



Printed Pages : 3

TME-703

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

PAPER ID : 0402

Roll No.

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B. Tech.

(SEM. VII) EXAMINATION, 2008-09
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 : 5×4
- (a) Name different resistances encountered by a moving vehicle. Explain any two of them.
 - (b) Draw valve timing diagram for 4-stroke and 2-stroke diesel engine.
 - (c) Make comparison between constant mesh and synchromesh gear box.
 - (d) Differentiate between flywheel and governor.
 - (e) Why is compound gear train preferred over the simple gear train for use in manual gear box ?
 - (f) Define volumetric efficiency. What is its effect on Engine power and specific fuel consumption ?

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- 2 Attempt any **two** of the following : 10×2
- (a) (i) What is difference between hydraulic coupling and torque converter ?
 - (ii) Define a transmission system. How are transmission systems characterized ?
 - (b) Define and explain the following :
 - (i) Coster angle
 - (ii) King pin inclination
 - (iii) Camber angle
 - (iv) Toe-in.
 - (c) Discuss the working of power steering with neat sketch.

- 3 Attempt any **two** parts of the following : 10×2
- (a) Explain the functions of main parts of a master cylinder used in hydraulic braking with neat sketch.
 - (b) Explain briefly the elements of a suspension system and discuss the bouncing, rolling and pitching suspension movement of cars.
 - (c) Describe briefly any **three** of the following :
 - (i) Torsion bars
 - (ii) Tubeless tyre
 - (iii) Wheel balancing
 - (iv) Classification of chassis.

- 4 Attempt any **two** of the following : 10×2
- (a) Why electronic ignition system is preferred over conventional system ? Make comparison between T.C.I. and C.D.I. ignition system.

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- (b) What is the difference between air injection and solid injection ? Explain the working of common rail and individual pump injection system with neat sketch. Discuss their relative merits and demerits.
- (c) Discuss electronic fuel injection system for petrol engine.

5 Attempt any **two** parts of the following : **10×2**

- (a) Why cooling of an engine is necessary ? Explain briefly the pressurized water cooling and evaporative cooling of engines.
- (b) Explain the function performed by the lubrication system. Why additives are added in the lubricating oil ? Explain the function of different additives.
- (c) Write short notes on :
- (i) Preventative maintenance
 - (ii) Boundary lubrication
 - (iii) Multigrade oils.

