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**Tatyasaheb Kore Institute of Engineering & Technology, Warananagar
(An Autonomous Institute)**

F.Y. B. Tech (Sem-I), In Semester Examination –I, September 2023

Basic Mechanical Engineering

Day and Date: Saturday, 30 September 2023

Marks: 30

Time : 9:15 am to 10:15 am

**Instructions: i) Use of non programmable calculator is allowed.
ii) Figures to the right indicate full marks.**

Q.1 Attempt any Three from the following questions.

Unit No CO

a) Following data is obtained from gas turbine test.

	Pressure	Volume	Internal energy	Velocity	Elevation
Inlet	15 bar	0.16 m ³ /kg	1200 Kj/kg	60 m/s	12 m
Outlet	6 bar	0.45 m ³ /kg	360 Kj/kg	95 m/s	4 m

Mass flow rate is 18 kg/s. If unit develops 14 KW of power calculate heat transfer from turbine.

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b) What are similarities between heat and work

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c) What is the statement of first law of thermodynamics and state its limitations

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d) Explain thermodynamic equilibrium and state Zeroth law of thermodynamics.

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Q.2 Attempt any Three from the following questions.

a) Explain with sketch function of major components of IC engine.

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b) Explain with sketch working of 4 strokes CI Engine.

2 2 5

c) Differentiate between 2 stroke Engine and 4 strokes Engine

2 2 5

d) Explain with sketch working of 2 stroke SI Engine

2 2 5