Q.23 Describe the selection criteria for a robot.
Q.24 Write short note on adaptive control.
Q.25 Explain servo controls with block diagram.
Q.26 Write short note on optical sensors.
Q.27 Explain computed torque techniques.
Q.28 Describe various levels of robot controls.
Q.29 Write short note on motion encoders.
Q.30 Explain the working principle of RTD sensors.
Q.31 Describe work cell controllers.
Q.32 Describe any 5 features of a robot programming language.
Q.33 Write short note on painting application of robots.
Q.34 Explain root anatomy.
Q.35 Describe Loading and unloading application of robots.

SECTION-D

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

Q.36 Compare manual teach and lead through methods of root programming.
Q.37 Classify Robot according to structure of manipulator with their diagrams.
Q.38 Explain various robot motions.

Roll No. .....

6th Sem / Branch : Mechatronics/Mech. (CAD/CAM Design. & Robotics)
Sub.: Robotics

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Which of the following is not a Robot language.
a) VAN b) LP
c) RAIL d) AMU

Q.2 LVDT measures _____ type of quantity.
a) Scalar motion b) Phase angle
c) Joint movement d) Both A & B

Q.3 Robot laws are _____ in number
a) 2 b) 3
c) 5 d) 4

Q.4 The sensors in robot are of _____ types
a) Force b) Velocity
c) Magnetic d) Only A & B

Q.5 Rotation around the vertical axis in robot arm is called
a) Yaw b) Pitch
c) Roll d) None of the above

Q.6 The ability of the robot to reach a specific programmed position with a minimum of error is called_____

a) Repeatability b) Precision

c) Accuracy d) All of the above

Q.7 Write the type of gripper used for lifting thin glass sheet?

a) Needle grippers b) Three jaw grippers

c) Servo grippers d) Vacuum grippers

Q.8 The number of independent ways in which a part of robot can move is called_____

a) Multi variation b) Flexibility

c) Degree of freedom d) Repeatability

Q.9 Full form of SCARA robot is _____

a) Selective Compliance Assembly Robot Arm

b) Selective Compliance Articulated Robot Arm

c) Selective Compliance Accurate Robot Arm

d) Both (a) & (b)

Q.10 ACO means

a) Adaptive control with optimisation

b) Accurate control optimized

c) Accuracy controlled optimized

d) None of the above

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Strain gauge is mainly used for measurements of ___

Q.12 The three-dimensional space in which the robot can manipulate the end of its wrist is _____.

Q.13 The _____loop control system has no feedback.

Q.14 Rotation around the side-to-side axis in robot arm is called_____

Q.15 Handheld devices used to control the robot step by step are known as _____.

Q.16 Which one is more desirable out of one of these (Accuracy/repeatability).

Q.17 _____ is the weight the robot can lift.

Q.18 Name any two feedback devices used in robotics.

Q.19 Expand FAOT.

Q.20 A Robot designed with Cartesian coordinate system has _____ movements.

SECTION-C

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

Q.21 Explain principle and working of piezo-electric force sensor.

Q.22 Explain various types of end effectors and their working.