

Automobile Engineering - May 2016

Mechanical Engineering (Semester 7)

TOTAL MARKS: 100

TOTAL TIME: 3 HOURS (1) Question 1 is compulsory.

(2) Attempt any four from the remaining questions.

(3) Assume data wherever required.

(4) Figures to the right indicate full marks.

- 1 (a) Define the term 'Automobile' and classified it.(7 marks)
- 1 (b) Classify the gearbox and explain constant mesh gear box with figure.(7 marks)
- 2 (a) Draw the layout plan of automobile chassis. Name the various components.(7 marks)

Solve any one question from Q2(b) & Q2(c)

- 2 (b) Explain the working of single plate clutch with the help of simple diagram.(7 marks)
- 2 (c) A car weighing 21 kN has a static weight distribution on the axles of 50:50. The wheel base is 2.5 m and the height of center of gravity above ground is 0.5 m. if the coefficient of friction on the highway is 0.6 , calculate the advantage of having rear wheel drive rather than front wheel drive as far as gradiability is concerned , if engine power is not a limitation.(7 marks)

Solve any two question from Q3(a), Q3(b) & Q3(c), Q3(d)

- 3 (a) Differentiate Hydraulic and Air braking system.(7 marks)
- 3 (b) State the objectives of employing a suspension system on an automobile.(7 marks)
- 3 (c) Explain with the help of neat sketch the construction of propeller shaft.(7 marks)
- 3 (d) Explain the working of Automatic transmission gear box.(7 marks)

Solve any two question from Q4(a), Q4(b) & Q4(c), Q4(d)

- 4 (a) Battery is the heart of electric system in automobile. Explain.(7 marks)
- 4 (b) What is tyre rotation and its purpose? Explain in detail.(7 marks)
- 4 (c) Draw and explain the simple layout of car wiring.(7 marks)
- 4 (d) Explain Convectional tube tyre & Tubeless tyre in detail.(7 marks)

Solve any two question from Q5(a), Q5(b) & Q5(c), Q5(d)

- 5 (a) Explain about Air bag as a safety provisions in cars.(7 marks)
- 5 (b) What is engine decoking? Why is it required? Also explain various methods of engine decoking.(7 marks)
- 5 (c) Describe briefly driving and conductor Licence. Also explain the process of renewal of driving licenses.(7 marks)

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5 (d) Explain briefly the layout of Electric vehicle with Advantages and Disadvantages compared to a conventional vehicle.(7 marks)