Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

First Semester B.Arch Degree Regular and Supplementary Examination December 2020

Course Code: ES101
Course Name: THEORY OF STRUCTURES I

Max. Marks: 60   Duration: 3 Hours

PART A
Answer all questions, each carries 5 marks.   Marks

1   Write short note on historical evolution of suspended structures.   (5)

2   State and prove Varignon's theorem.   (5)

3   With the help of neat sketches explain different types of supports.   (5)

PART B
Answer any three questions, each carries 5 marks.

4   Define the term 'stress'. Explain different types of stresses.   (5)

5   What do you meant by equilibrium condition? Explain the equilibrium   (5)
     condition of a concurrent force system.

6   Explain the different types of loads.   (5)

7   Write short note on king post and queen post truss.   (5)

PART C
Answer all questions, each carries 10 marks.
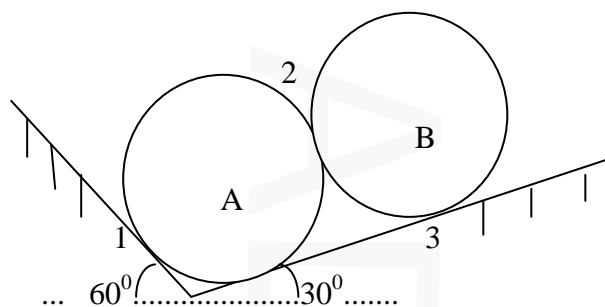
8   a)   With the help of neat sketch explain the component of arch   (10)

OR
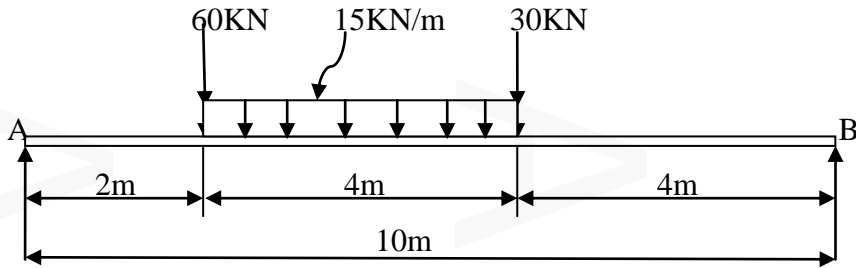
    b)   Explain the different types of loads to be considered in the design of structures.   (10)

9   a)   Distinguish between (i) Strength and stiffness (ii) Bending and buckling   (10)

OR

    b)   Two identical rollers A and B each of weight 1000N and 500mm diameter   (10)
         resting on an inclined plane as shown in fig below. Find the reactions at point
         of contact 1, 2 and 3. Assume all contact surfaces to be smooth.

10 a) Draw the SFD and BMD of the simply supported beam shown below.   (10)

OR

b) Write down the step by step procedure for the analysis of trusses by graphical   (10)
method.

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