

ENDTERM FINAL EXAMINATION MAY 2018

Even Semester 2017-18

Course: **CIV101 Elements of Civil Engineering**

II Sem. Chemistry Cycle

Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 4 parts.
- (iii) Scientific and Non-programmable calculators are permitted.

Part A

1. Write short note on the following
 - (a) Properties of an ideal preservative for stones. (05 Marks)
 - (b) Any five requirements of good building stones. (05 Marks)
2. Explain constituents of good brick earth. (10 Marks)

Part B

3. Derive the expression for parallel axis theorem. (06 Marks)
4. Determine the moment of inertia of the section, shown in Fig.01, about its centroidal axes. Calculate the least radius of gyration for the section as well. (14 Marks)

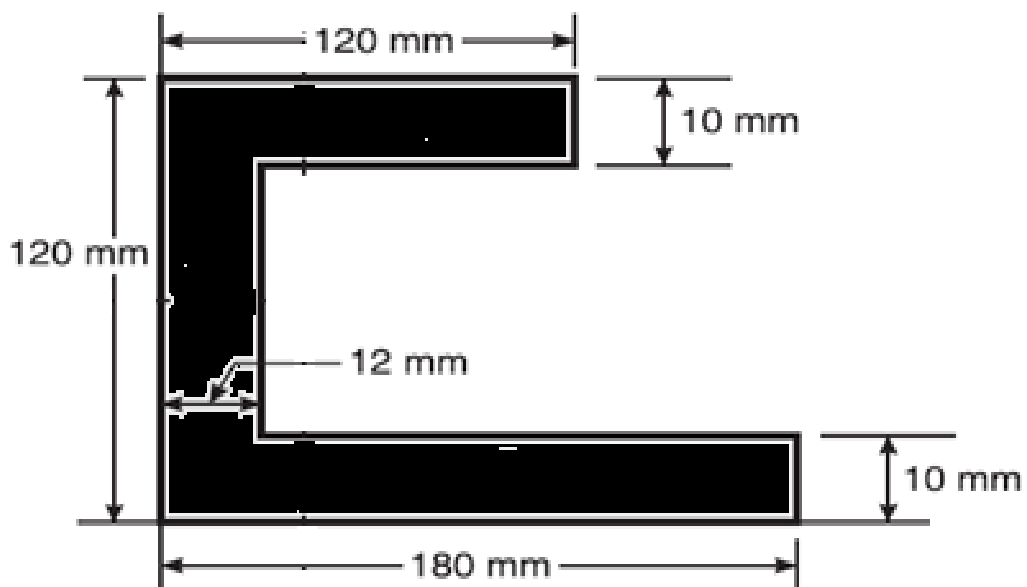


Fig.01

Part C

5. Derive the expression for Centroid of semi-circle with respect to its diametric axis.

(08 Marks)

6. Determine the centroid of Fig.02.

(12 Marks)

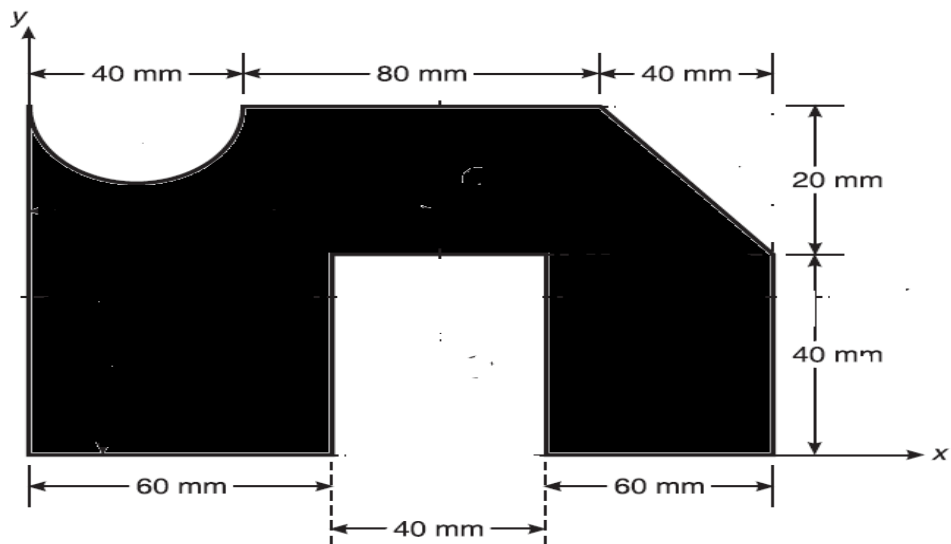


Fig.02

Part D

7. Find the support reactions for the beam shown in Fig.03.

(10 Marks)

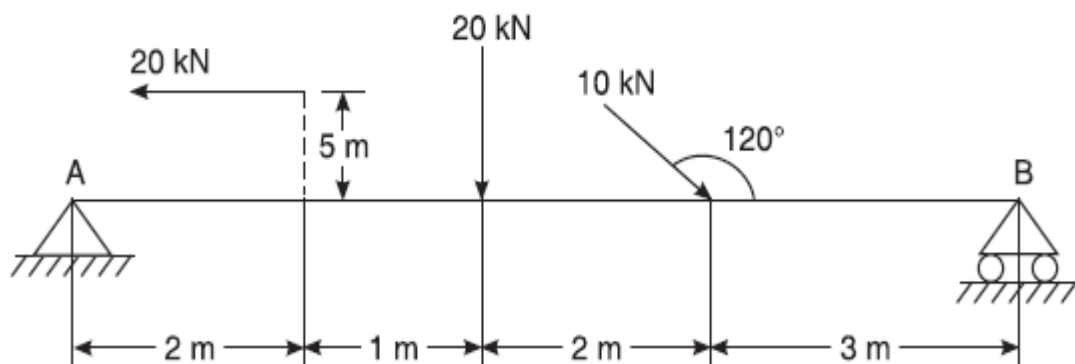


Fig.03

8. Find the support reactions for the beam shown in Fig.04.

(10 Marks)

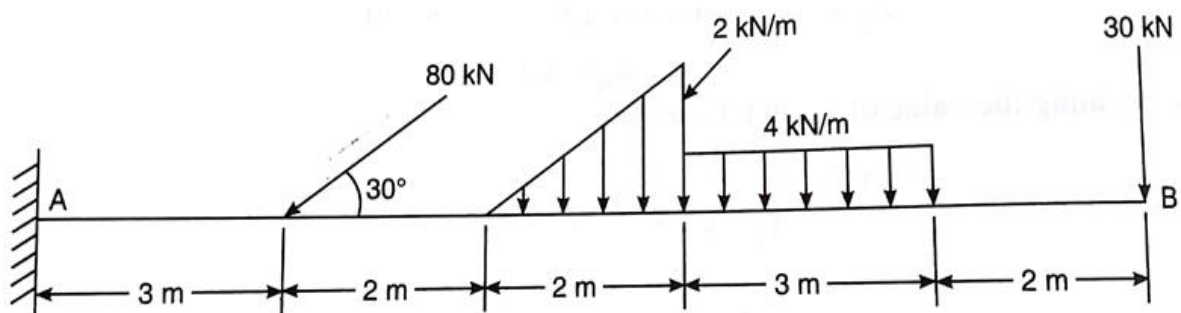


Fig.04

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SCHOOL OF ENGINEERING

Weightage: 20%

Max Marks: 40

Max Time: 1 hr.

27 March Tuesday 2018

TEST – 2

SET A

Even Semester 2017-18 Course: **CIV101 Elements of Civil Engineering** II Sem. Chem cycle

Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted.

Part A

(3 Q x 4 M = 12 Marks)

1. State Lami's theorem with proper expression.
2. List the types of support for a beam.
3. What do you mean by cantilever and continuous beams? Explain with neat sketches.

Part B

(2 Q x 8 M = 16 Marks)

4. A massless chain ABCD is suspended from the ceiling points A and D. Two weights 1000 N and W are suspended at B and C so as to cause the chain to remain in equilibrium as shown in Fig.1. Find the weight W and the tensions in different parts of the chain using Lami's Theorem.

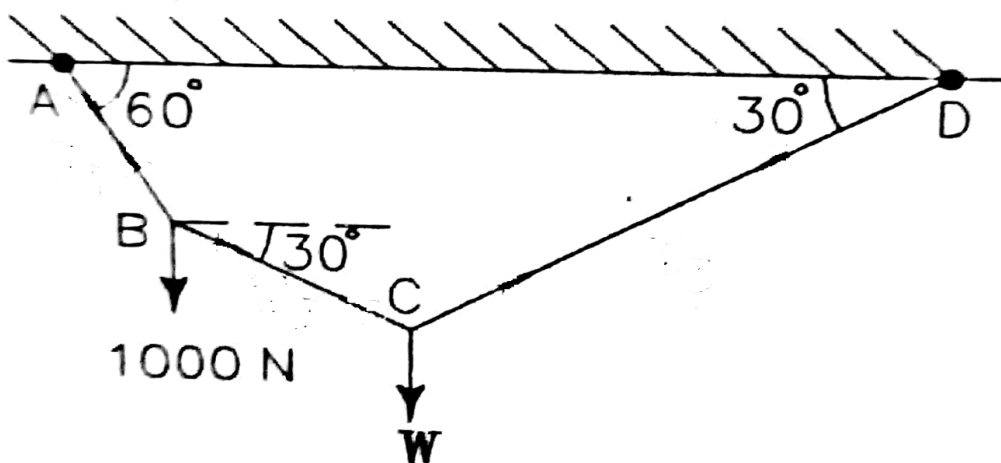


Fig.1

5. Two inclined loads of 60 kN and 30 kN along with uniformly distributed load of intensity 20 kN/m are acting on beam as shown in Fig.2. Find the support reactions at A (Hinge Support) and B (Roller Support) of beam.

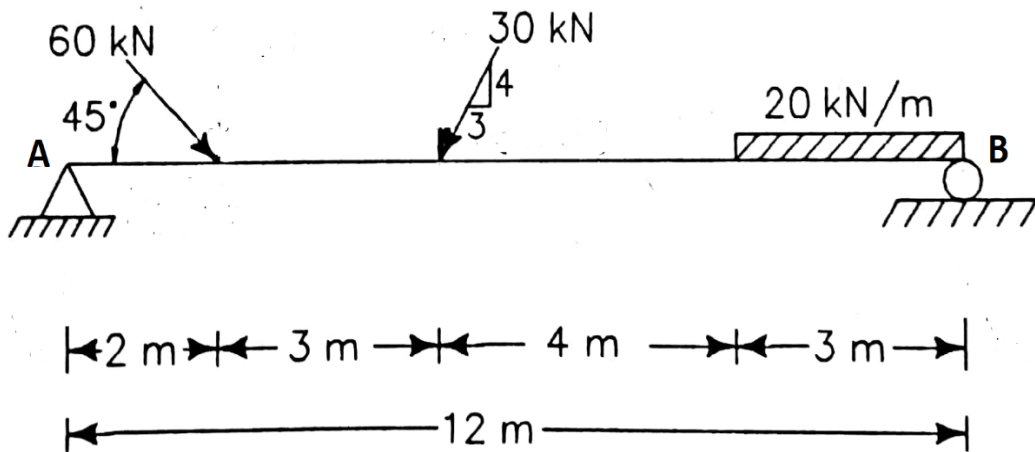


Fig.2

Part C

(1Q x 12 M = 12 Marks)

6. Determine the reactions at the surfaces of contact and the tension in the string AB as shown in Fig.3. The radii of spheres, $R_1 = R_2 = R_3 = 200$ mm.

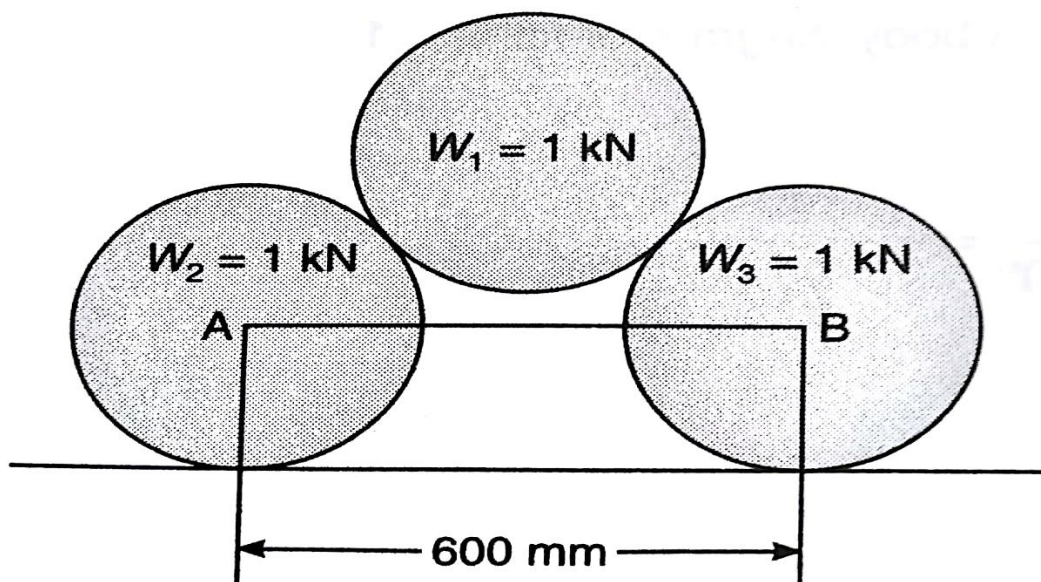


Fig.3

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Weightage: 20 %

Max Marks: 40

Max Time: 1 hr.

21 Feb Wednesday 2018

TEST – 1

Even Semester 2017-18 Course: **CIV101 Elements of Civil Engineering** II Sem. Chem. cycle

Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted.

Part A

(4 Q x 4 M = 16 Marks)

1. Explain role of Civil engineer in infrastructure development of a nation (any four points).
2. State Varignon's theorem of moments and write properties of a couple.
3. Assume an applied force of magnitude F makes an angle α with the X -axis. Write the expressions for X -Component and Y -Component of the force when $\alpha=0^\circ$ and $\alpha=90^\circ$.
4. Two forces of 4 N (F_1) and 3 N (F_2) are acting at a point such that the angle between them is 60° . Find the resultant force.

Part B

(2 Q x 7 M = 14 Marks)

5. Find the magnitude and direction of resultant of the force system shown in figure 1.

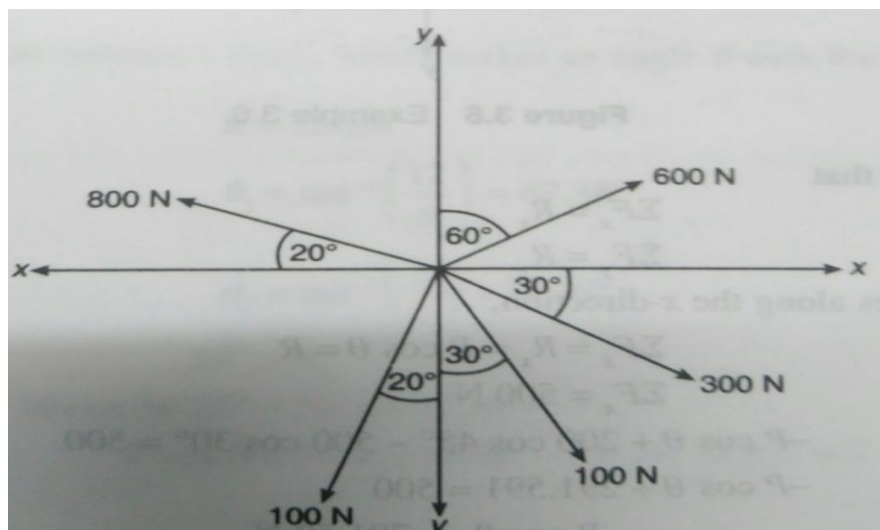


Fig.1

6. (a) Mention assumptions made in engineering mechanics.
(b) What do you mean by coplanar concurrent force system?

Part C

(1Q x 10 M = 10 Marks)

7. Write short note on any four fields of civil engineering.