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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (AE) (2012 to 2017) (Sem.-5)
DESIGN OF AUTOMOTIVE COMPONENTS

Subject Code : BTAE-504

M.Code : 70487

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**1. Explain briefly :**

- a. Elaborate the automotive design process.
- b. Enlist four automotive components.
- c. Enlist manufacturing consideration in automotive.
- d. What is Free body diagram?
- e. What is theory of failure?
- f. Name any two common materials used for connecting rod and crank shaft.
- g. What is the function of crank shaft?
- h. What is stress concentration?
- i. Define Factor of safety.
- j. What is the difference between torsion and shear?

SECTION-B

2. How the material selected for cam shaft and crank shaft? What are the design considerations and explain the importance of failure theory?
3. Explain the various stress imposed on welded joints. How it affects the joint failure?
4. Explain briefly the design process of butt joint for SS 304 steel of 10 mm thickness. Draw the joint design and show stresses acting on it.
5. What are band brakes? How they are different from shoe brakes? Explain with diagram.
6. How the disc brakes are designed? What are the applications of it? Explain with diagram.

SECTION-C

7. Explain the design process of cone clutch. Enlist the design consideration, applications, merits and demerits.
8. Define Bearing. How bearing fails in automobiles?
9. Define the following :
 - a. Spur gear
 - b. Bevel gear
 - c. Helical gear

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.