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Roll No.....

6th Sem, **Branch** : Mestatronics,Mech.

CAD/CAM Design & Robotics)

**Subject** : ROBOTICS

**Time** : 3 Hrs.

**M.M.** : 100

### SECTION-A

**Note** : Multiple choice questions. All questions are compulsory. (10x1=10)

- Q.1 Which one is not a type of Robot joint?  
a) L-Joint                      b) O-Joint  
c) C-Joint                      d) None of the above
- Q.2 How many degree of freedom are there for Robots?  
a) 5 degree                      b) 6 degree  
c) 8 degree                      d) None of the above
- Q.3 "T" joint is also called  
a) Twisting joint              b) Linear joint  
c) Temporary Joint          d) None of the above
- Q.4 Robot is an \_\_\_\_\_ controlled manipulator.  
a) Pneumatically              b) Hydraulically  
c) Automatically              d) All of the above
- Q.5 Which is non-industrial application of robot?  
a) Ocean exploration          b) Defence  
c) Teaching                      d) All of the above

- Q.6 A robot is a \_\_\_\_\_  
a) Programmable  
b) Multi functional manipulator  
c) Both A & B  
d) Computer operated

- Q.7 Motion drives are also called as  
a) Actuators                      b) Manipulator  
c) Controllers                      d) Sensors

- Q.8 A \_\_\_\_\_ is a connection between parts or links in a robot that allow motion  
a) Hinge                              b) Joint  
c) Disjoint                              d) None of the mentioned

- Q.9 Non-servo robots are also called as  
a) Pick and Place              b) Fixed stop robot  
c) Both A & B                      d) None of the mentioned

- Q.10 RAIL full form is  
a) Robotic Automatic Incorporated Language  
b) Robotic Automatic independent Language

### Section-B

**Note** : Objective types Questions. All Questions are compulsory. (10x1=10)

- Q.11 Give 3<sup>rd</sup> Law of robot?
- Q.12 Two features of robot are \_\_\_\_\_, \_\_\_\_\_.

- Q.13 The closed loop control systems works based on \_\_\_\_\_ signal.
- Q.14 Servo controlled robot means \_\_\_\_\_.
- Q.15 Expand RTD.
- Q.16 The feedback is absent in \_\_\_\_\_ systems.
- Q.17 Function of gripper is \_\_\_\_\_.
- Q.18 Thermocouple is a device for sensing \_\_\_\_\_ by \_\_\_\_\_.
- Q.19 Piezo-electric sensor uses \_\_\_\_\_ as main component.
- Q.20 Encoders are used to measure.

### Section-C

**Note:** Short answer type Questions. Attempt any twelve Questions out of fifteen Questions. (12x5=60)

- Q.21 Explain degree of freedom with diagram.
- Q.22 Differentiate between servo and servo controlled system.
- Q.23 What is the need and function of robot programming?
- Q.24 What are the limitations of robot?
- Q.25 What is the selection criteria for robot?
- Q.26 Explain the method of manual teaching?
- Q.27 Explain various end-effectors.
- Q.28 Write short note on device controllers.
- Q.29 What are the adaptive control systems?

- Q.30 Draw a basic structure of robot.
- Q.31 Explain the working of any one proximity sensor?
- Q.32 Explain articulated manipulator robot.
- Q.33 Explain work cell controller.
- Q.34 Write short note on New Minimum time control.
- Q.35 Explain the application of robots in Inspection.

### Section-D

**Note:** Long answer Questions. Attempt any two Questions out of three Questions. (2x10=20)

- Q.36 Classify robots according to physical configurations.
- Q.37 Explain the working of LVDT with a neat diagram. Is it measure scalar or vector quantity?
- Q.38 Describe various basic elements and motion of robotic system.