Q.19 Explain Theorem of Perpendicular axis. (CO4)

Q.20 Define and classify the system of forces. (CO2)

Q.21 Two forces of 100N and 60N act at a point. If the angle between the lines of action of the two forces is 60°, determine the magnitude and direction of the resultant. (CO2)

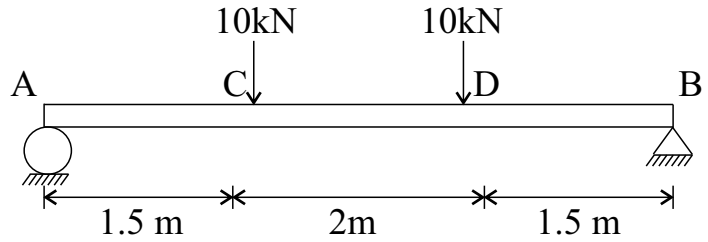
Q.22 What are the assumptions in simple bending? (C10)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 State and derive the torsion equation for a circular shaft. (C10)

Q.24 Draw SFD and BMD of the loaded beam as shown in figure. (CO9)



Q.25 Write short notes on

a) Stress Strain Curve for Ductile Material

b) Radius of Gyration and Section Modulus

(Note : Course outcome/CO is for office use only)

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Roll No. .....

2nd Year / Advance Diploma in Tool & Die Making

Subject:- Applied Mechanics and Strength of Materials

Time : 3Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Young's modulus is defined as the ratio of (CO7)

a) Volumetric stress and volumetric strain

b) Lateral stress and lateral strain

c) Longitudinal stress and longitudinal strain

d) Shear stress and shear strain

Q.2 Which of the following is a scalar quantity? (CO1)

a) Force b) Velocity

c) Mass d) Acceleration

Q.3 Coplanar forces are forces that (CO2)

a) Act in the same direction

b) Lie in the same plane

c) Are concurrent

d) Are non-parallel

Q.4 If three forces acting on an object are in equilibrium, they must: (CO2)

a) Be equal in magnitude

b) Have different directions

c) Form a triangle

d) Be parallel

Q.5 The point where the entire weight of an object can be considered to act is called the: (CO5)

a) Center of mass b) Center of gravity

c) Equilibrium point d) Pivot point

Q.6 Which law of motion is often used to describe the behaviour of objects in equilibrium? (CO3)

a) Newton's First Law

b) Newton's Second Law

c) Newton's Third Law

d) Newton's Law of Universal Gravitation

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 In the context of vectors, the resultant of two vectors is maximum when they are _____. (CO1)

Q.8 Within elastic limit, stress is _____. (CO7)

Q.9 The point of contra flexure is a point where _____. (CO9)

Q.10 A moment is a measure of _____. (CO2)

Q.11 The ratio of lateral strain to the linear strain within elastic limit is known as _____. (CO7)

Q.12 The property of a material by virtue of which a body returns to its original, shape after removal of the load is called _____. (CO7)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 What are the laws of friction? (CO4)

Q.14 What are Volumetric Strain and Shear Strain? (CO7)

Q.15 What is the Resilience and Proof Resilience? (CO7)

Q.16 Define Bending moment and shear force. (CO9)

Q.17 Define Helical spring and name the two important type of springs. (CO10)

Q.18 State the following:

a) Parallelogram law of forces

b) Principles of moments