Roll No: | | | | | | | | | | | | | |

BTECH
(SEM II) THEORY EXAMINATION 2021-22
ELEMENTS OF MECHANICAL ENGG

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 7 = 14**

a.	What are the laws of motion?
b.	Differentiate between torque and moment.
c.	Define Principle of transmissibility of forces.
d.	Differentiate between Microscopic and Macroscopic approaches.
e.	What do you understand by sagging and hogging in beam?
f.	Define Zeroth law of thermodynamics.
g.	Define the term used in IC Engine: TDC, BDC, Bore And Swept volume.

SECTION B

2. Attempt any *three* of the following: **7 x 3 = 21**

a.	State and prove Varignon's theorem.
b.	Draw the SFD and BMD for shown in Fig. Also find the point of contra flexure if any. 
c.	Draw the stress strain diagram for mild steel under tension and discuss all the salient points.
d.	Discuss First law of thermodynamics. Explain steady flow energy equation in detail.
e.	Explain Rankine cycle with the help of P-v and T-s diagram.

SECTION C

3. Attempt any *one* part of the following: **7 x 1 = 7**

(a)	A cylinder which weighs W is held against a smooth incline plane by means of the weightless bar AB. If the bar has a cross section of 30 mm X 30 mm and can resist an 18MPa compressive stress, determine the maximum weight of the cylinder in KN that the structure can handle.