Total No. of Questions – [4]

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G.R. No.	

Paper Code - U127-103(T2)

MARCH 2018 / IN - SEM (T2)
F. Y. B.TECH. (COMMON) (SEMESTER - II)
COURSE NAME : Basic Mechanical Engineering
(2017 PATTERN)

Time : [1 Hour] [Max. Marks : 30]

(*) Instructions to candidates:

1) **Answer Q.1 OR Q.2, Q.3 OR Q.4**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q 1) a) Define any six Mechanical properties of engineering material. [6]

b) Classify Engineering Material and explain ferrous alloys with application. [6]

c) Explain in detail Ergonomic consideration in product design. [4]

OR

Q2) a) Explain stress strain diagram for mild steel and show its salient features. [6]

b) Define Ergonomics and Aesthetic. Explain aesthetics consideration in detail. [6]

c) Explain different nonferrous metals and alloys with application. [4]

Q3) a) Classify couplings and explain bush pin type flexible coupling. [6]

b) Compare flat belt and V belt. Draw an explain open and cross belt drive. [4]

c) Gear 1 rotates at 1500 rpm in clockwise direction and engages with gear 2. Gear2 and gear 3 is mounted on same shaft. Gear 4 engages with gear 3. The number of teeth on 1, 2, 3 and 4 are 25, 45, 20 and 35 respectively, the angular speed of gear 4 and its direction of rotation is? [4]

OR

Q4) a) Classify different types of gears and explain gear terminology. [6]

b) What is a key? Explain with neat sketches the different types of keys. [4]

c) Gear train is made up of five gears. Gear 1 is driver and gear 5 is driven member. Gear 1 engages with gear 2, Gear 2 and 3 are mounted on same shaft, gear 4 engages with gear 3 and gear 4 engages with gear 5 . The number of teeth on gears 1, 2, 3, 4 and 5 are 15, 30, 20, 40 and 20 respectively. If the gear 1 is rotating at 3000 rpm find angular speed of gear 5. [4]