(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID: 0402

Roll No.

B.Tech.

(SEM. VII) ODD SEMESTER THEORY EXAMINATION 2010-11 AUTOMOBILE ENGINEERING

Time: 3 Hours

Total Marks: 100

Note:

- (1) Attempt all questions.
- (2) Assume missing data suitably, if any.
- (3) Be precise in your answer.
- 1. Attempt any *four* parts of the following:— $(5\times4=20)$
 - (a) Name different resistances encountered by a moving vehicle. How propelling power is related to these resistances?
 - (b) Explain working principle of synchromesh gear box with neat sketch.
 - (c) Draw and explain the valve timing diagram for 4-stroke petrol engine.
 - (d) What is supercharging? Why it is done and what are supercharging limits for CI engine?
 - (e) Draw the curve for torque characteristic (TVs N) for variable speed CI engine.
 - (f) What purposes are served by a gear box? How are torque and gear ratio related?
- Attempt any two parts of the following: (10×2=20)
 - (a) (i) What are the requirements of good transmission system? Name the different units of transmission system.

- Describe the working of torque converter with neat sketch.
- (b) (i) Explain the construction and working of differential with neat sketch.
 - (ii) Explain king-pin inclination and how it effects vehicle stability.
- (c) Explain the working of Steering system with a neat sketch/ layout showing its all components.
- 3. Attempt any two parts of the following:— (10×2=20)
 - (a) What are the requirements of good braking system? Discuss the classification of brakes for automotive vehicles.
 - (b) What do you understand by independent suspension system? Explain Wishbone arm system with neat sketch.
 - (c) Write short notes on the following:-
 - (i) Self energizing brakes
 - (ii) Causes of tyre wear.
- 4. Attempt any two parts of the following: (10×2=20)
 - (a) Describe the main components and working of battery ignition system with neat sketch.
 - (b) What are the functional requirements of diesel engine injection system? Describe different types of injection nozzles and compare them.
 - (c) What are the advantages of MPFI (multi point fuel injection) over the carburettor system ? Explain MPFI electronic control system with a block diagram.

- 5. Attempt any four parts of the following: (5×4=20)
 - (a) Explain pressurized with cooling.
 - (b) Why overheating and over-cooling of Engine is harmful?
 - (c) What are multigrade oils and what are their advantages?
 - (d) Name different types of additives used in lubricating oil.
 - (e) Make comparison between periodic and preventive maintenance.

3

(f) Discuss Mist lubrication system.