



22309

11819

3 Hours / 70 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.*

Marks

1. Attempt **any five** of the following : **10**
- a) State the necessity of frame in Automobile.
 - b) Enlist different materials used for frames.
 - c) Write a function of Automobile clutch.
 - d) State the purpose of transfer case.
 - e) State the functions of slip joint and universal joint.
 - f) State the load acting on Rear Axle.
 - g) Explain the concept of aspect ratio.
2. Attempt **any three** of the following : **12**
- a) Explain any one type of frame section with a neat sketch.
 - b) Describe with schematic sketch working of vacuum operating clutch mechanisms.
 - c) Describe working of continuously variable transmission with suitable sketch.
 - d) Explain construction of Hotchkiss drive with suitable sketch.
3. Attempt **any three** of the following : **12**
- a) Sketch a layout of front engine rear wheel drive vehicle and label the major parts.
 - b) Illustrate with the sketch functional relationship of major components of power transmission system.
 - c) Describe the working of motorcycle clutch with a neat sketch.
 - d) Describe advantages of torque convertor over manual transmission system (any four).

P.T.O.



4. Attempt **any three** of the following :

12

- a) Describe with neat sketch construction details of clutch plate.
- b) Compare dry clutch with wet clutch on the basis of :
 - i) Construction
 - ii) Torque
 - iii) Transmission
 - iv) Application.
- c) What are the different materials used for clutch lining ? State its necessity.
- d) In modern car synchromesh gear box is preferred over constant mesh gear box. Justify its application with suitable illustrations.
- e) Describe with sketch the method of lubrication for synchromesh gear box.

5. Attempt **any two** of the following :

12

- a) Describe with schematic diagram working of constant mesh gear box.
- b) Compare Hotchkiss drive with torque tube drive and justify their use in relevant transmission system.
- c) Describe a method of lubrication for rear axle assembly of the truck.

6. Attempt **any two** of the following :

12

- a) Describe with neat diagram working of full floating type.
 - b) Describe with sketch construction of tubeless tyre and state its two advantages over tube tyre.
 - c) Distinguish among radial ply, cross ply and belted bias types (any 6) of tyres.
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