Total No. of Questions :12]

SEAT No. :

P3682

[Total No. of Pages :4

[4959] - 1050

B.E. (Mech. S/W)

AUTOMOBILE ENGINEERING

(Self Study - III) (2012 Course) (402064) (Semester - I) (Elective - I)

Time : 3 Hours] *[Max. Marks :100*

Instructions to the candidates:

1) ***Answer three questions from Section I and three questions from Section - II.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
6) ***Assume suitable data, if necessary.***

Q1) a) What do you understand by vehicle layout. **[2]**

b) Explain the following types of layout **[8]**

i) Front Engine Front Drive

ii) Rear Engine Rear Drive

c) Explain the working of differential used in rear axle. **[6]**

OR

Q2) a) With a neat sketch explain the working of full floating or semi - floating Rear Axle Hub. **[5]**

b) Describe any two chassis types. **[6]**

i) Backward controlled

ii) Forward controlled

iii) Semi forward controlled

c) With a neat sketch explain the construction of one type of Front Axle. **[5]**

P.T.O.

Q3) a) What are the desirable properties of clutch lining material. **[6]**

b) Explain with neat sketch working of synchromesh Drive. **[6]**

c) Explain the need of propeller shaft in Rear Drive vehicle. **[3]**

d) Explain the working of universal Joint. **[3]**

OR

Q4) a) Name three types of clutch & explain one of them. **[6]**

b) Explain the working with neat sketch **[6]**

i) Fluid Flywheel

OR

iii) Torque converter

c) Sketch & describe the working of two piece propeller shaft. **[6]**

Q5) a) Explain any two **[6]**

i) Over steer & under steer

ii) Cornering Force

iii) Slip angle

b) Compare the following **[4]**

Coil spring Vs Leaf spring suspension

c) Sketch & describe the working of Drum Brake. **[6]**

OR

Q6) a) With a neat sketch explain the working of power steering. **[6]**

b) What do understand by sprung mass & unsprung mass in suspension. **[4]**

c) Sketch & explain the working (any one): **[6]**

i) Hydraulic Braking system

ii) Pneumatic Braking system

SECTION - II

Q7) Write short note on following: **[16]**

a) Types of impacts

b) Rollover

c) Speedometer

d) Sensors used in automobiles.

OR

Q8) a) Write short note on various AIS Regulations. **[8]**

b) Write short note on various crumple zones of automobile. **[8]**

Q9) a) Describe various types of tests carried out on chassis dynamometer. **[10]**

b) Explain with neat sketch SAE vehicle axis systems. **[6]**

OR

Q10) Write short note on following (any four) **[16]**

a) Frontal impact test.

b) Side impact test

c) Pole impact test

d) Pedestrian impact test

e) Coast down test

Q11) Write short note on (any three) **[18]**

a) Bulldozers

b) Tankers

c) Dumpers

d) Hydraulic dozers.

OR

Q12) a) Explain with neat sketch types of multi axle vehicle layouts. **[10]**

b) Differentiate the light, medium and heavy duty tractors on the basis of specifications and functional parameters. **[8]**