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Roll No. :

328743(28)

B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(Et&T Engg. Branch)

ROBOTICS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt part (a) of all question is compulsory. Attempt any two part (b), (c) and (d).

Unit-I

1. (a) What is a Robot? 2
- (b) Explain the anatomy of three different types of robots with neat sketches. 17

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- (c) What are the Asimov's Law's of Robotics? 7
- (d) Explain future prospects and Notations in robotics. 7

Unit-II

- 2. (a) What is Mapping? 2
- (b) Explain concept of Inverting a Homogeneous Transform. 7
- (c) Explain Rotational Matrics used in robotics. 7
- (d) Explain role of co-ordinate frames in robotics. 7

Unit-III

- 3. (a) Give three kinds of sensor used in robotic vision. 2
- (b) Discuss Industrial application of Vision-Controlled Robotic system. 7
- (c) Explore Architecture of Robotic Vision System in detail. 7
- (d) Discuss overview of Robotic Vision-Object Trading and Image processing software. 7

Unit-IV

- 4. (a) What is Joint Actuators? 2

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- (b) Give brief overview of singularity approach on control manipulators. 7
- (c) Explain Interfacting Force/Torque sensor in detail. 7
- (d) Explain types of arms used and configurations with actual robot manipulators. 7

Unit-V

- 5. (a) Give the robot safety. 2
- (b) Explain role for robotic in sustainable development. 7
- (c) Discuss robotic for assembly, inspection and maintance about space macro facilities. 7
- (d) Give application of Non-Industrial robot. 7