Enroll. No. _____

SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY

BE - SEMESTER– II • MID SEMESTER- II EXAMINATION – SUMMER 2019

SUBJECT: BASIC MECHANICAL ENGINEERING (3110006) (IT)

DATE: 26-04-2019 **TIME: 10:30 am to 12:00 pm** **TOTAL MARKS: 40**

Instructions: 1. Q.1 is compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if required.

Q.1 (a) What is priming? Why is required for a centrifugal pump? [04]

(b) In an Otto cycle the compression ratio is 10.The temperatures at the beginning of compression and at the end of heat supply are 300 K and 1600 K respectively. Assume $\gamma = 1.4$ and $C_v = 0.717$ kJ/kgK. Find out: (1) Heat supplied (2) Efficiency of the cycle. [06]

Q.2 (a) Drive equation for air standard efficiency of Diesel cycle with the help of p-V and T-s diagrams. [06]

(b) Briefly Classify air compressors. What are the application of compressor? [05]

(c) Difference between Brake and Clutch. [04]

OR

Q.2 (a) List methods of measuring dryness fraction. Explain Combined calorimeter with a neat sketch. [06]

(b) Drive equation for air standard efficiency of Otto cycle with the help of p-V and T-s diagrams. [05]

(c) With neat sketch explain in brief the working of Vane pump. [04]

Q.3 (a) Calculate the total amount of heat required to produce 6 kg of steam at a pressure of 6 bar and temperature of 258°C from the water at 30°C. Take specific heat of steam= 2.1 kJ/kgK and the specific heat of water= 4.187 kJ/kgK. [06]

(b) Drive an expression of work done for single stage single acting reciprocating air compressor without clearance. [05]

(c) Difference between Coupling and Clutch. [04]

OR

Q.3 (a) Explain Internal expanding shoe brake with a neat sketch. [06]

(b) Explain Single plate clutch with neat sketch. [05]

(c) Why multi-stage compression is required? [04]

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