

MODEL QUESTION PAPER (CBCS 2018 SCHEME) (For Reference only)

Note: The model question paper highlights the overall distribution of marks and provides generic examples of questions set with reference to the modules & syllabus.

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18ENG15

VISVESVARAYA TECHNOLOGICAL UNIVERSITY (VTU)

I Semester B.Arch. (CBCS 2018 Scheme) Examination 2018

BUILDING STRUCTURES-I

Time: 03 Hours

Maximum Marks: 100

Instructions for Candidates

- 1) All questions carry equal marks.
- 2) Answer FIVE Full questions, taking ONE question from each Module
- 3) Follow written dimensions do not scale the drawing.

Module 1

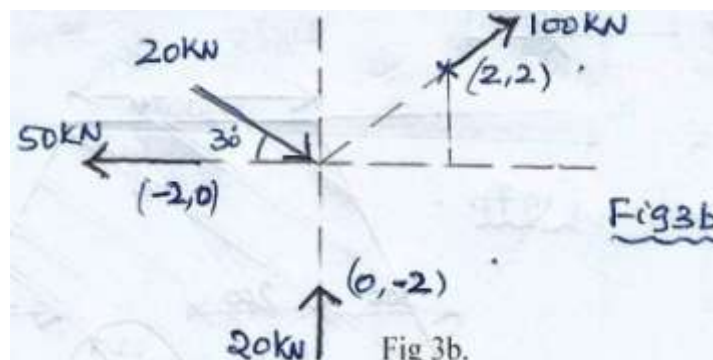
1. a) Explain The following with example: 10
(i) Live load (ii) Dead load (iii) Impact load (iv) Earth Quake load
(b) Explain the advantages of mild steel and concrete as building materials. 10

OR

2. a) What is workability? What are factors that affect workability of concrete. 06
b) Explain briefly DUCTILITY & BRITLENES. 04
c) Explain various horizontal forces the structure is being subjected to. 10

Module 2

3. (a) Differentiate between:
(i) Coplanar force system & Non coplanar force system. 03
(ii) Concurrent force system & Collinear force system. 03
(iii) Law of Triangle of forces & Law of Polygon of forces. 04
(b) Determine the magnitude & direction of resultant force shown in Fig.3b 10



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4. (a) The Sum of two concurrent forces P & Q is 270N, and their resultant is 180N. The angle between the force 'P' and resultant 'R' is 90° . Find the magnitude of each force & angle between them. 11
- (b) What is free body Diagram ? For the three illustrations shown draw the free body diagram: 09
- (i) Ladder resting on a rough wall & rough floor.
 - (ii) Beam resting on a Hinge at one end & roller on the other.
 - (iii) Ball resting on a table.

Module 3

5. (a) State and Prove "Varignon's Theorem". 06
- (b) Determine the magnitude, directions, & Line of action of resultant force (Refer Fig.5b). 14

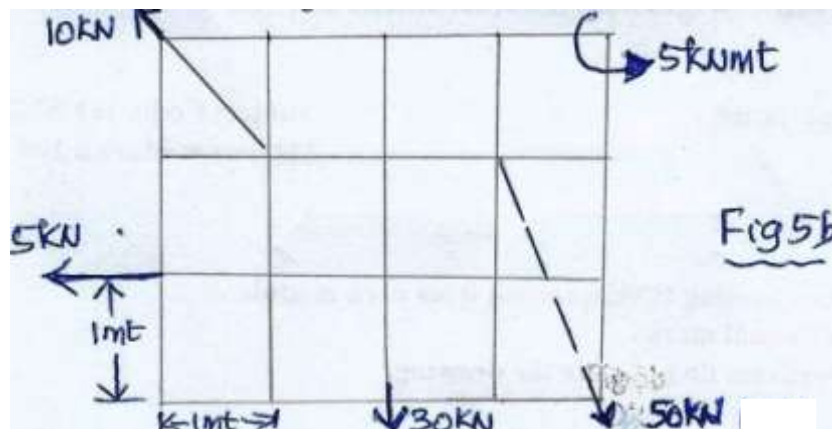
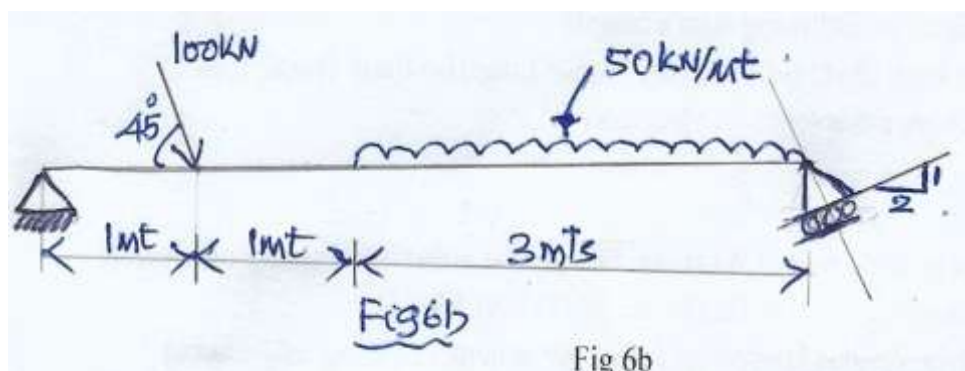


Fig. 5b

OR

6. (a) Explain different types of supports with neat sketches. 08
- (b) Determine the support reaction for the beam shown in Fig. 6b 12



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Module 4

7. (a) Locate the centroid of composite Section shown fig. 7a.

09

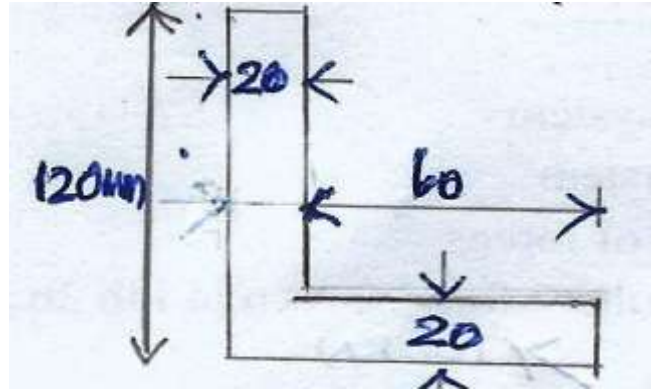


Fig. 7a

(b) Locate the centroid of the composite section shown fig. 7b.

11

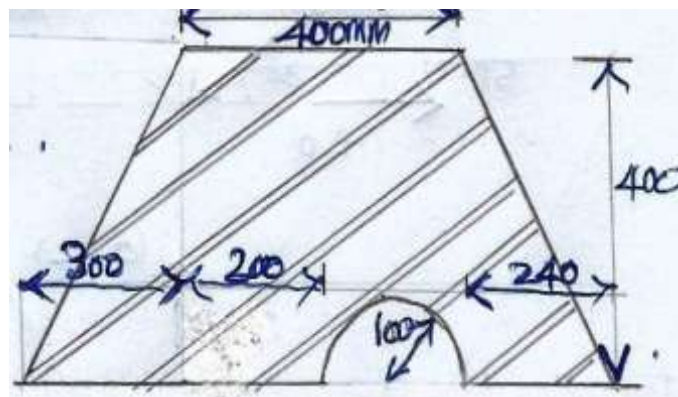


Fig.7b

OR

8. (a) State and Prove Parallel axis theorem.

06

(b) Determine the moment of inertia about both horizontal & vertical centroidal axis for the composite section shown in Fig. 8b.

14

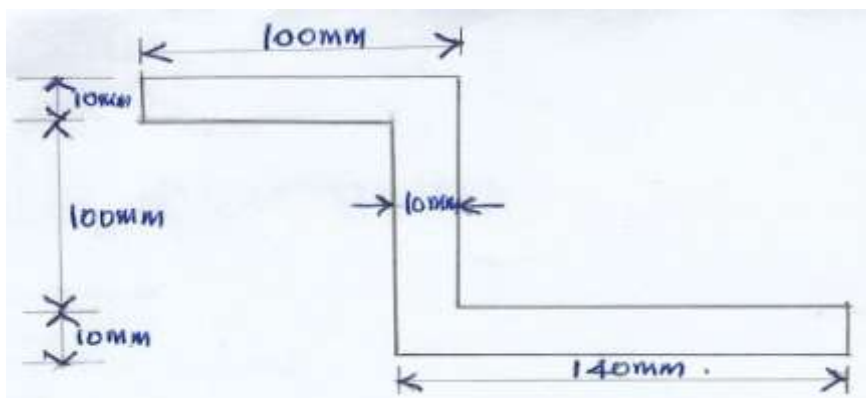


Fig. 8b

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Module 5

9. (a) With neat sketch explain: 09
(i) Perfect frame.
(ii) Deficient frame.
(iii) Redundant frame

- (b) Determine the forces in the truss shown in Fig. 9b. 11

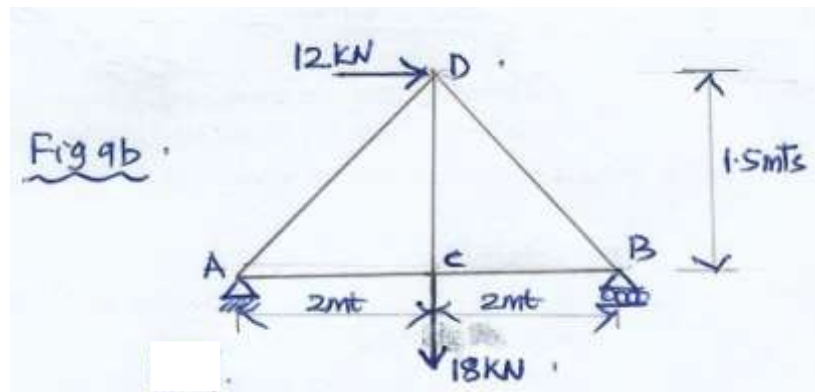


Fig. 9b

OR

10. A Truss of span 9mts is loaded as shown in Fig. 10. 20
Find the reactions and forces in the member of the truss shown fig. 10

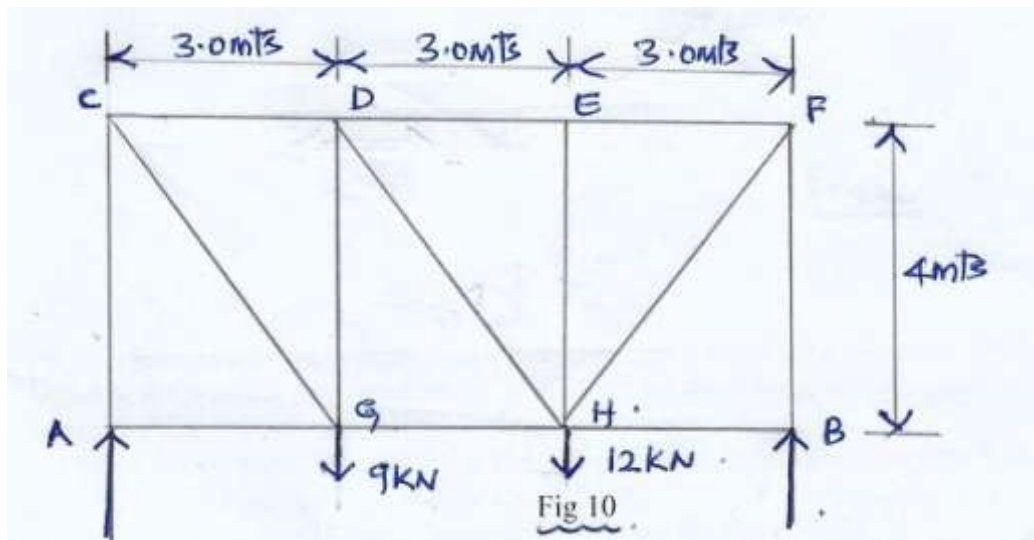


Fig. 10