

GANPAT UNIVERSITY**B. Tech. Semester: VIII (Mechanical) Engineering****Regular Examination March – June 2014****Automobile Engineering (2ME805)****Time: 3 Hours / As per Scheme****Total Marks: 70****Instruction:-**

1. All questions are compulsory.
2. Figures to the right indicate full marks'
3. Answers to the two sections must be written in separate answer books'
4. Assume all necessary data.

Section - I

- Que. – 1 (A)** Draw the layout of an automobile, indicate & Explain the various components. 6
- (B)** Write the function of clutch and classification of clutches. Explain any one type of clutch with neat sketch. 6
- OR**
- Que. – 1 (A)** Explain the following terms :-
(i) Load distribution in frames (ii) Frame types with neat sketch
(iii) Frame materials (iv) Sub-Frame 6
- (B)** Write short notes on tractive effort, gradeability of a car and force acting on vehicle in a motion. 6
- Que. – 2 (A)** Draw & Explain Constant mesh gear-box. 6
- (B)** How is gear number designed in four speed gearbox, if gear ratio is 1:4? 2
- (C)** Explain Propeller Shaft with diagram. Mention types of universal joint. 3
- OR**
- Que. – 2 (A)** Discuss the working principles of Torque tube drive with neat sketch. 6
- (B)** State and define Vehicle Dimensions. 2
- (C)** What is an epi-cyclic gear box? 3
- Que. – 3 Attempt Any two** 12
- (A)** Explain the types of rear axles with neat sketch.
- (B)** Explain the types of stub axles with neat sketch.
- (C)** Derive $\cot \phi - \cot \theta = \frac{c}{b}$ of Ackermann steering mechanism with diagram?

P.T.O

Section – II

- Que. – 4 (A) Sketch and explain various steering geometries with neat sketch 6
(B) State types of Independent Suspension and Explain any one with neat sketch. 6

OR

- Que. – 4 (A) Explain with the help of a suitable sketch the construction of the disc brake. Compare Disc Brake and Drum Brake. 6
(B) State type of steering gear box & explain any two steering gear box with neat sketch. 6

- Que. – 5 (A) With a schematic layout, explain working of series and parallel configuration type of hybrid car or moped. 7
(B) With neat sketch explain working of differential. Mention types of differential. 4

OR

- Que. – 5 (A) State and Explain type of silencer (muffler) with neat sketches 6
(B) What are Vehicular technologies required to convert BS-2 to BS-3 to BS-4? 5

- Que. – 6 Attempt Any two 12
(A) Explain procedure of Engine tune-up (tuning).
(B) Explain construction details of Battery used in recent Automobiles.
(C) Explain PUC Test of Vehicle. Discuss Emission Norms Implemented in India.

END OF PAPER

BEST OF LUCK