

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]
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B. Tech 3rd Semester Examination
Elements of Automobile Engineering (O.S.)
AU-3001

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all, select one question from each sections A, B, C and D. Section E is compulsory.

SECTION - A

1. (a) Discuss the merits and demerits of the following:
 - (i) Front engine rear wheel drive.
 - (ii) Front engine front wheel drive. **(2×5=10)**
- (b) How do you classify automobiles? Explain in detail giving examples. **(10)**
2. (a) What are the requirements of an automotive clutch? **(10)**
- (b) Explain the construction details and working of multiplate clutch. **(10)**

SECTION - B

3. (a) What are the merits and demerits of the synchromesh gear box over the sliding mesh and constant mesh gear box? **(8)**
- (b) Explain the working of constant mesh gear box with the help of a sketch. **(12)**

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4. (a) What is the necessity of transmission in a vehicle? (5)
(b) Explain with the help of a sketch the working of a differential. (15)

SECTION - C

5. (a) What are the objectives of a suspension system? (5)
(b) Describe the construction and working of a telescopic type shock absorber with the help of a neat sketch. (15)
6. (a) Name the different types of steering gear boxes. (5)
(b) What is the function of a steering gear? Discuss in detail with the help of sketch rack and pinion type of manual steering gear. (15)

SECTION - D

7. (a) Draw a schematic diagram showing the charging system of a battery in a vehicle. (5)
(b) Explain with the help of sketches the causes of tyre wear. (15)
8. (a) Why bleeding of brakes is necessary? (5)
(b) Explain with the help of a sketch the layout of a hydraulically operated four wheel brake system. (15)

SECTION - E

9. Write short answers of the following:
- (i) What are the functions of a vehicle frame?
 - (ii) What are the differences of a dry clutch and wet clutch?
 - (iii) What is the difference between the primary shaft and lay shaft?

- (iv) Why universal joint is used in automobile?
- (v) Name the various types of suspension.
- (vi) What are the various factors of a wheel alignment?
- (vii) What is the function of master cylinder in brake?
- (viii) What are the factors affecting the specific gravity of a battery electrotype?
- (ix) What happens to the tyre when it is over inflated and under inflated?
- (x) What is the difference between the dead and live axle?
(10×2=20)