REGD. NUMBER | | | | | | | | | | |

SRINIX COLLEGE OF ENGINEERING

3rd INTERNAL EXAMINATION-2021-22

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

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

ANSWER ALL THE QUESTIONS (PART-A) **[2X10=20]**

1. Differentiate between intensive and extensive properties.
2. Define dryness fraction.
3. What are the modes of heat transfer?
4. Find enthalpy and entropy of steam at 50 bar,300° C using Steam Table.
5. What do you mean by zeroth law of thermodynamics?
6. Define 1ST Law of thermodynamics.
7. How coupling is differing from gears ?
8. Write the expression for COP of a heat pump and a refrigerator in terms of temperatures of cold and hot bodies.
9. Define pure substance.
10. Define density and specific weight.

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

1. .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) superheated to the temperature of 300℃.
2. 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 temperature of the sink.
3. What are the basic difference between Petrol engine and Diesel engine?
4. What is the purpose of braking system? Classify the brake based on basic mode of operation.
5. Explain clutch system.What are the different type of clutches commonly used in automobiles?
6. Explain the working of a 4-stroke S.I.Engine.
7. Define Refrigeration. Explain the working principle of a vapour compression refrigeration system?
8. Define coupling?How couplings are classified?
9. 10.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 and
   (iii) the final volume.

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

1. .A Carnot engine works between 300° C and 30° C. The heat supplied to the engine is 20 KJ. Determine i) Thermal efficiency
   ii) Net work output
   iii) Heat rejected
2. Classify the Working principle of Four Stroke Spark Ignition Engine?
   (ii) Briefly describe the difference of CI & SI.
3. A system compressed of 2kg of fluid expands in a frictionless piston and cylinder machine from an initial state of 1Mpa, 100^0C to a final temperature of 30^0C. If there is no heat transfer. Find the network for the process. Take C_v =0.718 KJ/Kg-K.