Q.24 What do you understand by end effectors, also explain the classification of end effectors?

Q.25 With the help of the line diagram explains the basic components of a robot.

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Roll No. .....

4th Sem.
Branch : Instrumentation & Control Engineering
Subject : Robotics & Automation

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

Q.1 What is the primary goal of robotics?

a) To study insects

b) To enhance human abilities

c) To explore deep space

d) To improve weather forecasting

Q.2 What does AI stand for in the context of robotics?

a) Advanced Interface b) Artificial Invention

c) Automated Interaction d) Artificial Intelligence

Q.3 What is the purpose of a gripper in robotics?

a) To provide locomotion b) To manipulate objects

c) To process visual data d) To generate power

Q.4 Which type of robot is designed to operate underwater?

a) Aerial Robot b) Submersible Robot

c) Humanoid Robot d) Industrial Robot

Q.5 What is the significance of the term "End Effector" in robotics?

a) The final stage of robot development

b) The part of the robot that interacts with the environment

c) A specialized programming language for robots

d) The central processing unit of a robot

Q.6 What is the primary function of actuators in robotics?

a) To sense the environment

b) To process data

c) To control movement

d) To store information

Section-B

Note: Objective type questions. All questions are compulsory. (6x1=6)

Q.7 Define feedback in a robotic system.

Q.8 What is gripper?

Q.9 Write one application of robotics in commercial sector.

Q.10 What is sensor?

Q.11 Define a driver in robotics.

Q.12 What is resolution?

Section-C

Note: Short answer type Questions. Attempt any eight questions out of ten Questions. (8x4=32)

Q.13 Why path planning is required for a robotic system?

Q.14 What are active and passive grippers?

Q.15 Discuss the working principle hydraulic actuators.

Q.16 Write the importance of different types of grippers.

Q.17 Explain external and internal singularities.

Q.18 Briefly explain the different types of joints and axes used in robots.

Q.19 List out the different applications of sensors in robotics.

Q.20 What is digital sensor and briefly explain different types of digital sensors?

Q.21 What are the interlock and sensor statements used for industrial robots, explain it.

Q.22 List the advantages and disadvantages of electrical driver and actuator system.

Section-D

Note: Long answer questions. Attempt any two questions out of three Questions. (2x8=16)

Q.23 Explain forward and inverse kinematic transformations of robots.