

B. Tech. Sem - VIII (Mechanical Engg.) (2014 COURSE) (CBCS)

WINTER - 2018

SUBJECT: ELECTIVE-III INDUSTRIAL AUTOMATION AND ROBOTICS

Day: Friday
Date: 16/11/2018

W-2018-2654

Time: 02.30 PM TO 05.30 PM
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat diagram **WHEREVER** necessary.
 - 4) Use of non-programmable calculator is **ALLOWED**.
 - 5) Assume suitable data, if necessary.
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- Q.1 Explain in detail fixed, flexible and programmable automation. (10)
OR
- Q.1 Write a short note on mechanization of parts handling. (10)
- Q.2 State and explain ten strategies for automation and process improvement. (10)
OR
- Q.2 Define the concept of storage buffers and explain automated flow lines with storage buffers. (10)
- Q.3 Classify robots based on form of motion and drive technology. (10)
OR
- Q.3 Draw a sketch and explain different work envelopes of robots. (10)
- Q.4 What is the use of sensors in robotics? State different types of sensors used in robotics with their purpose. (10)
OR
- Q.4 Classify the end effectors used for robots. Explain working of mechanical grippers. (10)
- Q.5 Derive the expression for forward and reverse kinematics for 2-DOF robot manipulator in 2 Dimensions. (10)
OR
- Q.5 What is meant by robot dynamics? Also state the D'Almebert's equation of motion. (10)
- Q.6 Explain leadthrough programming and its types in detail. (10)
OR
- Q.6 State and explain in detail industrial applications of robot. (10)

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