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M. Tech (Mechanical Engg.) 3rd Semester
(CBCS Scheme) Examination, December-2022

ROBOTICS AND AUTOMATION

Paper-16MME23C2

Time allowed : 3 hours]

[Maximum marks : 100

Note : Question No. 1 is compulsory. Attempt total five questions, selecting one question from each unit. All questions carry equal marks.

1. Explain the following : 5×4=20
- (a) Actuators
 - (b) VAN
 - (c) Hydraulic valves
 - (d) Assembly Automation
 - (e) Textile sensors

Unit-I

2. What is Robot Technology ? Explain the Physical configuration of Robot. Also explain the robot motions. 20
3. What are Manipulators ? Explain different types of

Manipulators. What are the different advantages and disadvantages of various Kinematic structures ? 20

Unit-II

4. Explain the following :
- (a) Programming Languages 10
 - (b) Artificial Intelligence 10
5. What is Automation ? Explain the different type of Automation. Discuss the concept of Automation in industry. 20

Unit-III

6. Explain Air Cylinders in details with their Design. 20
7. Explain hydraulic servo system in details. 20

Unit-IV

8. Explain the working principles and techniques of automated work piece handling. 20
9. Explain the following :
- (a) Job Orienting and feeding devices 10
 - (b) Assembly Automation 10