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SECTION -B (ESSAY TYPE QUESTIONS)
(5x5=25 Marks)

1. Discuss the forward and inverse dynamics & also discuss their properties?
2. What is the system stability? Also describe the different types of stability?
3. Describe following
 - Positional control scheme
 - Velocity control scheme
4. Describe following
 - Trajectory control scheme
 - Force control scheme
5. Discuss the acceleration based design scheme in detail?
6. Discuss the velocity based design scheme in detail?
7. How software package helps in numerical simulation?
8. Differentiate various nonlinear control schemes in detail?

===END OF PAPER===

2107048

BACHELOR OF VOCATION
Robotics and Automation
Subject: Robotic Design and Control
Subject Code: DBME-305
Semester: Fifth
July 2021
Theory (External): 35 Marks
Time: 03 Hours

Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

Roll Number									

SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)
(10x1=10 Marks)

- A. Motors used for electronic actuator drives :
a) AC servo motors
b) DC servo motors
c) Stepper motors
d) All of the mentioned
- B. The basic components of hydraulic fluid power system are :
a) Reservoir
b) Pump and lines
c) Actuating devices and control valves
d) All of the mentioned
- C. Deciding the method of control by:
a) The purpose of valve
b) Type of fluid
c) Design and purpose of the system
d) All of the mentioned
- D. Valves can be classified according to their use as:
a) Directional flow
b) Pressure control
c) Flow control
d) All of the mentioned
- E. An automatic apparatus or device that performs functions ordinarily ascribed to humans or operate with what appears to be almost human intelligence is called _____
a) Robot
b) Human
c) Animals
d) Reptiles
- F. Classification of Robot is based on:
a) Geometry and geometric classification
b) Left right classification
c) Based on control system
d) All of the mentioned
- G. What is the name for information sent from robot sensors to robot controllers?
a). temperature
b). pressure
c). feedback
d). signal
- H. What is full form of OCR in tasks of Computer Vision?
a). Optimum Character Reader
b). Optical Character Reader
c). Optimum Castor Reader
d). Optical Castor Reader
- I. Name the component of robot which is used to contract almost 40% when air is sucked in them.
a). Actuators
b). Muscle Wires
c). Pneumatic Air Muscles
d). Sensors
- J. The robot that repeats the same motions according to recorded information is called
a). Fixed Sequence Robot
b). Variable sequence robot
c). Playback Robot
d). Numerical Control robot