## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
### End Semester Examination, December 2022

**Course** : B Tech (Mechanical & Mechatronics)  **Semester: VII**
**Program** : Automation in Manufacturing  **Time** : 03 hrs.
**Course Code: MEPD 4014**  **Max. Marks: 100**
**Instructions: Draw figures and diagrams, wherever required.**

### SECTION A
### (5Qx4M=20Marks)

| S. No. | | Marks | CO |
|---|---|---|---|
| Q 1 | What are the reasons behind the adoption of automation in manufacturing? | 4 | CO1 |
| Q 2 | Define the deciding parameters in Manufacturing support systems? How automation is integrated with computerization in manufacturing support systems? | 4 | CO2 |
| Q 3 | Explain difference between continuous and discrete control systems. | 4 | CO1 |
| Q 4 | How would you apply automation migration strategy with phase wise upgradation in production unit? | 4 | CO2 |
| Q 5 | Define Cellular manufacturing and its advantages? | 4 | CO4 |

### SECTION B
### (4Qx10M= 40 Marks)

| Q 1 | What do you understand by different levels of automation? Differentiate between Fixed, Programmable and Flexible automation. | 10 | CO3 |
|---|---|---|---|
| Q 2 | How would you compare the common measuring devices used in automation? | 10 | CO1 |
| Q 3 | How would you categorize Ten strategies for automation? | 10 | CO2 |
| Q 4 | Differentiate Bar code technology with RFID and AIDC technologies. Which technology, why and where you prefer in mobile production unit? **OR** Evaluate and suggest an effective mechanism for parts delivery at work stations for continuous production line. | 10 | CO4 |

### SECTION-C
### (2Qx20M=40 Marks)

| Q 1 | Can you brainstorm a better solution for automated production line for EV car manufacturing Industry? | 20 | CO3 |
|---|---|---|---|
| Q 2 | Discuss advantage of proper material handling and material transport and storage systems in manufacturing industry. Also explain design considerations for material handling and material storage system. **OR** Explain Flexible Manufacturing system (FMS) components, applications and its benefits over traditional manufacturing system. | 20 | CO4 |