



22309

12223

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following :

10

- (a) What are the loads coming on a chassis frame ?
- (b) State two functions of clutch, used in modern vehicle (four wheeler).
- (c) State the necessity of gear box in two wheeler.
- (d) Classify gear box and define the term “backlash”.
- (e) State any two functions of slip joint in vehicle.
- (f) Draw a neat sketch of Hooke’s joint.
- (g) List types of rear axles used in automobile.

2. Attempt any THREE of the following :

12

- (a) Sketch a layout of front engine all wheel drive vehicle and label the major parts.
- (b) Describe vehicle layout and its significance in auto transmission system.
- (c) Explain construction and working of centrifugal clutch.
- (d) Compare Inboard Tripod Joint and Outboard Rezappa Joint.



3. Attempt any THREE of the following : 12

- (a) Write any four materials used in frame for modern vehicle. Describe its composition.
- (b) Suggest clutch friction materials for wet and dry clutches and justify their use with suitable illustrations.
- (c) Describe construction and working of sliding mesh Gear Box with neat sketch.
- (d) Describe with sketch working of full floating type axle.

4. Attempt any THREE of the following : 12

- (a) Enlist various tools and equipments required to check auto transmission components.
- (b) Illustrate the purpose of transfer case also draw a layout (block diagram) of T.C.
- (c) Compare Hotchkiss drive rear axle drive with torque tube drive.
- (d) "Final drive is essential components of four wheeler automobile." Justify the statement with suitable reasons.
- (e) Illustrate the importance of double reduction axle in Automobile.

5. Attempt any TWO of the following : 12

- (a) Describe construction and working of fluid coupling.
- (b) Compare with sketches tube tyre with tubeless tyre on the basis of specification, construction & performance.
- (c) Describe application, construction and working of torque converter.

6. Attempt any TWO of the following :**12**

- (a) Describe construction and working of continuously variable type transmission.
 - (b) Describe with sketch construction of light alloy wheel and state its two advantages over other types.
 - (c) “Single plate clutch is used in four wheelers.” Justify the statement with suitable reasons.
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