SV - 936

Seat No.	

Total No. of Pages : 2

F.E. (All) Examination, May - 2018

BASIC MECHANICAL ENGINEERING

Sub. Code : 59186

Day and Date : Thursday, 17 - 05 - 2018 **Total Marks : 100**

Time : 10.00 a.m. to 01.00 p.m.

Instructions :
1) **Answer any 3 questions from each section.**
2) **Figures to the right side indicate marks.**
3) **Draw the diagram wherever necessary.**
4) **Assume suitable data if necessary.**

SECTION - I

Q1) a) Define heat and work. State and explain different forms of work. **[8]**

b) Define Intensive and Extensive property. Classify the following quantities whether they are intensive or extensive by specifying reasons, **[8]**

i) Pressure

ii) Energy

iii) Temperature

iv) Density

v) Enthalpy

Q2) a) A steam turbine operates under steady flow conditions receiving steam at the following state. Pressure 20 bar, internal energy 3000 KJ/Kg, specific volume 0.12 m^3/Kg and velocity 120 m/s. The exhaust of steam from the turbine is at 0.1 bar with internal energy 2200 KJ/Kg, specific volume 15 m^3/Kg and velocity 310 m/s. The intake is 5 m above the exhaust. The turbine develops 45 Kw and heat loss over the surface of turbine is 30 KJ/Kg. Determine the steam flow rate through the turbine. **[8]**

b) What is PMM-I and PMM-II and why it is impossible. **[8]**

Q3) a) Compare SI and CI engine. **[8]**

b) With neat sketch explain construction and working of four strokes CI engine. **[8]**

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Q4) a) Explain with neat sketch working of vapour absorption refrigeration system. [9]

b) What are the desirable properties of a refrigerant? [9]

SECTION - II

Q5) a) Explain flat plate collector and concentric collector with help of neat sketch. [8]

b) What is priming? Explain the working of reciprocating pump with neat sketch. [8]

Q6) a) A leather belt transmits 30 Kw from a pulley 750 mm in diameter running at 500 rpm. The angle of contact is 160° and coefficient surfaces are 0.3. If the permissible stress in the belt is not to exceed 2 MN/m2, determine the belt cross-section area. [8]

b) Explain with neat sketch working of Kaplan Turbine. [8]

Q7) a) What are the different of metal removing process? Explain milling process with neat sketch. [8]

b) Explain Sand Casting Process in detail with neat sketch. [8]

Q8) Write short note on [18]

i) Fuel Cell

ii) Chain Drive

iii) Impulse Turbine

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