NEW SCHEME

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First/Second Semester B.E Degree Examination, February/March 2005

Common to all Branches except Architecture

Elements of Civil Engineering

Time: 3 hrs.] [Max.Marks : 100

Note: *1. Answer any FIVE full questions.*
2. All questions carry equal marks.
3. Missing data, if any, may be suitably assumed.
4. Answer must be specific and precise.
5. Draw neat sketches wherever necessary.

1. (a) What are the requirements of a good building stone? **(6 Marks)**

(b) What are the tests to be conducted on bricks to find their suitability for the construction work? **(6 Marks)**

(c) i) What are the properties of good cement mortar? Give its uses.

ii) What is meant by R.C.C? What are its advantages? **(8 Marks)**

2. (a) What is surveying? Write in brief the basic principles of surveying. **(6 Marks)**

(b) What is remote sensing? What are its applications? **(6 Marks)**

(c) Brief the desirable properties of good timber. What are the uses of timber? **(8 Marks)**

3. (a) Name the alternate building materials and give their uses. **(6 Marks)**

(b) List the composite materials and mention their uses. **(6 Marks)**

(c) Explain briefly the role of a civil engineer in the development of a country. **(8 Marks)**

4. (a) Distinguish between :

i) Composition and resolution of forces

ii) Rigid body and deformable body. **(6 Marks)**

(b) Find the resultant of coplanar con-current force system shown in fig.1. **(6 Marks)**

(c) A rigid plate ABCD is subjected to forces on shown in fig.2. Compute the magnitude, direction and line of action of the resultant of the system with reference to the point A. **(8 Marks)**

5. (a) State the conditions of equilibrium for coplanar con-current and non-concurrent force systems. **(6 Marks)**

(b) State and prove Varignon's theorem. **(6 Marks)**

(c) A beam ABCDEF is hinged at A and supported on rollers at E and carries loads as shown in fig.3. Determine the reactions at supports. **(8 Marks)**

Contd.... 2

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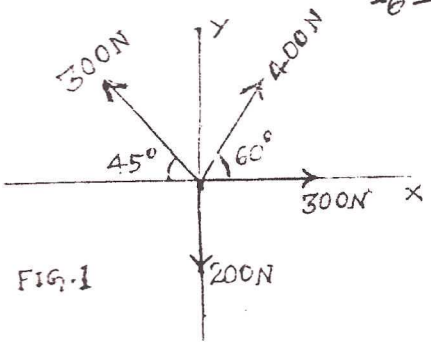

FIG.1

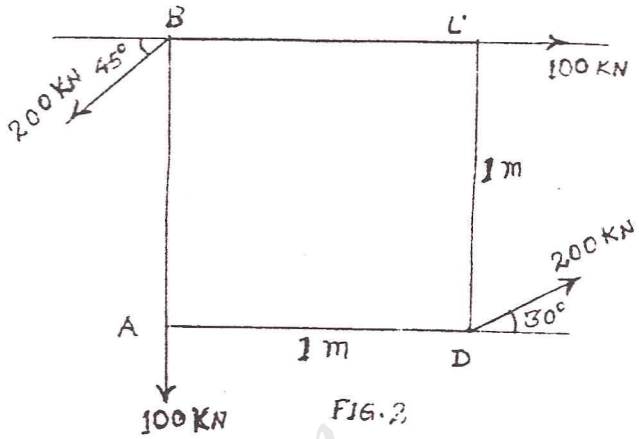

FIG.2

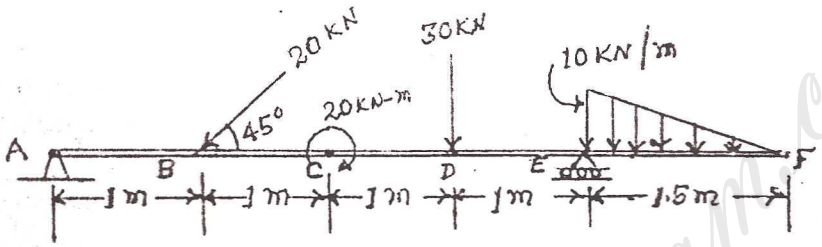

FIG.3

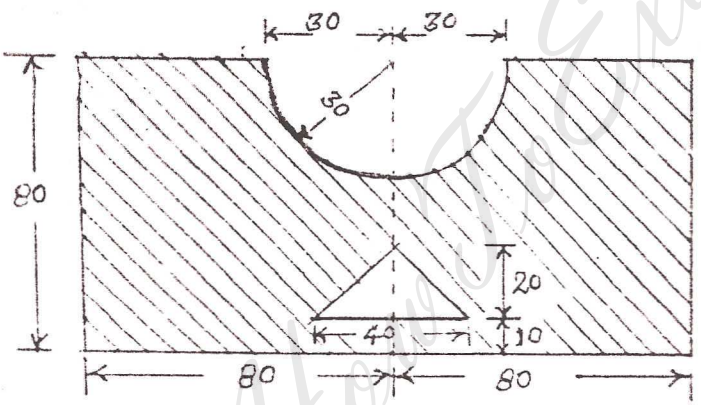

FIG.4 All dimensions are in mm

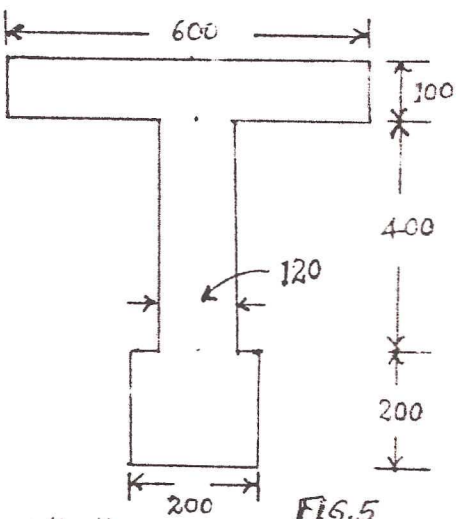

FIG.5 All dimensions are in mm

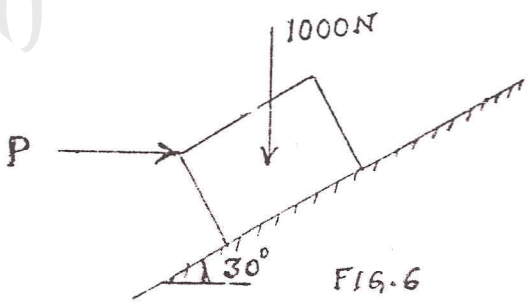

FIG.6

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