

**VSB ENGINEERING COLLEGE, KARUR**  
**DEPARTMENT OF MECHANICAL ENGINEERING**  
**Assignment Questions**

**Academic Year : 2017-2018 (Even Semesters)**

**ENGINEERING MATERIALS AND METALLURGY**

1. Explain about Various fields of metallurgical engineering, Status of metallurgical and materials industry in India.
2. Evaluate Corrosion: Principle, Causes, and Types & Characteristics. Corrosion testing. Corrosion Prevention Methods Degradation of plastics & composite materials

**KINEMATICS OF MACHINERY**

1. Prepare a model any one of the following mechanism given below:
  - a) Four bar mechanism
  - b) Crank slider mechanism
  - c) Epicyclic gear Train
  - d) Cam with knife edge follower
  - e) Cam with Roller follower
  - f) Cam with oscillating follower
2. Draw any one of the following mechanism given below by using design software and animation using multimedia software:
  - a) Four bar mechanism
  - b) Crank slider mechanism
  - c) Epicyclic gear Train
  - d) Cam with knife edge follower
  - e) Cam with Roller follower
  - f) Cam with oscillating follower
  - g) Reverted gear mechanism
  - h) Helical gear mechanism

**ME 6402 – MANUFACTURING TECHNOLOGY II**

1. Explain about the basic principles and technologies of the Rapid Prototyping.
2. What would be your approach for introducing a new product to manufacture in an industry? What are the risks and benefits to consider i.e. producing the existing product vs producing the new product?
3. Design any one machining tool by using the design softwares.

**THERMAL ENGINEERING**

1. **Atkinson cycle**
2. 1. A perfect gas undergoes a cycle which consists of the following process taken in order to (i) Heat rejection at constant pressure (ii) Adiabatic compression from 1 bar and 27°C to 4bar (iii) Heat addition at constant volume to a final pressure of 16bar (iv) Adiabatic expansion to 1 bar. Calculate (i) Work done /kg of gas (ii) Efficiency of the cycle.

**3. Effect of Turbulence**

4. 2. What is mean by Turbulence and what is the effect of turbulence in SI engine?

**5. Engine Design**

6. 3. How to designs a C.I. engine for combustion chamber?

**7. Engine Performance**

8. 4. How to improve the engine performance, what are the parameters are to be considered?

**9. How to calculate the Volumetric efficiency for N.T.P.**

10. 5. In a test on single cylinder four stroke cycle gas engines which explosion in every cycle the gas consumption given by the meter was  $0.216\text{m}^3$  per minute, the pressure and temperature of the gas being 75mm of water and  $17^\circ\text{C}$  respectively. Air consumption was 2.84kg/min, the temperature being  $17^\circ\text{C}$  and barometer reading 745mm of mercury. The bore of the engine was 250mm and stroke 475mm and r.p.m 240. Find volumetric efficiency of the engine referred to volume of charge at N.T.P. Assume R for the air as 287Nm/KgK.