Roll No. .......................................

Total No. of Questions : 5]          [Total No. of Printed Pages : 5

## EXS-87-A

### B.Tech. II$^{nd}$ Semester (El/CS/IT)

### Examination, 2023

### Basic Civil Engineering &

### Engineering Mechanics

### Paper – BE-204

Time : 3 Hours]                          [Maximum Marks : 60
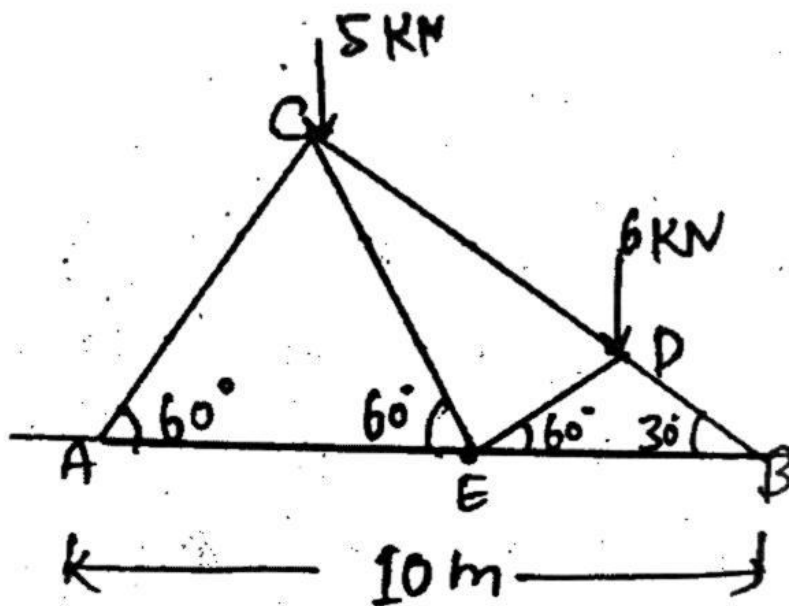
1. (a)  Explain the method of determining location of resultant of two like parallel forces.          6

   (b)  State and explain the law of palygon forces.          6

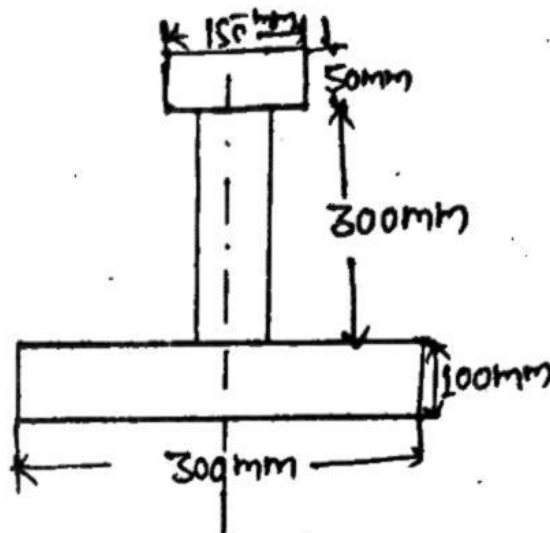**EXS–87-A**                    (1)                                    PTO

**OR**

A truss of span 10m is loaded or shown in diagram find the forces in all the members of truss.

12



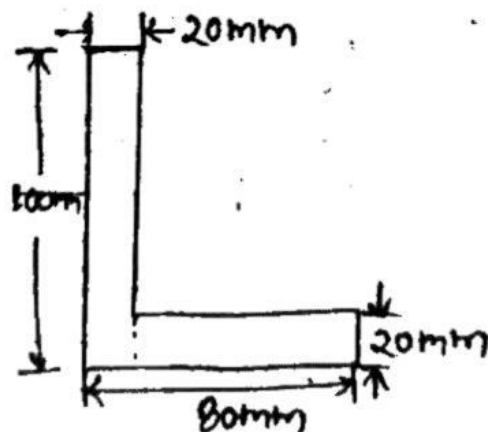2. (a) Define different types of belts and explain the advantage of rope drive over belt drive. 6

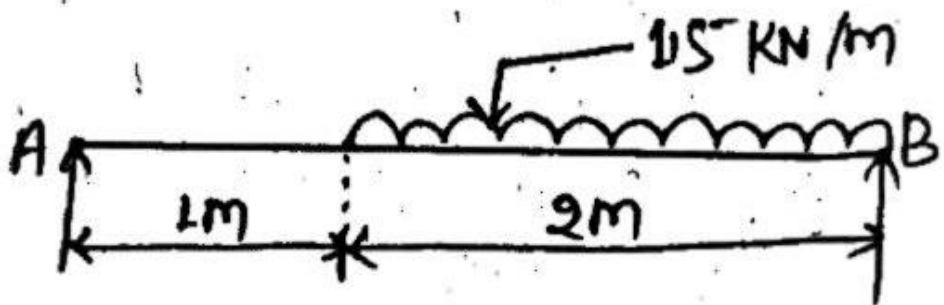(b) For given I-section determine the position of centre of gravity. 6

**OR**

(a)   Define different types of gear and gear train.          6

(b)   For the given angle section find the moment of Inertia
      about the centraidal x-x and y-y axis.          6

3. (a) Define the following terme.

   (i) Shear force

   (ii) Bending moment

   (iii) Paint of controflexure

   6

   (b) Determine support reactions for a simple supported beam loaded or shown in fig.
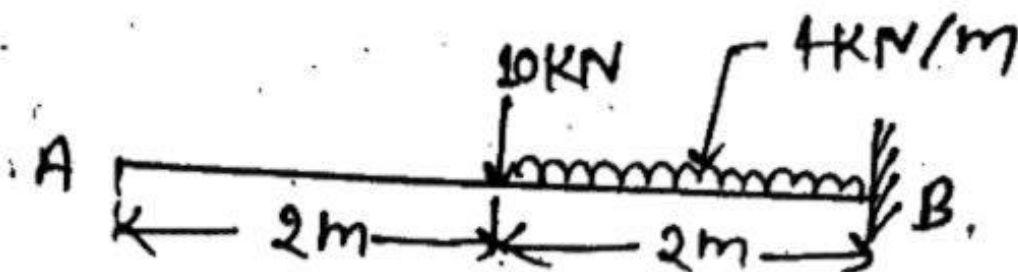
   6



OR

   (a) Explain the term of support neaction. What are different types of support?

   6

   (b) Draw S.F. and B.M. diagram for cantilever beam loaded as shown in figure below. Also locate the position of point of contraflexure.

   6

4. (a) Describe the engineering properties of stones with the prescribed engineering value. 6

(b) Define and explain various properties of Good bricks. 6

**OR**

(a) Discuss different variety of timber used in engineering applications. 6

(b) Describe various defects in timber with the help of neat sketches. 6

5. (a) Write the brief note on chaining on plain ground. 6

(b) List out various instruments used in chain surveying. 6

**OR**

(a) What are various types of error in chaining? Explain in brief. 6

(b) Define open and clased traverse. 6

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