



End Term Examination (December 2019)

School: School of Engineering

Program: M-Tech- APE

Course: Virtual Product Manufacturing

Course Code: APE602

Semester: III

Max Marks: 40

Duration (mins): 90

Note:1) Answers to the questions should be written in answer sheet provided.

2) Neat diagrams must be drawn wherever necessary.

3) Figures to right indicate full marks.

4) Answer all the questions

Q1. There is a plan to Manufacture Sprockets. The manufacturing set up is needed to Manufacture Sprockets for the Timing Chain drive; Motorcycle drive chain and Oil pump drive chain. Design a VPM setup to support manufacturing of these 4000 sprockets per day, considering the following aspects but not limited to these.

- The design set up for designing these Sprockets
 - The types of manufacturing setup.
 - The various activities of a manufacturing plant which can be carried out through computer control? The Application of CIM activities.
 - The application of Flexible Manufacturing Systems
 - The preliminary business case evaluation with all necessary assumptions
 - The Plant layout with efficient work flow
 - The Material Handling systems
 - The types of material transport equipment used
- [20]

Q2. Which industry and manufacturing conditions would warrant the use of Flexible manufacturing systems. Illustrate with examples.

[5]

Q3. Explain the importance of CIM in current automotive scenarios. Explain how CIM would be an important aspect while setting up a plant for EV 2WH plant.

[15]
