Roll No. | 2 | 4 | 0 | 1 | 6 | 2 | 0 | 1 | 0 | 0 | 0 | 4 | 6 |

SHAMBHUNATH INSTITUTE OF ENGINEERING AND TECHNOLOGY

Subject code- BME201 **Subject-Fundamentals of Mechanical Engineering**

Course-B. Tech. **SEMESTER-II**

SECOND SESSIONAL EXAMINATION, EVEN SEMESTER, (2024-2025)

Branch: CS

Time –1hr 30 min **Maximum Marks – 30**

1-Attempt any five parts of the following:

Q N	QUESTION	Marks	CO	BL
a.	Discuss the terms used in IC engine- TDC, BDC, stroke and Bore.	2	CO2	L1
b.	What is compression ratio?	2	CO2	L1
c.	What is Scavenging process?	2	CO2	L1
d.	How the electric vehicle are classified?	2	CO2	L2
e.	What is meant by the Battery life and efficiency of a battery?	2	CO2	L2
f.	What do you understand by total cylinder volume?	2	CO2	L2

2. Attempt any one part of the following:

Q N	QUESTION	Marks	CO	BL
a.	Explain the working of Two stroke CI engine with a neat sketch	5	CO2	L3
b.	With a neat sketch explain the working of 4-stroke SI Engine.	5	CO2	L3
c.	Write short notes on electric vehicles.	5	CO2	L2

3. Attempt any five parts of the following:

Q N	QUESTION	Marks	CO	BL
a.	Derive a relation between COP of a heat pump and refrigerator.	2	CO3	L1
b.	What is psychrometric chart?	2	CO3	L1
c.	List the components of a vapour compression refrigeration system and show them in sequence on a block diagram.	2	CO3	L1
d.	Describe the one ton of refrigeration in SI system.	2	CO3	L1
e.	Differentiate between heat engine and heat pump.	2	CO3	L2
f.	Define second law of thermodynamics.	2	CO3	L1

4. Attempt any one part of the following:

Q N	QUESTION
a.	Explain the working of a domestic refrigerator with a neat sketch.
b.	Define the following term- (i)- Dry bulb temperature (ii)-Humidity (iii)-Dew point temperature (iv)-Wet bulb depression (v)-Degree of saturation
c.	A heat engine develops 10KW power when receiving heat at the rate of 2250 kJ/min.Evaluate the corresponding rate of heat rejection from the engine and its thermal efficiency.