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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, April, 2017

Program Name:B.Tech/Mechatronics **Semester – 8th**
Course Name : Robot Applications **Max. Marks : 100**
Course Code :MEEL423 **Duration : 3 Hrs**
No. of page/s:2

Section A

Attempt all the questions. Each question carries 5 Marks.

1. Explain the four characteristics industrial application of robots.
2. What are the steps involved in assembly.
3. Explain the term active compliance and passive compliance.
4. Explain the principles for robot application and application planning.

Section B

Attempt all the questions. Each question carries 10 Marks.

5. What are essential characteristic of a spot welding manipulator.

6.Which type of manipulator is best suited for (a) Machine loading and unloading application (b)assembly application.

7.What are the checklist for evaluating robot applications.

8. Explain the process sensor based inspection and vision based inspection.

OR

What are the issues to be tackled during robot for arc welding application.

Section C

Attempt all the questions. Each question carries 20 Marks.

9. Draw the work cell for machine loading -unloading application. The robot is deployed to pick the raw material from conveyor, load it into a machine center, unload the finished part after machining is complete and place it into a pallet . Define the sequence of steps required to carry out this application.

10. Rapid growth and need for a precise and consistent painting method has prompted to consider using robots in its paint operations. Evaluate the feasibility of using robots for painting operation.

OR

Explain the arc welding requirements and material transfer application.