

17307

21819

3 Hours / 100 Marks

Seat No.

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- 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.
 - (5) Assume suitable data, if necessary.

Marks

1. (A) Attempt any SIX :

12

- (a) Write the functions of Frame.
- (b) List the materials used for frame manufacturing.
- (c) State the types of Frame.
- (d) State the location of clutch in an Automobile.
- (e) List any four components of gear box.
- (f) State the function of propeller shaft.
- (g) Write the necessity of rear axle.
- (h) Write a principle of differential.

- (B) Attempt any TWO :** **8**
- (a) Draw layout of front engine front wheel drive and justify application of the layout.
 - (b) Draw a neat sketch of two wheeler clutch plate.
 - (c) Explain with neat sketch construction of fluid coupling.
- 2. Attempt any FOUR :** **16**
- (a) Write any two applications of multi-plate clutch & centrifugal clutch.
 - (b) Explain working of Truck clutch plate.
 - (c) Differentiate between dry clutch and wet clutch.
 - (d) Explain construction of clutch plate with neat sketch.
 - (e) Explain the working of hydraulically operated clutch with neat sketch.
 - (f) Describe the working of four speed sliding mesh gear box.
- 3. Attempt any FOUR :** **16**
- (a) Explain construction and working of Gear selector mechanism with gear lever on top of gear box.
 - (b) Draw a proportionate sketch of 4 speed constant mesh gear box.
 - (c) State function & types of constant velocity joints.
 - (d) Write down advantages and disadvantages of torque convertor over manual transmission gear box.
 - (e) State two advantages and disadvantages of synchromesh gear box with applications.
 - (f) Describe the construction and working of transfer case and write down application.

4. Attempt any FOUR :**16**

- (a) Explain loads acting on rear axle.
- (b) State various types of rear axle casing and explain any one with neat sketch in brief.
- (c) Why the universal joint and slip joint used in transmission system.
- (d) Explain the power flow diagram of sliding mesh gear box.
- (e) Explain tyre terminology with sketch.
- (f) Describe with the help of simple sketch the construction of wired spoke wheel.

5. Attempt any TWO :**16**

- (a) Explain working of differential with neat sketch.
- (b) Explain with neat labelled diagram for semi floating rear axle and full floating type rear axle with applications.
- (c) Describe with neat labelled diagram of Hotchkiss drive and torque tube drive.

6. Attempt any TWO :**16**

- (a) Draw a neat labelled diagram of four wheel drive vehicle layout. State two merits and two demerits of four wheel drive over two wheel drive.
 - (b) Differentiate between cross ply and Radial ply tyre. (8 points)
 - (c) State the different types of tread patterns and explain the effect of inflation pressure on the tyre life.
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