

Roll No. ....

**24354**

**B. Tech. 6th Semester (ME)**

**Examination – May, 2014**

**AUTOMOBILE ENGINEERING**

**Paper : ME-302-F**

**Time : Three Hours ] [ Maximum Marks : 100**

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Question number 1 is *compulsory* and attempt 5 questions in total selecting at least *one* question from each Section.

1. (a) Name important component of disc brake.  
10 x 2 = 20
- (b) What is aspect ratio of a tyre ?
- (c) Define cornering force and cornering power.
- (d) State the disadvantages of independent suspension.
- (e) Name *two* types of constant velocity joints.

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- (f) What is the material used for propeller shaft ?
- (g) What is the basic difference between a fluid flywheel and a torque converter ?
- (h) What is a transfer box ? Where is it used ?
- (i) Name different types of live rear axles.
- (j) What is the purpose of pressure plate in a clutch ?

### SECTION - A

- 2. What are main components of an automobile ? Describe all of them briefly. 20
- 3. With the help of a suitable diagram, describe the constructional features of a diaphragm spring type clutch. Discuss the advantages and disadvantages relative to the clutch employing helical spring. 20

### SECTION - B

- 4. What is epicyclic gear box ? Describe its principle with the help of a neat sketch. 20
- 5. Explain the necessity of a differential in an automobile. Discuss in detail the construction and operation of the differential. 20

### SECTION - C

- 6. Write short notes on : 20
  - (a) Factors influencing ride comfort
  - (b) Electronic steering

7. Describe in detail the rack and pinion type manual steering gear by means of a simple sketch and discuss its advantages. 20

**SECTION – D**

8. Discuss the factors which affect the performance of brake. With the help of neat sketch explain the Principle and construction of drum brake. 20
9. Write short notes on : 20
- (a) Air injection system and catalytic convertor
  - (b) Positive crank case ventilation system