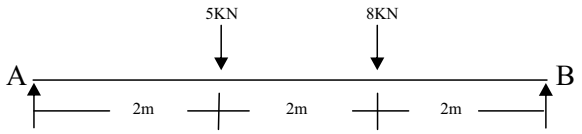
Q.34 Give sign convention for Bending moment

Q.35 Explain various type of load.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Draw S.F and B.M diagram as shown in fig.



Q.37 Find the magnitude and direction of the following force system

i) 8 N due North

ii) 5N Due North-West

iii) 3 N due east

iv) 3N due 30° West of south

v) 12 N due 60° North of West

Q.38 Explain coplanar and Non coplanar force system.

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4th Sem / Arch

Subject:- Structure Mechanics

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 A vector quantity is one which has

a) magnitude only

b) direction only

c) both magnitude and direction

d) None

Q.2 Equilibrium condition for coplaner concurrent forces are

a) $\Sigma H = O$ b) $\Sigma V = O$

c) Both (a) and (b) d) None of above

Q.3 A single force can be balance by

a) two force of equal magnitude

b) a single force of equal magnitudes and in opposite direction

c) Can not be balance by all

d) None of above

Q.4 The unit of moment of inertia is

a) mm b) mm^3

c) mm^2 d) mm^4

Q.5 The moment of inertia of circular section of diameter d about c.

a) $\frac{\pi d^4}{16}$ b) $\frac{\pi d^4}{32}$

c) $\frac{\pi d^4}{64}$ d) $\frac{\pi d^3}{32}$

Q.6 The unit of stain is

a) cm/ cm b) m / m

c) N / cm^2 d) No unit

Q.7 The deformation per unit length is called

a) Strain b) stress

c) elasticity d) None of above

Q.8 The bonding moment at free end of cantilever beam is

a) Maximum b) Minimum

c) Zero d) None of above

Q.9 At point of contra flexure

a) B.M is minimum b) B.M is maximum

c) zero d) None of above

Q.10 If n> (2J-3) then the frame is

a) Perfect frame b) deficient frame

c) redundant d) None of above

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Define force

Q.12 Define C.G

Q.13 Define elastic limit

Q.14 Define stress

Q.15 Define truss

Q.16 Define max +ve B.M

Q.17 Define compression

Q.18 Define neural axis

Q.19 Stress = $\underrightarrow{F}$

Q.20 Define collinear force.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Explain how a force can be represented

Q.22 Explain polygon law of force.

Q.23 Explain laml's theorem

Q.24 State perpendicular axis theorem

Q.25 Explain various type of supports

Q.26 Define bending movement and shear force

Q.27 Write moment of inertia of circular and triangular section

Q.28 Write bending equation

Q.29 Write the steps followed for analysis of truss by joint method

Q.30 Define perfect frame and deficient frame

Q.31 Define section modulus and bending stress

Q.32 Explain Hook's law

Q.33 Explain various type of shear and strain