontal structural member subjected to transverse loads perpendicular to its axis.		1	3
	(a) Truss	(b) Column		
	(c) Strut	(d) Beam		
13.	The magnitude of limiting friction bears a constant ratio to .....is called coefficient of friction		1	4
	(a) Frictional Resistance	(b) Normal Reaction		
	(c) Wet Friction	(d) Dry friction		
14.	The frictional resistance depends upon the .....of the surface		1	4
	(a) Area	(b) Diameter of the specimen		
	(c) Roughness	(d) Moisture Content		
15.	Frictional Resistance acts in a direction .....to the motion of the body		1	4
	(a) Same	(b) Opposite		
	(c) Parallel	(b) Non-parallel		
16.	The frictional resistance is .....of the area of contact between two bodies		1	4
	(a) Condition	(b) Dependent		

	(c) Nature	(d) Independent		
17.	On simplification of the loading system, the net force acts at the _____of the loading body.		1	5
	(a) Centroid	(b) The central axis		
	(c) The mid-point	(d) Inertial point		
18.	Density is best given by _____		1	5
	(a) Addition of mass and density	(b) Product of volume and density		
	(c) Ratio of mass to Volume	(d) Subtraction of mass and density		
19.	Which of the following laminas do not have centroid at its geometrical centre?		1	5
	(a) Centre of gravity	(b) Right angled triangle		
	(c) Circle	(d) None of the above		
20.	What is the vertical centroidal distance from base of right angled triangle of base 20 cm and side 40 cm?		1	5
	a. 13.33 cm	a. 19.36 cm		
	b. 13.28 cm	d. 38.72 cm		

SET 4

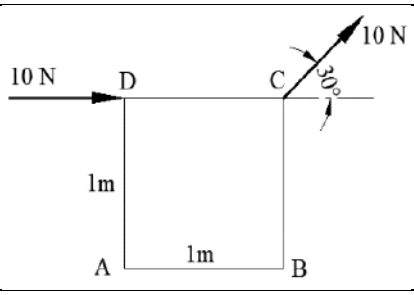
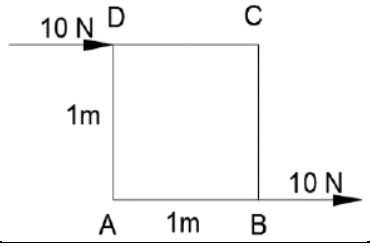
Sl. No.	Question		Marks	CO
1.	_____ is said to be made up of infinite number of molecules packed in such a way that, there is no gap between the molecules.		1	1
	(a) Particle	(b) Continuum		
	(c) Rigid Body	(d) Point Force		
2.	**The S.I. unit of force is_____**		1	1
	(a) calorie	(b) joule		
	(c) kilowatt	(d) Newton		
3.	In order to determine the effect of a force acting on a body, we must know _____		1	1
	(a) All of the above	(b) Line of action of the force		
	(c) Point of application	(d) Magnitude of the force		
4.	Forces are said to be concurrent when they are acting _____		1	1
	(a) none of the these	(b) in same planes		
	(c) in different planes	(d) at a point		
5.	An equivalent force couple system at a given point consists of _____		1	2
	(a) Same force with a moment	(b) Only Couples		
	(c) Only forces	(d) Same force-couple system		
6.	A given force – couple system can be replaced by a single force by moving the force F to a distance d given by _____		1	2
	(a) F+M	(b) M/F		
	(c) F/M	(d) 0		
7.	Varignon's theorem of moments states that, if a number of coplanar forces acting on a body are in equilibrium, then		1	2
	(a) their lines of action are at equal distances	(c) the algebraic sum of their moments about any point in their plane is zero		

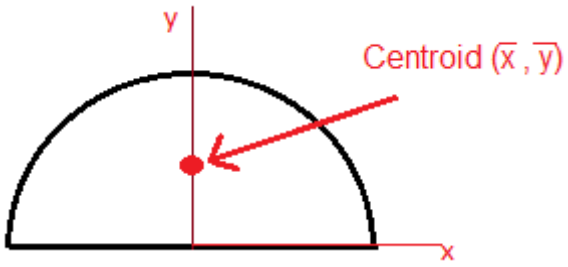
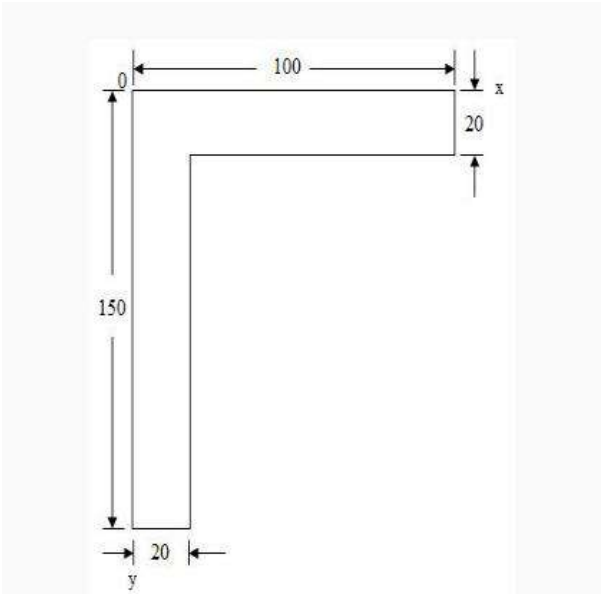
	(b) the algebraic sum of their moments about any point is equal to the moment of their resultant force about the same point	(d) their algebraic sum is zero		
8.	The translatory effect of a couple on the rigid body is		1	2
	(a) Average	(b) Maximum		
	(c) Minimum	(d) Zero		
9.	Continuous beams are _____		1	3
	(a) Statically indeterminate beams	(b) Statically determinate beams		
	(c) Beams with only two supports	(d) Framed beams		
10.	A beam which extends beyond it supports can be termed as _____		1	3
	(a) Fixed beam	(b) Propped Cantilever beam		
	(c) Over hanging beam	(d) Continuous beam		
11.	A cantilever is a beam whose _____		1	3
	(a) one end is fixed and the other end is free	(b) both ends are supported either on rollers or hinges		
	(c) both ends are fixed	(d) one end is fixed and the other end is on roller		
12.	A beam is a structural member which is subjected to		1	3
	(a) Horizontal load	(b) Axial tension or compression		
	(c) Twisting moment	(d) Transverse loads and couples		
13.	The angle made by the Resultant reaction with Normal Reaction called			4
	(a) Angle of Repose	(b) Angle of Friction		
	(c) Limiting Friction	(d) Cone of Repose		
14.	The value of coefficient of friction ranges from		1	4
	(a) 1 to 2	(b) 0.5 to 1		
	(c) 0 to 1	(d) 0 to 1.1		
15.	The maximum inclination of the plane with the horizontal on which a body free from external forces can rest without sliding is called		1	4
	(a) Angle of Friction	(b) Cone of Friction		
	(c) Angle of Repose	(d) Limiting Friction		
16.	The resultant reaction lies on the surface of a inverted right .....cone is known as the cone of friction		1	4
	(a) Rectangular	(b) Isosceles		
	(c) Triangular	(d) Circular		
17.	If a material has no uniform density throughout the body, then the position of centroid and centre of mass are _____		1	5
	(a) identical	(b) not identical		
	(c) independent upon the density	(d) unpredictable		

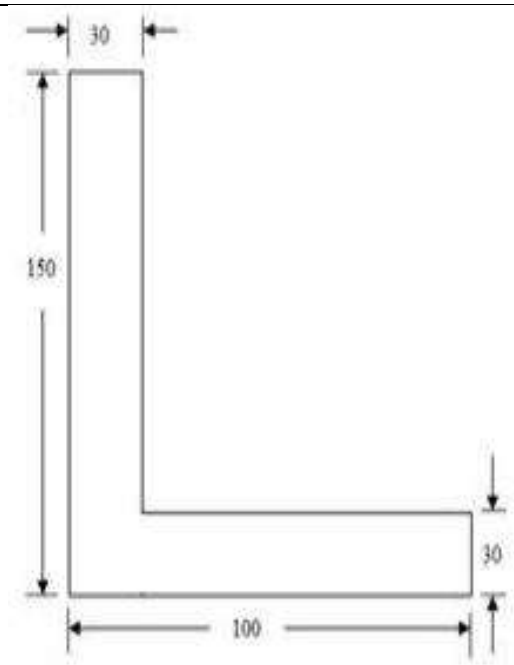
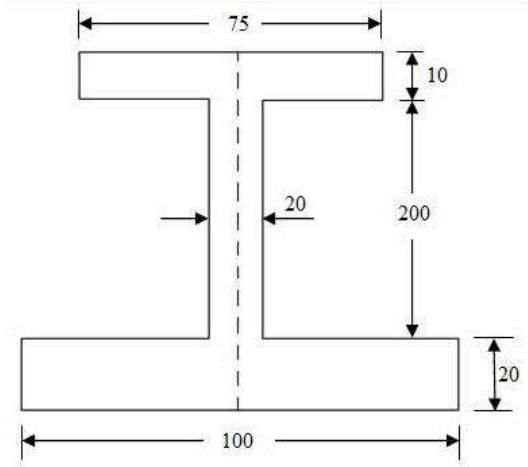
18.	What is the vertical centroidal distance of an equilateral triangle of side 2 m?		1	5
	(a) 1.000 m	(b) 0.769 m		
	(c) 0.577 m	(d) 0.866 m		
19.	It is a point within an object from which the force of gravity appears to act		1	5
	(a) . all of these	(b) centroid		
	(c) centre of mass	(d) centre of gravity		
20.	If an area has one line of symmetry the centroid lie		1	5
	a. none of the these	b. Anywhere on the area		
	c. Midpoint of the line of symmetry	d. Somewhere along the line symmetry		

SET 5

Sl. No.	Question		Marks	CO
1.	Two forces meeting at a point, but their line of action is not in one plane, is known as		1	1
	(a) non-concurrent non-coplanar forces	(b) non-concurrent coplanar forces		
	(c) concurrent coplanar forces	(d) concurrent non-coplanar forces		
2.	If a number of forces are acting simultaneously at a point, it		1	1
	(a) can be replaced by a single force	(b) can be replaced by a couple		
	(c) can be replaced by a couple and force	(d) cannot be replaced		
3.	The Principle of Transmissibility of Forces states that, when a force acts upon a body, its effect is		1	1
	(a) maximum if it acts at the centre of gravity of the body	(b)different at different points on its line of action		
	(c) same at every point on its line of action	(d)minimum if it acts at the centre of gravity of the body		
4.	The effect of a force on a body depends upon its _____		1	1
	(a) magnitude	(b) all the options		
	(c) position	(d) direction		
5.	Moment of a force about a moment centre is the measure of its		1	2
	(a) Translatory effect only	(b) Rotational effect only		
	(c) Both rotational and translatory effect	(d) Average movement		
6.	Two equal and opposite forces separated by a distance will produce		1	2
	(a) Rotational effect only	(b) Translatory effect only		
	(c) Both rotational and translatory effect	(d) Average movement		
7.	Moment with respect to the point C in the given figure is _____		1	2

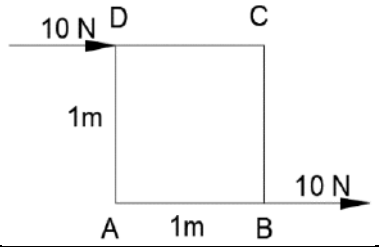
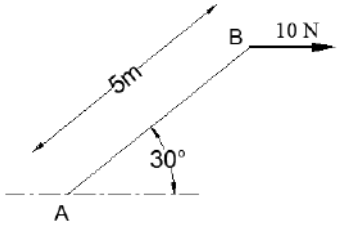
				
	(a) 5 N-m	(b) 0 N-m		
	(c) 19.66 N-m	(d) 18.66 N-m		
8.	ΣF_X for the given force system is _____ 		1	2
	(a) 10 N-m	(c) 0 N-m		
	(b) 12 N-m	(d) 20 N-m		
9.	The conditions of equilibrium for a beam are:		1	3
	(a) $\Sigma Fx = 0, \Sigma Fy = 0$	(b) $\Sigma Fx = 0, \Sigma Fy = 0 \& \Sigma M = 0$		
	(c) $\Sigma M = 0$	(d) $\Sigma Mx = 0, \Sigma My = 0 \& \Sigma Mz = 0$		
10.	For a fixed support in a plane structure, total number of reactions are:		1	3
	(a) 1	(b) 2		
	(c) 3	(d) 4		
11.	For a hinged support in a plane structure, total number of reactions are:		1	3
	(a) 4	(b) 3		
	(c) 1	(d) 2		
12.	For a roller support in a plane structure, total number of reactions are:		1	3
	(a) 4	(b) 2		
	(c) 3	(d) 1		
13.	Which motion has magnitude of static frictional force directly proportional to the normal reaction		1	4
	(a) Actual motion	(b) Impending motion		
	(c) Both a & b	(d) None of the above		
14.	Angle of friction is angle between _____.		1	4
	(a) The weight of the body and the friction here	(b) The incline and horizontal		
	(c) Normal reaction and the resultant	(d) The normal reaction and friction force		
15.	The force of friction developed at the contact surface is always _____.		1	4
	(a) Parallel to the plane and along the direction of the applied force	(b) Parallel to the plane and along the direction of the applied force		
	(c) All of the above	(d) Perpendicular to the plan		

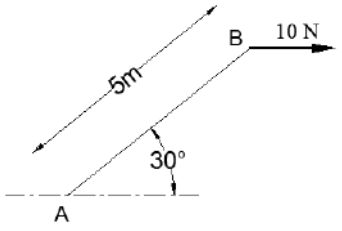
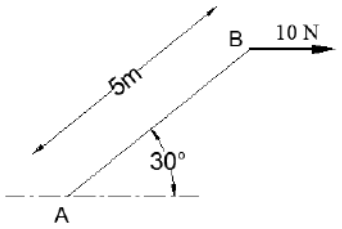
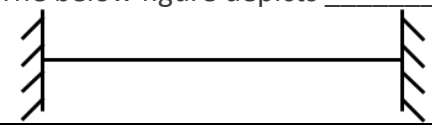
16.	The maximum inclination of the plane on which the body free from external forces can repose is called _____		1	4
	(a) cone of friction	(b) Angle of friction		
	(c) Angle of repose	(d) None of these		
17.	The coordinates of centroid in mm of the following figure given the diameter of 40 mm.....  		1	5
	a(0, 8.488)	b. (16.976,0)		
	b. (0,16.976)	d. (8.488, 0)		
18.	The coordinates of centroid in mm of the following figure.....  		1	5
	a. (32.85, -49.18)	b. (29.67, -59.42)		
	c. (22.85, -68.41)	d. (27.39, -52.39)		
19.	. The coordinates of centroid in mm of the following figure.....		1	5

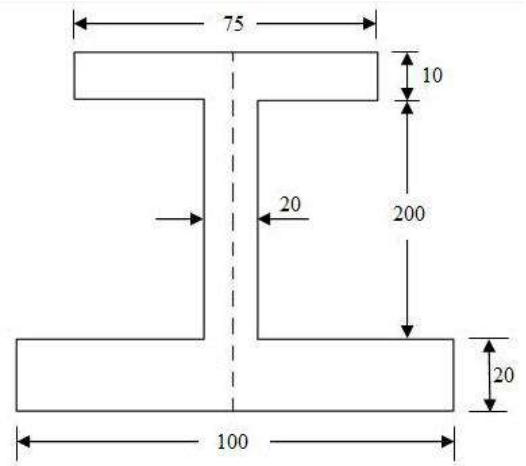
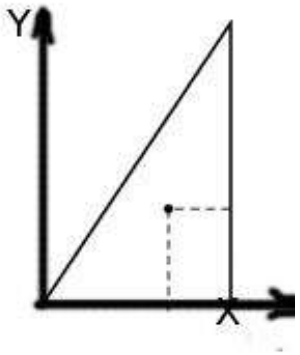
				
	a. (29.67, 59.42)	b. (30.91, 55.91)		
	c.. (32.85, 68.41)	d. (31.95, 61.18)		
20.	The y-coordinate of centroid in mm of the following figure..... 		1	5
	a. 97.59 mm	b. 123.12 mm		
	c. 84.57 mm	d. 103.87 mm		

SET 6

Sl. No.	Question		Marks	CO
1.	A single force which is capable of producing the same effect as that of system of forces on a body is called as _____		1	1
	(a) equilibrant	(b) couple		

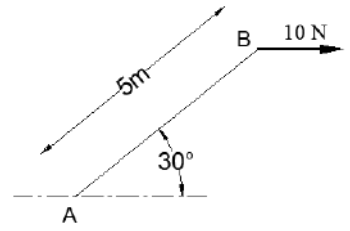
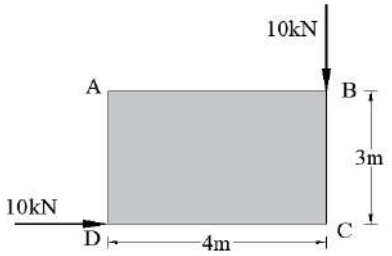
	(c) resultant	(d) point force		
2.	The principle of transmissibility is		1	1
	a) It states that the force acting on the body is a sliding vector	b) It states that the force acting on the body is a rolling vector		
	c) It states that the force acting on the body is a wedging vector	d) It states that the force acting on the body is a unit vector		
3.	The simplification of the forces on the axis is done as_____		1	1
	a) The forces are already simplified and don't need simplification	b) No simplification of the forces is possible		
	c) A particular system of rule is followed	d) The forces are very tentative quantity on terms of simplification and hence no simplification possible		
4.	The system of the collinear and the parallel force are simplified as _____		1	1
	a) The simplification is done by considering the rotations only	b) Such simplification is not possible		
	c) The simplification is usually done by not considering the directions of the both	d) The simplified collinear force system gives us a net force and the parallel force system gives us a simplified force, and then we add it vectorially		
5.	ΣF_Y for the given force system is _____ 		1	2
	(a) 0 N-m	(b) 10 N-m		
	(c) 20 N-m	(d) -10 N-m		
6.	ΣF_X for the given force system is _____ 		1	2
	(a) 0 N	(b) 10 N		
	(c) 19.66 N	(d) 20 N		
7.	ΣF_Y for the given force system is _____		1	2

				
	(a) 5 N	(b) 10 N		
	(c) 0 N	(d) 8.66 N		
8.	Moment with respect to the point B in the given figure is _____ 		1	2
	(a) 0 N-m	(b) 10 N-m		
	(c) 19.66 N-m	(d) 20 N-m		
9.	A load which varies with the length of the beam is known as _____		1	3
	(a) point load	(b) uniformly distributed load		
	(c) uniformly moving load	(d) uniformly varying load		
10.	The equivalent point load for a UVL will be equal to _____		1	3
	(a) area of the rectangle	(b) area of the triangle		
	(c) maximum magnitude of UVL	(d) zero		
11.	The below figure depicts _____ beam. 		1	3
	(a) propped cantilever	(b) continuous		
	(c) fixed	(d) cantilever		
12.	The below figure depicts _____ beam. 		1	3
	(a) fixed	(b) continuous		
	(c) propped cantilever	(d) cantilever		
13.	The force of friction depend on _____.		1	4
	(a) None of the these	(b) Area of contact		
	(c) Both areas of contact and roughness of the surfaces	(d) Roughness of the surfaces		
14.	The maximum frictional force developed when a body just begins to slide over the surface of another body is _____		1	4
	(a) Sliding friction	(b) Rolling friction		
	(c) Limiting friction	(d) None of these		

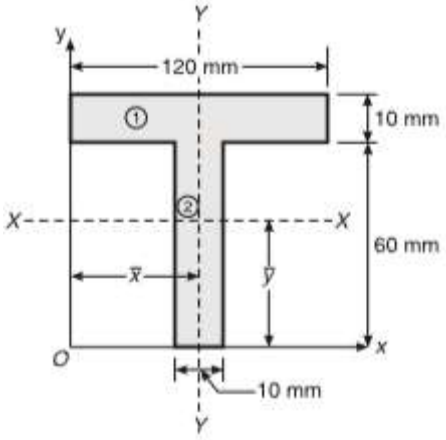
15.	The angle of which an inclined surface makes with the horizontal when a body placed on it is on the verge of moving down is called _____		1	4
	a) Angle of friction	(b) Angle of repose		
	(c) Angle of inclination	(d) None of these		
16.	Frictional force is independent o		1	4
	(a) None of the these	(b) Angle of friction		
	(c) Coefficient of friction	(d) Shape and size of surface of contact		
17.	The x-coordinate of centroid in mm of the following figure.....  		1	5
	a. 84.57 mm	b. 123.12 mm		
	C .0 mm	d. 103.87 mm		
18.	The coordinates of centroid of the following figure with base 9 mm and height 12 mm ....  		1	5
	a. (6 mm, 4 mm)	b. (3 mm, 8 mm)		
	c. (6 mm, 8 mm)	d. (3 mm, 4 mm		
19.	. Find the co-ordinates of the centroid of the triangle formed by the following sets of points (4, -1), (0, 3) and (- 4, - 2):		1	5
	a. (3,2)	b. (0,0)		
	c. (3,4)	d. (-3,4)		
20.	If a material has no uniform density throughout the body, then the position of centroid and center of mass are _____		1	5

	a. unpredictabl	b. identical		
	c. independent upon the density	d. not identical		

SET 7

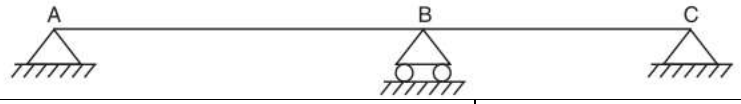
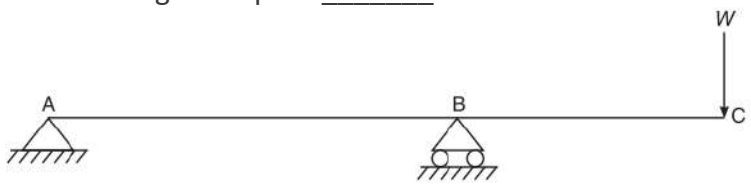
Sl. No.	Question		Marks	CO
1.	The resultant force is equal to the _____ of all the forces.		1	1
	a) Division	b) Product		
	c) Subtraction	d) Sum		
2.	The forces of the parallel system and the couple can't be simplified together as one is the cause and the other is the effect.		1	1
	a) The statement is wrong and the reason given is also wrong	b) The statement is wrong but the reason given is also correct		
	c) The statement is correct and the reason given is also correct	d) The statement is correct but the reason given is also wrong		
3.	A force vector with magnitude R and making an angle α with the x-axis is having its component along x-axis and y-axis as:		1	1
	a) R cosine (α) and R sine(α)	b) R cosine (180-α) and R sine(α)		
	c) R cosine (180-α) and R sine(180+α)	d) R cosine (α) and R sine(180+α)		
4.	Dividing the X-axis component and the Y-axis component of the of the vector making an angle with Y-axis α will give us.		1	1
	a) Sec α	b) Cot α		
	c) Tan α	d) 1		
5.	If the moment of the force 10N about the point A is zero, then its direction is _____ 		1	2
	(a) horizontal	(b) along AB		
	(c) vertical	(d) perpendicular to AB		
6.	Determine the Moment at point C for the figure shown below. 		1	2
	(a) -10 kN-m	(c) -30 kN-m		
	(b) 70 kN-m	(d) 0 kN-m		
7.	For any system of coplanar forces, the condition of equilibrium is that the		1	2

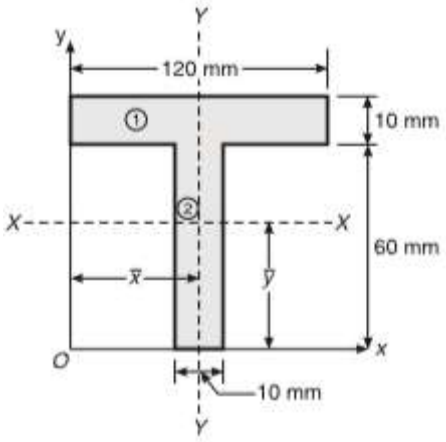
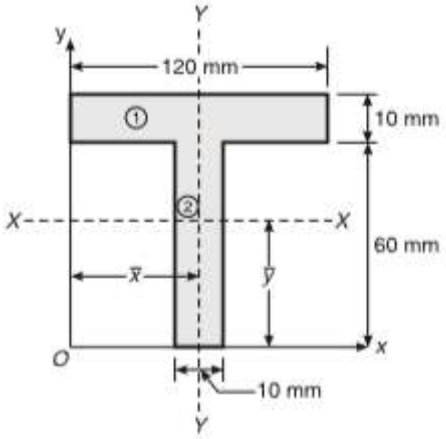
	(a) Algebraic sum of the vertical components of all the forces should be zero	(b) Algebraic sum of moments of all the forces about any point should be zero		
	(c) All of these	(d) Algebraic sum of the horizontal components of all the forces should be zero		
8.	The conditions of equilibrium for 2D plane are		1	2
	(a) $\Sigma F_Y = 0$	(b) $\Sigma F_X = 0$, $\Sigma F_Y = 0$ and $\Sigma M = 0$		
	(c) $\Sigma F_X = 0$ and $\Sigma F_Y = 0$	(d) $\Sigma F_X = 0$		
9.	The necessary condition for equilibrium of a coplanar concurrent force system is that algebraic sum of _____ must be zero		1	3
	(a) Moment of forces	(b) Horizontal and vertical forces		
	(c) Horizontal forces, vertical forces and Moment of forces	(d) Equilibrant		
10.	The first step of resolution is		1	3
	(a) To break up an inclined force into two components	(b) To find the resultant of the force system		
	(c)To find the equilibrant	(d) To find the resultant and moment of the force system		
11.	A rigid body is in equilibrium if the resultant force of concurrent force system is		1	3
	(a) Zero	(b) Positive		
	(c)Negative	(d) Maximum		
12.	For a smooth spherical surface reaction acts		1	3
	(a) Horizontal to the plane of contact	(b) Perpendicular to the plane of contact		
	(c)Inclined to the plane of contact	(d) Vertical to the plane of contact		
13.	Compared to static friction, kinetic friction is _____		1	4
	(a) Zero	(b) Greater		
	c) Very large	(d) Smaller		
14.	Coefficient of friction (μ) is given by _____.		1	4
	(a) $\mu = R/F$	(b) $\mu = F.R$		
	(c) $\mu = F/R$	(d) $\mu = F^2$		
15.	If ϕ = angle of friction and μ = coefficient of friction, then which equation is valid?		1	4
	(a) $\sin\phi = \mu$	(b) $\tan\phi = 1/\mu$		
	(c) $\tan\phi = \mu$	(d) $\cos\phi$		
16.	If ϕ = angle of friction and a = angle of repose then which relation is correct		1	4
	(a) $\phi = 1/a$	(b) $\phi = a$		
	(c) $\phi = \tan\alpha$	(d) $\alpha = \tan\phi$		
17.	Which method is used to determine centroid of a composite figure?		1	5
	a. None of the these	b. Graphical method		
	c. Both a. and b.	d. Analytical method		
18.	The centroidal value of a triangle is always -------- the length from the base and -------- the height from the apex.		1	5
	a. 1/3,2/3	b. 2/3,1/3		
	c. h/3,b/3	d. b/3,h/3		
19.	. The centroidal value of a semicircle is always measured as ----- from the base of the semicircle (normal to base) or along the symmetrical axis.		1	5
	a. $4R/3\pi$	b. $2R/3\ \pi$		

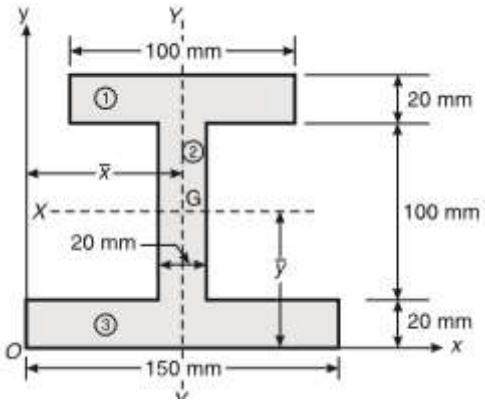
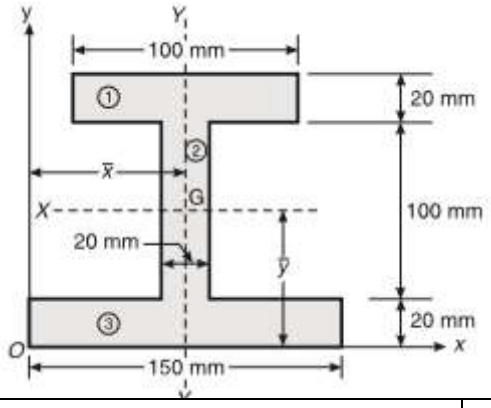
	c. 3R/4 π	d. 5R/3 π		
20.	What is the centroidal distance of Rectangle 1 from y axis with respect to the given figure?  		1	5
	a. 80	b. 120		
	c. 75	d. 60		

SET 8

Sl. No.	Question		Marks	CO
1.	The magnitude of the resultant of the two vectors is always_____		1	1
	a) Smaller than one of the vector's magnitude	b) Depends on the angle between them		
	c) Greater than one of the vector's magnitude	d) Axis we choose to calculate the magnitude		
2.	If two equal vector forces are mutually perpendicular then the resultant force is acting at which angle as compared to one of the vector?		1	1
	a) 0 degree	b) 90 degree		
	c) 180 degree	d) 45 degree		
3.	A force is completely defined when we specify		1	1
	a) Point of application	b) Direction		
	c) All of the options	d) Magnitude		
4.	If a number of forces act simultaneously on a particle, it is possible		1	1
	a) To replace them by a single force through C.G.	b) Not a replace them by a single force		
	c) To replace them by a single force	d) To replace them by a couple		
5.	The conditions of equilibrium for 3D are		1	2
	(a) $\Sigma F_X = 0$, $\Sigma F_Y = 0$, $\Sigma F_Z = 0$ and $\Sigma M_X = 0$, $\Sigma M_Y = 0$, $\Sigma M_Z = 0$	(c) $\Sigma M_X = 0$, $\Sigma M_Y = 0$ and $\Sigma M_Z = 0$		
	(b) $\Sigma F_X = 0$, $\Sigma F_Y = 0$ and $\Sigma F_Z = 0$	(d) $\Sigma F_X = 0$, $\Sigma F_Y = 0$ and $\Sigma M = 0$		
6.	The number of equations required for equilibrium of coplanar concurrent force system are _____		1	2
	(a) 6	(b) 2		

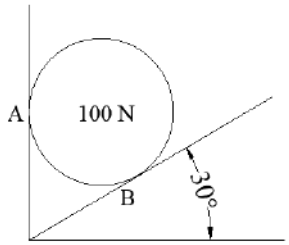
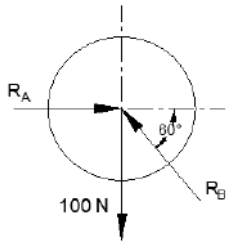
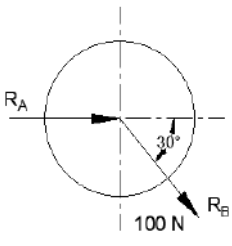
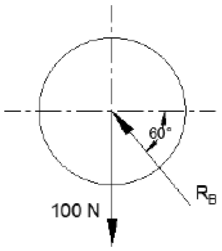
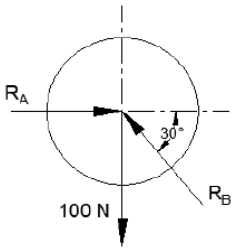
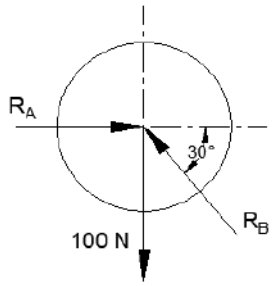
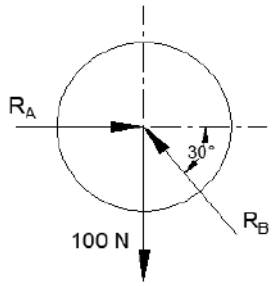
	(c) 4	(d) 3		
7.	The number of equations required for equilibrium of coplanar non-concurrent force system are _____		1	2
	(a) 4	(b) 2		
	(c) 3	(d) 6		
8.	FBD is an isolated sketch of a body showing _____		1	2
	(a) all the forces and reactions acting on it	(b) the free hand sketch of the body		
	(c) the diagram of the body	(d) only the reaction forces		
9.	The below figure depicts _____ beam. 		1	3
	(a) continuous	(b) cantilever		
	(c) propped cantilever	(d) fixed		
10.	The below figure depicts _____ beam. 		1	3
	(a) continuous	(b) cantilever		
	(c) propped cantilever	(d) fixed		
11.	The below figure depicts _____ beam. 		1	3
	(a) cantilever	(b) overhanging		
	(c) propped cantilever	(d) continuous		
12.	What is the unit of U.D.L?		1	3
	(a) KN	(b) KN-m		
	(c) kN-m2	(d) KN/m		
13.	Force of friction developed at contact surface is _____.		1	4
	(a) Perpendicular to the plane	(b) Along to the direction of motion		
	(c) Opposite to the direction of motion	(d) All of the above		
14.	When a body resting on a rough plane acted upon by gradually increasing tangential force, _____.		1	4
	(a) frictional force increases indefinitely	(b) Frictional force is zero		
	(c) There is a limit up to which frictional force can increase	(d) Frictional force remains constant		
15.	Frictional force acts _____ the surface in contact		1	4
	(a) Tangential to	(b) Normal to		
	(c) Inclined to	(d) Away from		

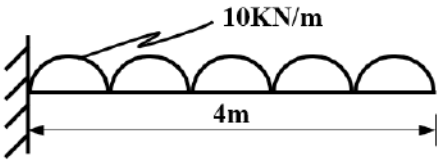
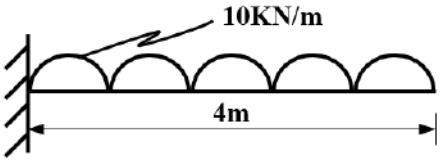
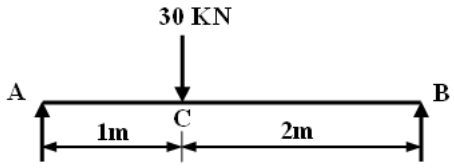
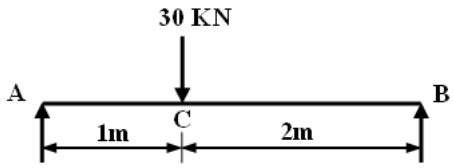
16.	Coulomb's laws of friction can be applied to _____.		1	4
	(a) Lubricated surfaces	(b) Fluid friction		
	(c) Fluid-structure interactions	(d) Dry friction between solid bodies		
17.	What is the centroidal distance of Rectangle 2 from y axis with respect to the given figure?  		1	5
	a. 75	b. 150		
	c. 60	d. 10		
18.	What is the centroidal distance of Rectangle 2 from bottom x axis with respect to the given figure?  		1	5
	a. 120	b. 30		
	c. 65	d. 40		
19.	What is the centroidal distance of Rectangle 1 from bottom X axis with respect to the given figure?		1	5

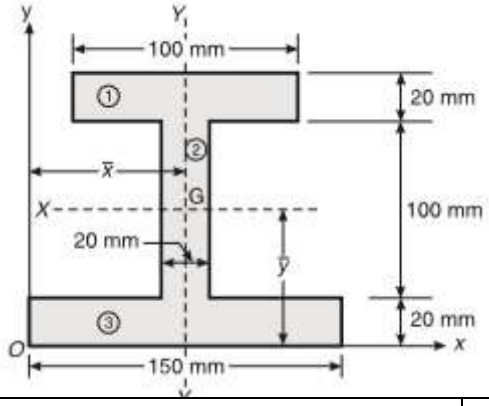
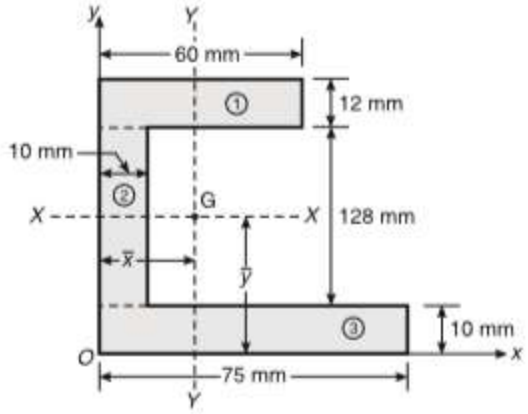
				
	a. 130	b. 160		
	c. 65	d. 10		
20.	What is the centroidal distance of Rectangle 2 from bottom X axis with respect to the given figure? 		1	5
	a. 85	b. 160		
	c. 70	d. 40		

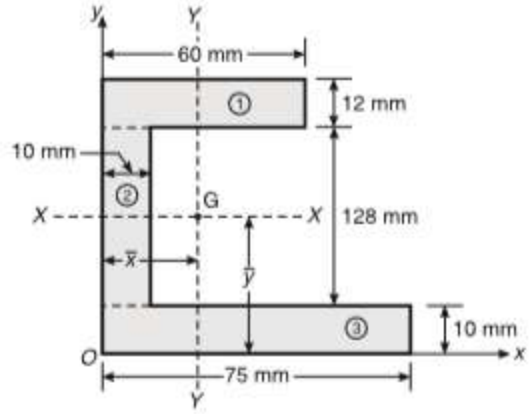
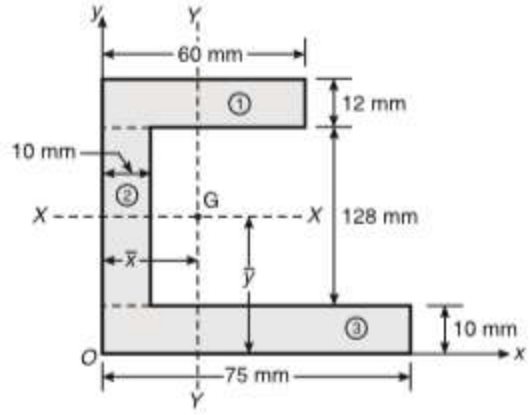
SET 9

Sl. No.	Question		Marks	CO
1.	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 ---------		1	1
	a) Balance of force	b) Forces		
	c) Dependence of forces	d) Resolution of forces		
2.	Which of the following is not the unit of distance ?		1	1
	a) Angstrom	b) Milestone		
	c) Micron	d) Millimetre		
3.	A force acting on a body may		1	1
	a) All of the options	b) Retard its motion		
	c) Change its motion	d) Introduce internal stresses		
4.	Forces are called coplaner when all of them acting on body lie in		1	1
	a) Different planes	b) One point		
	c) One plane	d) Perpendicular planes		

5.	Choose the correct FBD from the following for the sphere shown in the below figure.  		1	2
	 (a)	 (b)		
	 (c)	 (d)		
6.	To keep the body in equilibrium, the magnitude of reaction B is _____  		1	2
	(a) 100 N	(b) 200 N		
	(c) 115.470 N	(d) 173.20 N		
7.	To keep the body in equilibrium, the magnitude of reaction A is _____  		1	2
	(a) 200 N	(c) 100 N		
	(b) 115.470 N	(d) 173.20 N		

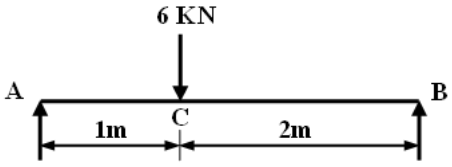
8.	If sum of all the forces acting on a body is zero, it may be concluded that the body		1	2
	(a) Must be in equilibrium	(b) Cannot be in equilibrium		
	(c) May be in equilibrium provided the forces are concurrent	(d) May be in equilibrium provided the forces are parallel		
9.	What is the vertical reaction at free end in the beam shown below?  		1	3
	(a) 0 KN	(b) 80 KN		
	(c) 40 KN	(d) 10 KN		
10.	What is the vertical reaction at fixed end in the beam shown below?  		1	3
	(a) 20 KN	(b) 80 KN		
	(c) 40 KN	(d) 0 KN		
11.	What is the reaction at support B in the beam shown below?  		1	3
	(a) 15 KN	(b) 10 KN		
	(c) 20 KN	(d) 30 KN		
12.	What is the reaction at support A in the beam shown below?  		1	3
	(a) 30 KN	(b) 15 KN		
	(c) 10 KN	(d) 20 KN		
13.	Impending motion of the body refers to a _____.		1	4
	(a) Body about to move	(b) Body at rest		
	(c) Body moving with uniform speed	(d) Body moving with uniform acceleration		
14.	At the point impending motion, the static frictional force is _____.		1	4
	(a) Maximum	(b) Zero		
	(c) Minimum	(d) Infinite		
15.	Force is required to start motion is _____.		1	4
	(a) More than that required for keeping it in motion	(b) Less than that required for keeping it in motion		

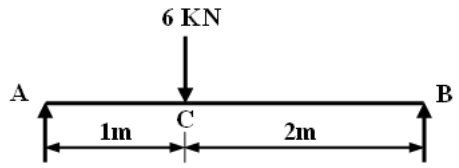
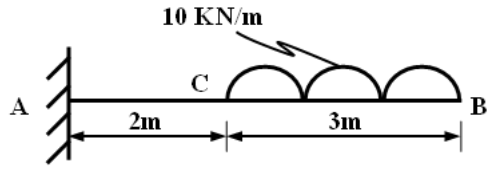
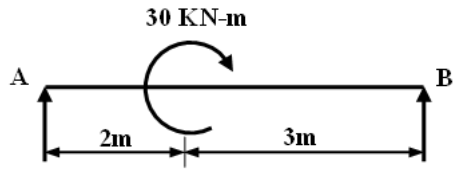
	(c) Same as the force required for keeping it in motion	(d) Zero, while force required for keeping it in motion is non- zero		
16.	The tangent of angle of friction is _____.		1	4
	(a) Cone of friction	(b) Co-efficient of friction		
	(c) Angle of repose	(d) Limiting friction		
17.	What is the centroidal distance of Rectangle 3 from bottom X axis with respect to the given figure?  		1	5
	a. 210	b. 10		
	c. 65	d. 110		
18.	What is the centroidal distance of Rectangle 1 from bottom X axis with respect to the given figure?  		1	5
	a. 10	b. 120		
	c. 65.	d. 144		
19.	.What is the centroidal distance of Rectangle 2 from bottom X axis with respect to the given figure?		1	5

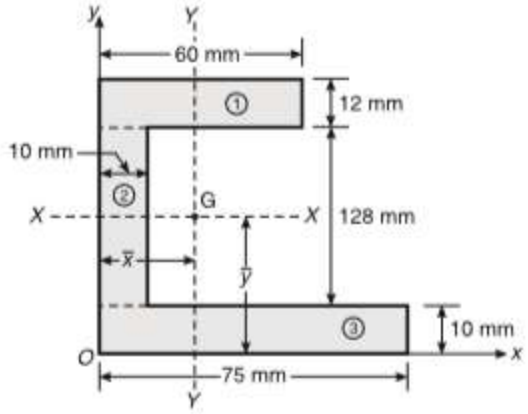
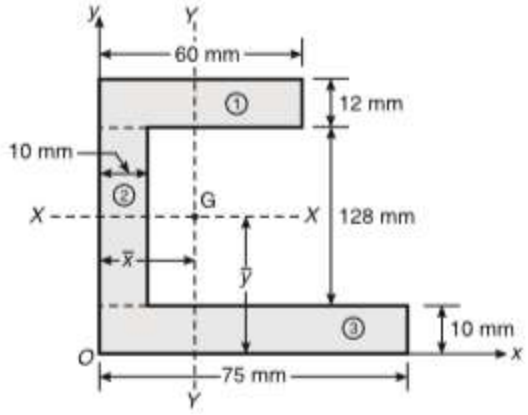
				
	a. 65	b. 120		
	c. 74	d. 10		
20.	What is the centroidal distance of Rectangle 3 from bottom X axis with respect to the given figure? 		1	5
	a. 5	b. 10		
	c. 75	d. 15		

SET 10

Sl. No.	Question		Marks	CO
1.	Forces are called concurrent when their lines of action meet in		1	1
	a) Plane	b). Two points		
	c). One point	d) Perpendicular planes		
2.	Coplanar concurrent forces are those forces which		1	1
	a) Meet at one point and their lines of action also lie on the same plane	b) Do not meet at one point and their lines of action do not lie on the same plane		

	c) Meet at one point, but their lines of action do not lie on the same plane	d) Do not meet at one point, but their lines of action lie on the same plane		
3.	What does Newton's third law state?		1	1
	a) The body tends to be rotated if the force is applied	b)The rate of change of momentum is equal to the force applied		
	c) The body is rest until a force is applied	d) For every reaction, there is an equal and opposite reaction		
4.	What is the direction of the resultant vector if two vectors having equal length is placed in the Cartesian plane at the origin as, one being parallel to and heading towards positive x-axis and the other making 165 degree with it and heading in the opposite direction of that of the first one?		1	1
	a) It is either in the 1st quadrant or in the 4th quadrant	b) It is either in the 1st quadrant or in the 3rd quadrant		
	c) It is either in the 1st quadrant or in the 2nd quadrant	d) Only in the 1st quadrant		
5.	Equilibrant is nothing but a resultant		1	2
	(a) Not equal in magnitude but in the same direction	(b) Equal in magnitude but opposite in direction		
	(c) Equal in magnitude and in the same direction	(d) Not equal in magnitude and opposite in direction		
6.	If two forces P and Q ($P > Q$) act on the same straight line but in opposite direction their resultant is		1	2
	(a) P/Q	(b) $P - Q$		
	(c) $Q - P$	(d) $P + Q$		
7.	In a coplanar non-concurrent force system if the algebraic summation of horizontal components of all the forces is zero, then the resultant is		1	2
	(a) Must do the analysis for the determination of the resultant.	(b) *Zero*		
	(c) Horizontal	(d) Vertical		
8.	Moment of a force can be defined as the product of force anddistance from the line of action of force to the moment centre		1	2
	(a) Maximum	(b) Any		
	(c) Least	(d) Accurate		
9.	What is the reaction at support A in the beam shown below? 		1	3
	(a) 4 KN	(b) 2 KN		
	(c) 6 KN	(d) 12 KN		
10.	What is the reaction at support B in the beam shown below?		1	3

				
	(a) 4 KN	(b) 2 KN		
	(c) 6 KN	(d) 12 KN		
11.	What is the maximum moment for the beam shown below? 		1	3
	(a) - 30 KN-m	(b) - 125 KN-m		
	(c) - 60 KN-m	(d) - 105 KN-m		
12.	What is the vertical reaction at support A in the beam shown below? 		1	3
	(a) 6 KN	(b) - 6 KN		
	(c) 5 KN	(d) - 5 KN		
13.	The angle made by the resultant of normal reaction and frictional force with the normal reaction at the point of impending motion is called _____.		1	4
	(a) Angle of inclination	(b) Angle of repose		
	(c) Angle of friction	(d) Normal angle		
14.	The unit of co-efficient of friction is _____		1	4
	(a) Dimensionless	(b) Newton		
	(c) Radian	(d) Meter		
15.	The frictional force is independent of		1	4
	a) The area of contact	(b) The coefficient of friction		
	(c) The normal reaction	(d) The angle of friction		
16.	Once a body just begins to slide, it continues to slide because		1	4
	(a) The body accelerates	(b) Inertia force acts on the body		
	(c) The body has inertia	(d) The frictional force becomes less		
17.	What is the centroidal distance of Rectangle 1 from Corner Y axis with respect to the given figure?		1	5

<table>
<tr><td></td><td colspan="2"> 
</td><td></td><td></td></tr>
<tr><td></td><td>a. 10</td><td>b. 30</td><td></td><td></td></tr>
<tr><td></td><td>c. 65</td><td>d. 20</td><td></td><td></td></tr>
<tr><td>18.</td><td colspan="2">What is the centroidal distance of Rectangle 2 from Corner Y axis with respect to the given figure?
 
</td><td>1</td><td>5</td></tr>
<tr><td></td><td>a. 15</td><td>b. 10</td><td></td><td></td></tr>
<tr><td></td><td>c. 60</td><td>d. 5</td><td></td><td></td></tr>
<tr><td>19.</td><td colspan="2">What is the centroidal distance of Rectangle 3 from Corner Y axis with respect to the given figure?</td><td>1</td><td>5</td></tr>
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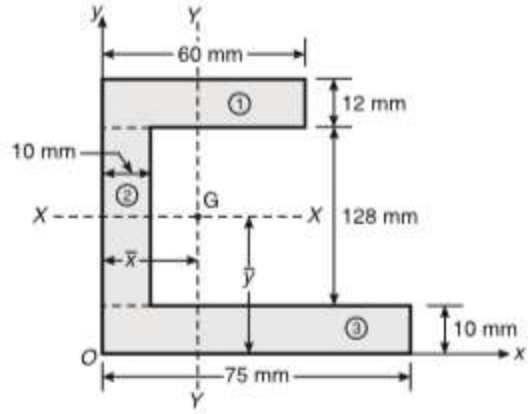
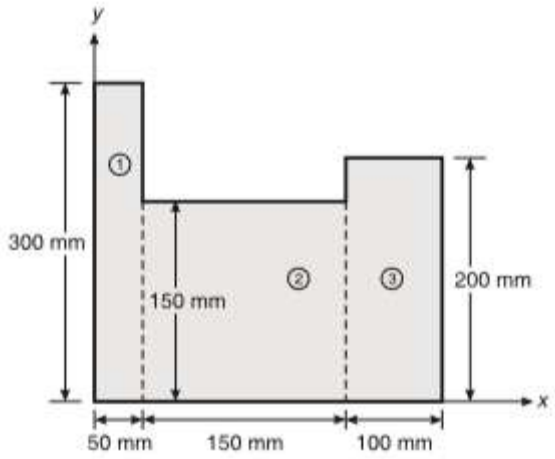
				
	a. 37.5	b. 10		
	c. 65	d. 25		
20.	What is the centroidal distance of Rectangle 1 from bottom X axis with respect to the given figure? 		1	5
	a. 10	b. 300		
	c. 60	d. 150		