

ME-704

B. I . (Seventh Semester) EXAMINATION, Dec, 2011 (Mechanical Branch)

AUTOMOBILE ENGINEERING

Three Hours Maximum Marks : 100 Minimum Pass Marks ; 35

Unit I

1 (a) Describe briefly the following types of frames : 15

(i) Conventional frame (ii) Semi-integral frame (iii) Integral or unit frame

b) Explain briefly about the defect in chassis frame. 5 Or

2. (a) Write short notes on Use following : 12

(i) Full-forward chassis

(ii) Wheel track

(iii) Chassis overhang

(iv) Wheel base

(b) list the requirement which the body of motor vehicle should fulfil 8

Write short notes on the following : 20

(i) tower steering

(ii) Ackermann's principle of steering

(iii) Oversteer and understeer

(iv) Backlash in steering gears

(v) Turning radius and its significance

Or

4.(a) With the aid of neat sketch explain the following terms

pertaining to wheel geometry and their effect on steering characteristics : 10

(i) Steering angle

(ii) Camber angle

(iii) King pin angle

(iv) Toe-in

(v) Toe-out

(b) What are various types of steering gear ? Explain the construction of one form of steering gear commonly employed in modern cars. 10

5.(a) Explain the working of a clutch with suitable sketch. 10

(b) Draw and explain the construction and working of a synchromesh gear. 10

Or

6.(a) 'What is torque converter ? Explain its working and performance characteristics. 12

(b) Discuss in brief the various components of a propeller shaft. 8 Unit -IV

7.(a) State the advantage and disadvantage of independent suspension over rigid axle type suspension. 8

(b) Draw the sketch of mechanical braking system and explain various parts and working of this braking system. 12 Or

8.(a) Describe the MacPherson strut assembly of independent suspension with a neat sketch. 10

(b) Differentiate between the following : 10

(i) Conventional tube tyre and tubeless tyre

(ii) Radial ply tyres and bias-ply tyres

Unit-V

9.(a) Which type of test are conducted to ascertain the condition of battery ? Explain most important test with the help of neat sketch. 10

(b) What is the need of starting drives in automobile ? Mention various types of starting devices and explain any one in brief. 10 Or

10 Write short notes on the following : 20

(i) Euro-I and Euro-II MM

(ii) Fuel Quality Standards

(iii) Catalytic converters

(iv) Fuel additives

(v) Emission MMfOI