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SRINIX COLLEGE OF ENGINEERING

2nd INTERNAL EXAMINATION-2021-22

Subject-**BME** Semester-**1ST** Branch-**SEC-A**

Full Mark-**100** Time-**2.30Hrs**

ANSWER all QUESTIONS (PART-A)
[2X10=20]

1. What is the use of clutch?
2. State work is a path function, not a property.
3. Define dryness fraction.
4. Show that the entropy of universe is increasing.
5. What is the purpose of braking system?
6. Explain Top dead centre and Inner Dead centre.
7. Write the expression for efficiency of the carnot engine?
8. Find enthalpy, volume and entropy of steam at 50 bar,300℃.
9. What is thermocouple? On what principle ,thermocouple works
10. How coupling is differing from gearing?

ANSWER ANY EIGHT QUESTIONS (PART-B) **[6X8=48]**

1. What is the purpose of braking system? Classify the brake on basic mode of operation.

2. Explain clutch system.What are the different type of clutches commonly used in automobiles?

3.A reversible heat engine absorbs 1400Kj as heat from a Source at 600℃ and delivers 700Kj as work and rejects the rest of the energy to a sink .Find the temp of the sink.

3. Explain 4 stroke cycle engine.

4. What the basic difference between Petrol engine and Diesel engine?

5.Define Refrigeration.What is the purpose of evaporator in refrigeration system?

6.Define coupling?How couplings are classified?

7.Air at 1.02 bar,22℃ initially occupies a cylinder volume of $0.015m^3$ is compressed isentropically by a piston to a pressure of 6.8 bar.Determine,(i) the final temperature(ii) the work done.(iii) the final volume.

8.Find the specific volume of steam at 12 bar absolute,when the condition of steam is (a) wet steam with dryness fraction 0.9, (b) superheated steam and (c) super heated to the temperature of 300℃.

9.A refrigerator removes heat from a refrigerated space at 2℃ at a rate of 300 kj/min and rejects heat to kitchen air at 26℃ at a rate of 345kj/min.Verify whether it violates II law by (i) Clausius in equality (ii)Carnot theorem.

10.What is Venturimeter? How will you measure flow rate using venturimeter with neat sketch diagram.

ANSWER ANY TWO QUESTIONS (PART-C)
[16X2=32]

1. (i)A Carnot engine works between 300° C and 30° C. The heat supplied to the engine is 20 KJ. Determine 1.efficiency.2.work output3.Heat rejection.
   (ii)A refrigerator Plant operates on reversed carnot heat engine cycle. It is mainted at a temperature of -5℃ and the heat is rejected at a rate of 5kw.The atmospheric temperature is 25℃. Calculate the power required to drive the plant.
2. (i) Classify the Working principle of Four Stroke Spark Ignition Engine?
   (ii) Briefly describe the difference of CI & SI.

3. Specify Robot anatomy. Explain joints and links of robot configurations with sketch.

××ALL THE BEST××