Ajay Kumar Garg Engineering College, Ghaziabad

Department of ME

Sessional Test-1

Course: B.Tech
Session: 2024-25
Subject: Fundamentals of Mechanical Engineering
Max Marks: 25

Semester: I
Section: S-11 - S-20
Sub. Code: BME-101
Time: 1 hour

OBE Remarks: All questions are related to CO1.

Q.No	1	2	3	4	5	6	7
CO No.	CO1	CO1	CO1	CO1	CO1	CO1	CO1
Bloom's Level* (L1 to L6)	L1	L1	L1	L1	L2	L3	L3

*Bloom's Level: L1: Remember, L2: Understand, L3: Apply, L4: Analyze, L5: Evaluate, L6: Create

Note: Answer all the sections.

Section-A

A. Attempt all the parts. (3x2 = 6)

1. Define terms kinetics, kinematics, resultant and equilibrant.
2. State parallelogram law of vector addition.
3. Write characteristics of forces.

Section-B

B. Attempt all the parts. (3x4 = 12)

4. State and prove Lami's theorem with suitable sketch.
5. Define moment and couple.
   A sphere of weight W is supported against a smooth vertical wall with the help of a string fixed at surface of sphere. Its length is twice the length of radius of sphere. Find out tension in string.
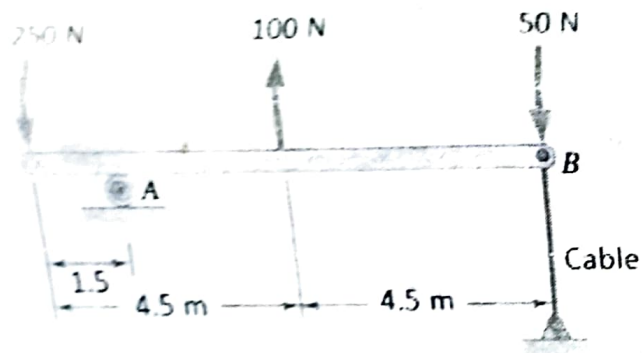6. Find the resultant of the force acting on a particle P shown in Fig.

(1x7 = 7)

C. Attempt **all** the parts.

7. **(a)** Beams and their classification. (2)

(b) Determine the reaction A and tension force at B to maintain the system in equilibrium. (5)

Faculty Sign

HoD Sign