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Total Number of Pages: 02

B.TECH
PEME5301

5th Semester Regular / Back Examination 2015-16

AUTOMOBILE ENGINEERING

BRANCH: MECHANICAL

Time: 3 Hours

Max marks: 70

Q.CODE: T609

**Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.**

- Q1** Answer the following questions: **(2 x 10)**
- a) Name the material used for brake linings and what properties should they possess?
 - b) What is bendix drive ? Explain briefly.
 - c) Name the various components mounted on the chassis frame.
 - d) What are the disadvantages of cone clutch?
 - e) What is flywheel magneto and how it works?
 - f) Discuss the function of a catalytic converter.
 - g) What is an over drive ? What are it's advantages?
 - h) What is power steering? Name two basic types of power steering.
 - i) What are the factors affecting specific gravity of battery electrolyte?
 - j) What are the causes of engine back-fire?
- Q2** a) What are the essential characteristics of a good braking fluid? **(5)**
b) Explain the basic electrical system of an automobile with the help of a circuit diagram. **(5)**
- Q3** Describe working of a synchromesh gear box with the help of a sketch. **(10)**
What are its merits and demerits compared to constant mesh type?
- Q4** a) Where and why do we use multi plate clutches? Explain the constructional features and working of multi plate dry clutch. **(8)**
b) Define N category vehicles. Name the cities, where Bharat stage-III has been made mandatory. **(2)**
- Q5** a) Explain the necessity of a differential in an automobile. With the help of neat sketch discuss in detail the construction and operation of differential. **(10)**
- Q6** a) What is power steering? Discuss briefly with a sketch. **(6)**
b) What do you mean by camber? What are the advantages of positive camber? **(4)**
- Q7** a) In a gear box with planetary gear operation the internal toothed ring **(5)**

gear has 72 teeth and sun gear has 32 teeth. How many teeth the planet gear should have? Also find out the gear ration, when ring gear is fixed.

b) With a neat sketch give the details of battery ignition system. **(5)**

Q8 Write short notes on any two: **(5 x 2)**

- a)** Hybrid vehicles.
- b)** Free wheel.
- c)** Hand brake (parking brake)
- d)** Automatic transmission.