**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**
**End Semester Examination, April/May 2018**

**Course: Material Handling (MEEL 451)** **Semester: VIII**
**Program: B Tech Mechatronics Engg** **Time: 3 hrs**
**No of pages : 2** **Max. Marks: 100**

**Instructions:**

**SECTION A**

| S. No. | | Marks | CO |
|---|---|---|---|
| Q 1 | A well-conceived and carefully planned materials flow pattern will have many advantages. Elaborate | **5** | **CO 1** |
| Q 2 | Differentiate between electric hoist and mechanical hoist. | **5** | **CO 2** |
| Q 3 | Compare Hydraulic and pneumatic conveyors. | **5** | **CO 2** |
| Q 4 | Differentiate between unit load and bulk load. . | **5** | **CO 2** |
| | **SECTION B** | | |
| Q 5 | Analyze an AGVS for its system performance measure. | **10** | **CO 1** |
| Q 6 | Describe the construction of hoisting appliances like roller chains and lifting tackles. | **10** | **CO 3** |
| Q 7 | Use of Components of AS/RS systems in material handling systems | **10** | **CO 4** |
| Q 8 | How bar codes are used in materials handling industry to track the flow and movement of materials and products. **OR** Explain how the variety of control systems and safety systems operate in a materials handling facility. | **10** | **CO 5** |
| | **SECTION-C** | | |
| Q 9 | i) How to design an overhead crane for a known span and required capacity. ii) Explain about guidance and control of an AGVS. | **20** | **CO 3** |

Q 10. Discuss basic data required to analyse a material handling problem.Take an example of an automation industry as a case study.

**OR** **CO 5**

i) Explain the significance of material flow in layout design with an example.
ii) Draw the schematic sketch of a wall mounted jib crane and show the motions (20 M )