

210109

**BACHELOR OF VOCATION**  
**Robotics and Automation**  
**Subject: Kinematics & Dynamics of Robots**  
**Subject Code: DBME-201**  
**Semester: Third**  
**January 2021**  
**Theory (External): 35 Marks**  
**Time: 03 Hours**

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**Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

**Roll Number**

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**SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)**  
**(10x1=10 Marks)**

- A. Define mechanism.
- B. Differentiate between link and chain.
- C. Define the Degree of freedom.
- D. Differentiate between linear and angular velocities.
- E. Discuss absolute velocity.
- F. Differentiate between mass & weight with suitable industrial applications.
- G. Differentiate between force and Torque with neat diagram.
- H. Define the concept of static forces with neat diagram.
- I. Define the concept of dynamic forces with example.
- J. Differentiate between velocity and acceleration with neat diagrams.

**SECTION -B (ESSAY TYPE QUESTIONS)**  
**(5x5=25 Marks)**

1. Explain laws of Motion with neat diagram along with suitable example and Industrial applications.
2. Explain construction, working and principle of slider crank Mechanism with neat diagram along with industrial applications.
3. What is Inversion? Explain the types of inversions with neat diagram along with suitable Industrial applications.
4. Differentiate between Coriolis acceleration and Relative acceleration with neat diagram along with Industrial applications.
5. Describe the concept of Robot. Explain Robotic mechanisms with neat and clean diagram with suitable applications related to manufacturing industries.
6. What is balancing? Explain Need of balancing with industrial applications.
7. Describe the procedure required for Balancing of rotating masses with neat diagram.
8. Drive and explain Mass moment of inertia with neat diagram along with industrial applications.

**END OF PAPER**