Q.26 Explain the difference between a servo and non-servo control system. (CO3)

Q.27 Discuss the block diagram of a robot control system . (CO5)

Q.28 What is the function of a device controller in a robotic system? (CO5)

Q.29 Compare different methods of robot programming. (CO5)

Q.30 Explain how robots are used in painting and welding applications . (CO5)

Q.31 Describe the steps involved in manual robots programming. (CO5)

Q.32 What is the significance of resolved motion control? (CO5)

Q.33 Discuss the application of robotics in machine loading and unloading. (CO1)

Q.34 Explain the concept of robotic simulation software . (CO5)

Q.35 Analyze the importance of force sensors in industrial robots. (CO4)

SECTION-D

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

Q.36 Describe in detail the basic structure of a robotic system, including types of drives and their applications. (CO2)

Q.37 Explain different types of robot programming languages and their applications in industries. (CO5)

Q.38 Discuss the various industrial applications of robots, with examples from material handling, packaging, and inspection . (CO5)

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Roll No. .....

6th Sem / Mechatronics, Mech.
(CAD/ CAM Design & Robotics)
Subject:- Robotics

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 What is the definition of a robot ? (CO1)

a) A machine used for transportation

b) A Programmable machine capable of carrying out complex tasks.

c) A human-like machine designed for entertainment

d) A tool used to manufacture parts manually

Q.2 _____ is a robot classification based on physical configuration . (CO1)

a) Servo robot b) Cylindrical robot

c) Autonomous robot d) Static robot

Q.3 What is the function of an end effector ? (CO1)

a) To control the robot's movement

b) To execute specific tasks such as gripping or welding

c) To measure the speed of the robot

d) To monitor the power consumption of the robot

Q.4 Which sensor is used for detecting proximity ? (CO4)

a) Optical sensor b) Proximity sensor

c) Motion encoder d) Pressure sensor

Q.5 What does DOF stand for in robotics ? (CO2)

a) Optical sensor b) Density of Force

c) Degree of Freedom d) Direction of Flow

Q.6 Identify a type of drive used in robotic systems. (CO3)

a) Linear drive b) Hydraulic drive

c) Electrical drive d) All of the above

Q.7 What is the key feature of servo control systems ? (CO3)

a) Closed loop control with feedback

b) No feedback Mechanism

c) Open-loop control

d) Manual control only

Q.8 Which method is used in manual robot programming ? (CO5)

a) Lead-through programming

b) Adaptive programming

c) Motion control programming

d) Algorithmic programming

Q.9 Name one robotic programming language (CO5)

a) FORTRAN b) Python

c) RAIL d) Java

Q.10 The role of a work cell controller is to ____ (CO5)

a) Monitor human workers

b) Control robots in a specific production area

c) Provide real-time data on temp .

d) Calculate the robot's battery life

SECTION-B

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

Q.11 State any one advantage of a robot. (CO1)

Q.12 Define the degree of freedom in a robotic system. (CO2)

Q.13 Name one type of motion encoder used in robotics. (CO2)

Q.14 Explain the function of an optical sensor in a robot. (CO4)

Q.15 Mention one application of a force sensor . (CO4)

Q.16 What is a computed torque technique. (CO5)

Q.17 Describe a robotic material transfer system (CO1)

Q.18 Give one application of robot programming in industry. (CO5)

Q.19 What is adaptive control in robotics ? (CO5)

Q.20 Explain the use of LVDT in robotic systems . (CO4)

SECTION-C

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

Q.21 Define a robot and explain its importance in industrial automation (CO1)

Q.22 Describe different types of robotic System based on the structure of manipulators. (CO2)

Q.23 Explain the working principle of an articulated robot. (CO1)

Q.24 What are the various types of end effectors used in robotics ? (CO1)

Q.25 Discuss the role of proximity sensors in robotic system? (CO4)