4106

ELECTIVE - II
Introduction to Robotics
(New) (1313)

P. Pages : 2

Time : Three Hours　　　　　　　　　　　　　　　　**Max. Marks : 100**

Instructions to Candidates :
1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any two** questions from each unit.
5. Draw neat sketches wherever necessary.
6. Use of non-programmable calculator is allowed.
7. Assume suitable data if necessary.

UNIT - I

1.	Explain in brief 'planner mechanism' with suitable examples.	**10**

2. Explain the following terms :　　　　　　　　　　　　　　**10**
　　a)　Spatial Mechanism.

　　b)　Newtonians' Lagrangian Techniques.

3. What is the need of industrial robot ?　　　　　　　　　　**10**

UNIT - II

1. Explain Robot configuration with neat sketches.　　　　　**10**

2. How does Robot differ from an automated machines ?　　**10**

3. Explain the basic components of Robot and write functional utility of each components.　　**10**

UNIT - III

1. What are the features and applications of "Hydraulic Actuators".　　**10**

2. Write note on:　　　　　　　　　　　　　　　　　　　　　**10**
　　i)　Position sensors　　　　ii) Power transmission system.

3. Explain briefly the following robot application.   **10**
   i)   Welding   ii) Spray painting

UNIT - IV

1. What are the different types of 'proximity sensors'. Explain any two in details.   **10**

2. What is Robotic End-effector ? Explain mechanical gripper with the help of neat sketches.   **10**

3. Explain briefly Robot vision.   **10**

UNIT - V

1. Explain WAIT, SIGNAL and DELAY commands by giving suitable examples.   **10**

2. Explain lead through programming method in briefly.   **10**

3. Explain robot language structure with suitable example.   **10**

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