Unit - V

5. a) What is battery rating? Enlist commonly used battery ratings?

b) What is the function and requirement of starting switches?

c) With neat sketch explain various parts of headlight assembly of a car.

d) Enlist various advantages of microprocessor based control system for automobiles. Explain any one system.

OR

With the help of a line diagram, explain the construction and working of a wiper and horn in an automobile.

Unit - VI

6. a) List the emissions that are considered significant for measurement and performance study.

b) Give a brief overview of Euro emission norms.

c) What is crankcase blowby? How it is controlled?

d) What is catalytic convertor, explain. Explain the working principle of three-way catalytic convertor.

OR

Explain the need and working of EGR system for controlling NOx formation.

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Roll No .....

ME - 704

B.E. VII Semester

Examination, December 2015

Automobile Engineering

Time : Three Hours

Maximum Marks : 70

Note: i) Answer any five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each question are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Give classification of engine chassis on the basis of number of wheels fitted in the vehicle and number of driving wheels.

b) Explain following terminologies in relevance to the body of a vehicle:

i) Legroom

ii) Headroom

iii) Shoulder room

c) What is transfer case. With the help of schematic figure show the position of transfer case in 4-wheel drive vehicle.

d) With the help of neat sketch explain the function of followings:

i) Bumpers

ii) Frames

OR

A truck having a projected area of 12 square meters travelling at 60 Km/hr has a total resistance of 2943N. Rolling friction accounts for 25% of the total resistance, while 15% is due to surface friction. The rest is due to form drag. Calculate the coefficient of form drag if the density of air = 1.25 kg/m^3.

Unit - II

2. a) Explain the role of kingpin inclination in reduction of steering effort.

b) What is trans-axle. Briefly describe it's working.

c) Explain the effects of following caster angles.

i) Zero caster angle

ii) Inadequate caster angle

d) Explain the following terms:

i) Toe-in and Toe-out

ii) Camber

iii) Caster

iv) Understeer and oversteer

OR

Describe working of power steering with neat sketch.

Unit - III

3. a) Enlist main parts of a friction clutch. Also write function of each part.

b) Write advantages of synchromesh transmission system over constant mesh transmission system.

c) Discuss in brief the two types of rear axle drive.

d) Explain the following clutch troubles with their respective probable causes:

i) Slipping clutch

ii) Grabbing and chattering clutch

iii) Rapid wear of lining

OR

Explain working of fluid coupling. How does it differ from a torque convertor.

Unit - IV

4. a) What are different types of rear end suspension?

b) Give the expression for any three efficiencies associated with I.C. engine.

c) Explain the need of self-energizing brakes.

d) With the help of neat sketch explain various components of a cross ply type tyre.

OR

Describe layout of a pneumatic brake system used on a bus, name parts and explain the working.