Code No. 6022 / S

FACULTY OF ENGINEERING

B.E. 2/4 (M/P/AE) I – Semester (Supplementary) Examination, July 2014

Subject : Mechanics of Materials

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

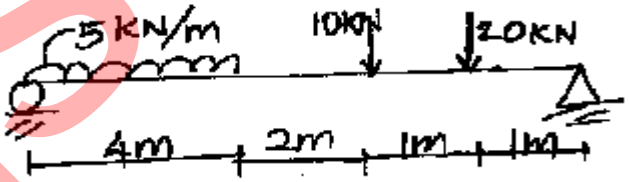
PART – A (25 Marks)

1	Write the differences between Ductility and Brittleness.	2
2	Define Poisson's Ratio and Modular ratio.	2
3	What is the relation between shearforce, bending moment slope and deflection.	2
4	What is sectional modulus of a circular section of diameter 600 mm.	2
5	Define slope and Deflection.	2
6	Explain equivalent bending moment and equivalent torque.	3
7	Write down the assumptions made by Lami's in thick cylinder's.	3
8	Write importance of mohr's circle of stresses.	3
9	What is kern of rectangular section whose dimensions are 200 mm x 600 mm.	3
10	What are limitations of Euler's column theory?	3

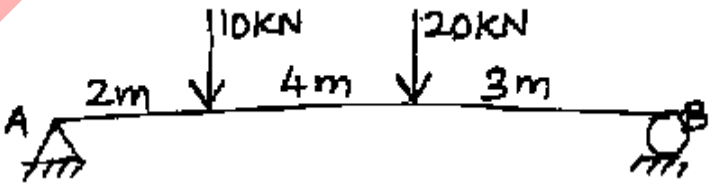
PART – B (50 Marks)

11 Derive the relation between the elastic constants K, C, and E from the fundamentals.

12 Draw SFD and BMD of the following beam.



13 Determine the maximum defection of the given beam.



14 Derive pure torsion equation for circular shaft.

15 An I-section beam 350mm x 200mm has a web thickness 12.5mm and a flange thickness of 25 mm. It carries a shearing force of 200 kN at a section. Sketch the shear stress distribution across the section.

16 A rectangular column is 150mm wide and 120mm thick it carries a load of 180 kN at an eccentricity 15mm in a plane bisecting the thickness. Find maximum and minimum intensities of stress in the section.

17 A cast iron pipe of 400mm internal diameter and 100 mm thickness carries water under a pressure of 8 MPa. Determine the minimum and maximum intensities of Hoop stress across the section.

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