

B.Sc. (Sem.-II) (Fire & Safety) Examination

CC 203

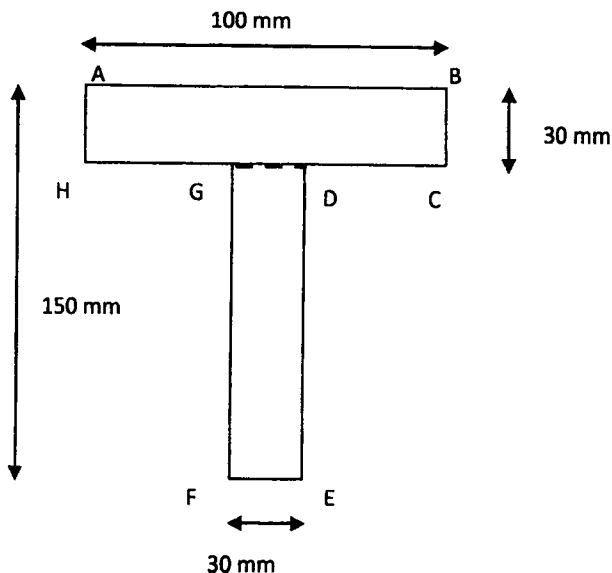
Mechanics of Social and Town Planning

Time : 3 Hours]

May-2017

[Max. Marks : 70

- Q-1 A In how many categories the building has been classified? What are the two basic parts of a building? Give list of building components? 7
- OR
- Q-1 A Explain any three of the following :- foundation, Masonry Units, Floor Structure, Roof Structure. 7
- Q-1 B What do you understand by shallow foundation and deep foundation, Draw single footing, Stepped footin And Sloped footing? Explain Pile foundation and draw a figure of end bearing pile? 7
- OR
- Q-1 B What is primary function of wall and what should be the good quality of wall? 7
- Q-2 A What factors you would consider for selection of site for Urban Development? 7
- OR
- Q-2 A Explain water supply requirement for fire protection, keeping in view capacity, pressure adequacy And reliability of supply? 7
- Q-2 B What are the two main sources of water supply and two basic types of distribution? Explain Fire hydrant system? 7
- OR
- Q-2 B What are the types roads in urban area and describe arterial roads? 7
- Q-3 A Explain types of support and their reaction. 7
- OR
- Q-3 A Find out a center of gravity of a 100 mm x 150 mm x 30 mm T-section. 7



- Q-3 B Explain moment force and their types with figure. 7
- OR
- Q-3 B A load of 4000 N has to be raised at the end of a steel wire. If the unit stress in the wire must not exceed 80 N/mm² what is the minimum diameter required? What will be the extension of 3.50 meter length of wire? Take $E = 2 \times 10^5$ N/mm². 7
- Q-4 A Explain simple stress and their types with neat sketch. 7
- OR
- Q-4 A A rod is 2 meter long at 10°C. Find the expansion of the rod when the temperature is raised to 80°C. If this expansion is prevented, find the stress in the material. Take $E = 1.0 \times 10^5$ N/mm² and $\alpha = 0.000012$ per°C. 7

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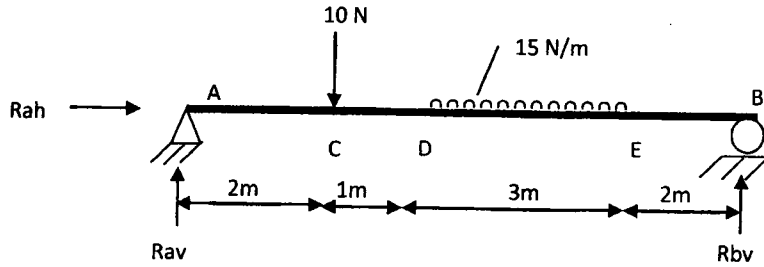
Q-4 B Explain thermal stress and thermal strain with figure.

7

OR

Q-4 B Calculate shear force and bending moment at all important points and draw SFD and BMD.

7



Q-5 Answer the following question.

14

1. Industrial Building falls in which category?
 - i. Group B
 - ii. Group C
 - iii. Group G
 - iv. Group I
2. Superstructure is a part of building which is
 - i. Below the ground level
 - ii. Above the ground level
 - iii. At ground level
 - iv. None
3. Which comes under vertical transportation?
 - i. Stairs
 - ii. Ramps
 - iii. Ladders
 - iv. All
4. If independent footings of two columns are connected by beam, it is called
 - i. Strap footing
 - ii. Simple footing
 - iii. Spread footing
 - iv. Combined footing
5. For building having height between 13 M to 25M, the underground minimum water capacity should be
 - i. 69000 Ltrs
 - ii. 79000 Ltrs
 - iii. 89000 Ltrs
 - iv. 99000Ltrs
6. The maximum amount of water used in any given hour of a day is peak hourly consumption?(True/False)
7. A solid masonry wall is not built by
 - i. Bricks
 - ii. Stone
 - iii. Hollow Blocks
 - iv. Clay
8. Define External force and Internal force.
9. Write down the mathematical representation of Lami' s theorem.
10. What is static friction and dynamic friction?
11. Define Bending moment.
12. Write down the difference between tensile strain and compressive strain.
13. When a number of forces are lie in the same plane they are said to be
 - i. Co-planar forces
 - ii. Non Co-planar forces
 - iii. Concurrent forces
 - iv. Non Concurrent forces
14. Define Cantilever beam.