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Roll No. .....

2nd Year/Branch : Advance Diploma
In Tool & Die Making
Subject : Applied Mechanics & Strength of Materials

Time : 3 Hrs. M.M. : 60

SECTION-A

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

Q.1 Which of the following is a vector quantity? (CO1)

a) Density b) Mass
c) Volume d) Acceleration

Q.2 When can two forces be in equilibrium? (CO2)

a) They are equal in magnitude
b) They are collinear
c) They are opposite in direction
d) All of the mentioned

Q.3 For a simply supported beam of spam of span L, with point load W at the centre, the maximum B.M will be (CO9)

a) WL b) WL/2
c) WL/4 d) WL/8

Q.4 The moment of inertia of a body is alway minimum with respect to its (CO8)

a) Base b) Centroidal axis
c) Vertical axis d) Horizontal axis

SECTION-D

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

Q.23 State and Drive the Bending equation and also write its assumptions. (C10)

Q.24 Two forces of 100 N and 60 N 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.25 Explain (CO8)

(a) Theorem of parallel axis

(b) Theorem of perpendicular axis

Q.5 Neutral axis of a beam is the axis (CO8)

a) Of zero stress b) Of maximum stress

c) Of negative stress d) Of positive stress

Q.6 Which of the following is termed as an action pull or push of body at rest or motion? (CO1)

a) Torque b) Momentum

c) Work d) Force

SECTION-B

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

Q.7 When the surfaces of two bodies come in contact there is a limited amount of resistance to sliding between them, which is known as _____ (CO4)

Q.8 Define stress and strain (CO7)

Q.9 The stress induced in a body, when suddenly loaded is _____the stress induced when the same load is applied gradually. (CO7)

Q.10 Define couple. (CO2)

Q.11 The bending stress in a beam is_____section modulus. (CO5)

Q.12 When there is no relative force between between touching surfaces, which force is developed?(CO4)

SECTION-C

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

Q.13 Sate (a) lami's theorem, and (b) triangle low of forces. (CO2)

Q.14 What is Poission's Ratio and Factor of Safety?(C07)

Q.15 Define Section Modulus and Radius of gyration?(CO8)

Q.16 Define (a) normal reaction, and (b) coefficient of friction. (CO4)

Q.17 The horizontal and vertical components of a given force are 100 N and 80 N. Find the magnitude and direction of a given force. (CO2)

Q.18 Name different type of Loading in Beams? (CO9)

Q.19 Explain Theorem of Parallel axis. (CO8)

Q20 Define the following (CO5)

(a) Centroid (b) Center of gravity.

Q.21 What is Torque and Power transmitted by torque also write torsion equation. (CO10)

Q.22 Explain Stress-strain diagram with neat sketch.(CO7)