

22309

21222

3 Hours / 70 Marks

Seat No.

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15 minutes extra for each hour

- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define the terms chassis and body.
- (b) List various types of vehicle layout.
- (c) State any two functions of Clutch.
- (d) State the necessity of gearbox in a vehicle.
- (e) List the various types of propeller shaft.
- (f) State any two functions of differential.
- (g) Define 'aspect ratio' of tyres.

2. Attempt any THREE of the following :

12

- (a) Describe the various loads acting on frame.
- (b) State the requirements of a good automotive clutch.
- (c) Describe with labelled diagram working of transfer case.
- (d) Describe with neat sketch working of Hotchkiss drive.

- 3. Attempt any THREE of the following : 12**
- (a) Classify various types of frames. Explain integral frame in detail.
 - (b) Sketch a layout of front engine rear wheel drive and label all the major components.
 - (c) Describe with neat sketch working of multi-plate clutch.
 - (d) Explain the working of torque converter with labelled diagram.
- 4. Attempt any THREE of the following : 12**
- (a) State various friction lining materials used in clutch plate. State the necessity of friction lining.
 - (b) Distinguish between single plate clutch and multi-plate clutch on basis of
 - (1) Construction (2) Size
 - (3) Torque transmission (4) Application
 - (c) State various clutch operating mechanism. Explain hydraulic operated mechanism in detail.
 - (d) Illustrate advantages and disadvantages of Synchromesh gear box over constant mesh gear box.
 - (e) Explain lubrication system in gear box.
- 5. Attempt any TWO of the following : 12**
- (a) Describe with neat sketch working of constant mesh gear box.
 - (b) Sketch arrangement of following axles and give one application of each :
 - (1) Semi floating (2) Full floating
 - (c) Illustrate with proper sketch working of differential.
- 6. Attempt any TWO of the following : 12**
- (a) Describe various loads acting on rear axle. State necessity of rear axle.
 - (b) Illustrate with neat sketch construction of tubeless tyre. State advantages of tubeless tyre.
 - (c) Describe the effects of incorrect tyre inflation. State the types of inflation and draw a neat simple sketch of each type.
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