



17307

21415

3 Hours/100 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.**
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**MARKS**

1. A) Attempt **any six** : **12**
- a) State the types of frames.
  - b) Classify the vehicle layout with respect to
    - i) Arrangement of engine
    - ii) Application.
  - c) Write various loads acting on chassis frame.
  - d) State materials used for clutch lining.
  - e) State necessity of gear box.
  - f) Write function of propeller shaft.
  - g) State function of differential.
  - h) List load acting of rear axle.
- B) Attempt **any two** : **8**
- a) Draw the layout of rear engine rear wheel drive.
  - b) State and explain working principle centrifugal clutch.
  - c) Explain construction of fluid coupling with neat labelled sketch.
2. Attempt **any four** : **16**
- a) Draw neat labelled sketch of variator drive and explain its operation.
  - b) Where and why do we use multiplate clutches and explain working of multiplate clutch ?
  - c) Differentiate between single plate clutch and multiplate clutch (any four points).
  - d) Give the classification for friction and non friction type clutches.
  - e) Explain hydraulic clutch linkage with sketch.
  - f) Describe the working of synchromesh gear box.

**P.T.O.**



**MARKS**  
**16**

3. Attempt **any four** :

- a) Explain construction and working of gear selector mechanism with gear lever on top of gear box.
- b) Describe the construction and working of transfer case.
- c) Describe the working of four speed sliding mesh gear box with power flow diagram.
- d) Draw a proportionate sketch of 4 speed constant mesh gear box.
- e) Describe synchronizer unit with neat sketch.
- f) List two advantages and two disadvantages of propeller shaft.

4. Attempt **any four** :

- a) State functions and types of constant velocity joint.
- b) State various types of rear axle casing and explain any one with neat sketch.
- c) Explain the concept of differential lock.
- d) How a torque converter differs from a gear box ?
- e) Discuss with the help of simple sketch the construction of various types of disc wheels.
- f) Explain tyre terminology with sketch.

5. Attempt **any two** :

- a) Differentiate between Hotchkiss and torque tube drive with the help of suitable sketches (any four points).
- b) Explain working of differential with neat sketch.
- c) Explain with neat sketch following type of rear axle.
  - a) Semifloating
  - b) Three quarter floating.

6. Attempt **any two** :

- a) Differentiate between 2 WD and 4 WD on basis of following parameters.
    - i) Torque and power transmission
    - ii) Engine location and drive
    - iii) Performance and efficiency
    - iv) Merits, demerits.
  - b) Differentiate between cross ply and radial ply type on basis of
    - i) Construction/trade pattern
    - ii) Materials/constituents
    - iii) Performance/efficiency
    - iv) Application/purpose.
  - c)
    - i) Explain tube less tyre and its features.
    - ii) Explain tyre inflation and its effect.
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