|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **USN** | **1** | **D** | **A** |  |  |  |  |  | |  |  | **18ME752** | | | | | | |
| **Seventh Semester B. E. Degree (Autonomous) Semester End Examination, SEE, /jan 2024** | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |
| **Model paper**  **Department of Mechanical Engineering**  **ROBOTICS** | | | | | | | | | | | | | | | | | | |
| **Time: 3 Hours** | | | | | | | | |  | | | | **Maximum Marks: 100** | | | | | |
|  | | | | | | | | | | | | | | | | | | |
| **Instructions to students:**   1. **Answer ANY ONE FULL question from EACH UNIT.** 2. **Use black ball point pen only for text, fig, table etc.,** | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |
| **UNIT-1** | | | | | | | | | | | | | | | | | | |
| **Q. No.** | **Questions** | | | | | | | | | | | | | **Marks** | | **CO** | | **RBT Level** |
| **1. (a)** | Explain the advantages and dis advantages of using robots in industries | | | | | | | | | | | | | **10** | | CO1 | | L2 |
| **(b)** | Discuss the five common robot configurations with sketch | | | | | | | | | | | | | **10** | | CO1 | | L2 |
|  | **OR** | | | | | | | | | | | | |  | | | | |
| **2. (a)** | Explain with a sketch hydraulic system of robot | | | | | | | | | | | | | **10** | CO1 | | L2 | |
| **(b)** | Discuss the social impact of robotics on direct labor | | | | | | | | | | | | | **10** | CO1 | | L3 | |
| **UNIT-2** | | | | | | | | | | | | | | | | | | |
| **3. (a)** | Discuss force analysis of gripper mechanism in detail | | | | | | | | | | | | | **10** | CO2 | | L3 | |
| **(b)** | Explain performance parameters and with a figure describe repeatability resolution and accuracy | | | | | | | | | | | | | **10** | CO2 | | L2 | |
|  | **OR** | | | | | | | | | | | | |  | | | | |
| **4. (a)** | Explain electric drives with a neat sketch | | | | | | | | | | | | | **10** | CO2 | | L2 | |
| **(b)** | Explain actuators and discuss about pneumatic actuators with a neat sketch | | | | | | | | | | | | | **10** | CO2 | | L2 | |
| **UNIT-3** | | | | | | | | | | | | | | | | | | |
| **5. (a)** | With a block diagram write the classification of sensors and their functions | | | | | | | | | | | | | **10** | CO3 | | L2 | |
| **(b)** | Explain proximity sensors with a neat sketch | | | | | | | | | | | | | **10** | CO3 | | L1 | |
|  | **OR** | | | | | | | | | | | | |  | | | | |
| **6. (a)** | Explain hall effect sensors with a neat sketch | | | | | | | | | | | | | **10** | CO3 | | L1 | |
| **(b)** | Explain ultrasonic proximity sensors with a neat sketch | | | | | | | | | | | | | **10** | CO3 | | L2 | |
| **UNIT-4** | | | | | | | | | | | | | | | | | | |
| **7. (a)** | With a block diagram explain vision system | | | | | | | | | | | | | **10** | CO4 | | L2 | |
| **(b)** | What is image storage explain image processing and analysis in detail | | | | | | | | | | | | | **10** | CO4 | | L1 | |
|  | **OR** | | | | | | | | | | | | |  | | | | |
| **8. (a)** | What do u understand by the term robot vision explain its principal functions And functional description in detail | | | | | | | | | | | | | **10** | CO4 | | L3 | |
| **(b)** | Explain with block diagram components of digital image processing | | | | | | | | | | | | | **10** | CO4 | | L2 | |
| **UNIT-5** | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |
| **9. (a)** | explain with the block diagram hierarchical structure of computers in the factory of future | | | | | | | | | | | | | **10** | CO5 | | L1 | |
| **(b)** | explain flexible manufacturing systems and its advantages | | | | | | | | | | | | | **10** | CO5 | | L2 | |
|  | **OR** | | | | | | | | | | | | |  | | | | |
| **10. (a)** | What is CAD/CAM systems write a layout of complete CAD/CAM systems | | | | | | | | | | | | | **10** | CO5 | | L2 | |
| **(b)** | write short notes   * FMSs in japan * FANUCs fuji complex * The yamazaki FMS * Okumas FMS | | | | | | | | | | | | | **10** | CO5 | | L1 | |