Q.31 Define maximum and permissible bending stresses.

Q.32 What are the types of pin jointed frame.

Q.33 Write assumptions in computing the forces in members of perfect frame.

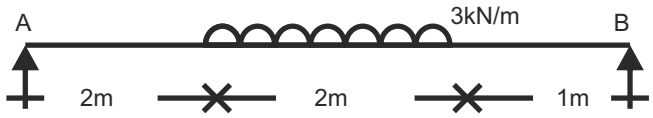
Q.34 Write short note on Position of Neutral axis.

Q.35 Write moment of Inertia of rectangular and Triangular.

Section-D

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

Q.36 Draw S.F. and bending moment diagram as shows in fig.



Q.37 Find the resultant of the following forces

a) 3N acting at an angle of 120° with x-axis

b) 4N acting at an angle of 30° with x-axis

c) 3.5 N acting at an angle of 90° with x-axis

Q.38 Explain various type of load as per 1S:875.

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4th Sem. / Arch
Subject : Structural Mechanics

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Multiple type Questions. All Questions are compulsory. (10x1=10)

Q.1 Concurrent forces

a) Act at a point on a body

b) Act at different point on body

c) Act outside by body

d) Are imaginary forces

Q.2 The unit of force in S.I. system is

a) Kilogram b) Newton

c) Dyne d) Watt

Q.3 Moment of a force is a _____ quantity.

a) Scaler b) Vector

c) Either A or B d) None of these

Q.4 The through which the whole area of a plane figure may be assumed to act is known as

a) Centre of pressure b) Centroid

c) Mid point d) None of above

Q.5 The centroid of a triangle is at a distance of _____ from its?

a) $^{h}/_{3}$ b) $2^{h}/_{3}$

c) $^{4}/_{5}h$ d) None of the above

Q.6 C.G. of a body may lie

a) Within the body b) Outside the body

c) Within and outside d) None of the above

Q.7 In S.I. the unit of stress

a) Kg/cm^2 b) N/m^2

c) Kg/mm^2 d) Kg/m^2

Q.8 The Bending moment at fixed end of a cantilever beam is

a) Maximum b) Minimum

c) $\frac{Wl}{2}$ d) wl

Q.9 For a simply supported beam with point load, The B.M.D. with be

a) Triangle b) A parabolic

c) A cubic curve d) None

Q.10 For a perfect frame, the relation between j and n is

a) $n = 2j + 3$ b) $n = 2j - 3$

c) $n = 2j$ d) None

Section-B

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

Q.11 Define moment.

Q.12 Define couple.

Q.13 Define centroid.

Q.14 Define elasticity.

Q.15 Define strain.

Q.16 Define fixed support.

Q.17 Define point of contra flexure.

Q.18 Define truss.

Q.19 _____ forces are those which act at a single point.

Q.20 Moment of force _____ x ^ d.

Section-C

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

Q.21 What are the characteristics of force.

Q.22 Explain triangle law of force.

Q.23 Explain varigon's theorem.

Q.24 Differentiate between centroid and centre of gravity.

Q25 State theorem of parallel axis.

Q.26 Write types of stress and strain.

Q.27 Explain types of loading on beam

Q.28 What are the types of end supports of beam.

Q.29 Give classification of beam.

Q.30 Write assumptions made in simple bending theory.