BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BE **SEMESTER: V**
BRANCH: CIVIL **SESSION : MO/2018**

SUBJECT : CE5005 STRUCTURAL DESIGN - II

TIME: 1.5 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

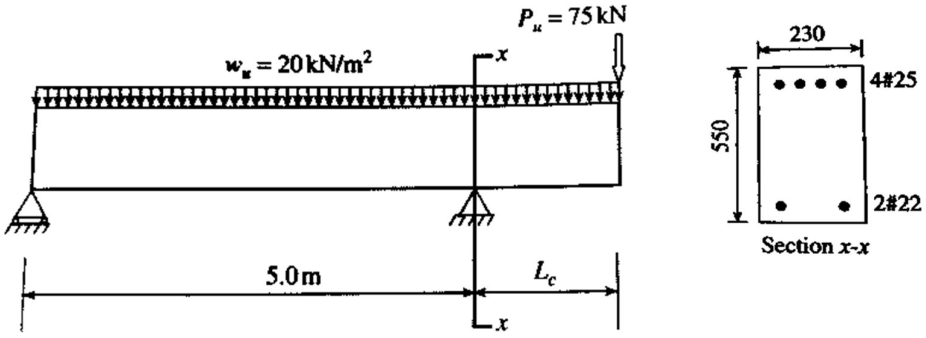
Q1 (a) Is it desirable to put in as much cement as possible in a concrete mix provided cost is not a constraint? Justify? [2]

(b) Enumerate difference between working stress method and limit state method. [3]

Q2 (a) Explain characteristic strength of concrete and characteristic loads. [2]

(b) State various assumptions on which the design for the limit state of collapse in flexure is based? [3]

Q3 Find the maximum cantilever span L_c for the beam shown below. Assume M30 grade concrete and Fe415 steel. [2]



Q4 For Q3 design the flexural reinforcement to be provided for 5m span. Sketch reinforcement details. [5]

Q5 Using the data of Q3 & Q4 design shear reinforcement for entire beam. [5]

Q6 Determine ultimate moment of resistance of 6m span isolated T-beam with following data: [5]
Depth of flange = 100mm
Width of flange = 900mm
Web width = 300mm
Effective depth = 600mm
Tensile steel = 5 no.s 25mm diameter
M20 grade concrete and Fe415 steel

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