

17307

13141

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.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) Attempt any SIX of the following: 12
- i) State different types of vehicle layout.
- ii) State necessity and function of a frame.
- iii) State application of frame - channel section and box section one each.
- iv) State the necessity of clutch in an automobile.
- v) State the function of transfer case.
- vi) State functions of propeller shaft and list its components.
- vii) State the necessity of differential in four wheeler vehicle.
- viii) State the functions of rear axle used in automobile.

P.T.O.

b) Attempt any **TWO** of the following:

8

- i) Draw a neat sketch of front engine rear wheel drive layout. State any two advantages and disadvantages of it.
- ii) Why multiplate clutch is used in two wheelers instead of single plate clutch?
- iii) Explain construction and working of single plate coil spring type clutch with neat sketch.

2. Attempt any **FOUR** of the following:

16

- a) Differentiate between single plate clutch and multiplate clutch.
- b) Compare between dry clutch and wet clutch on the basis of construction, torque transmission, heat discipation and application.
- c) Explain construction and working of variator drive with neat sketch.
- d) Explain clutch operating mechanism with simple sketch in friction clutch.
- e) Explain working of centrifugal clutch with neat sketch.
- f) Differentiate between sliding mesh and constant mesh gear box.

3. Attempt any FOUR of the following: 16

- a) Draw a neat sketch of torque converter.
- b) Draw a neat sketch of sliding mesh gear box engaged in first gear and show power flow for the same.
- c) Differentiate between Hotchkiss drive and torque tube drive.
- d) Why constant mesh gear box require double de-clutching?
- e) How the lubrication of gear box is done?
- f) Explain the working of synchromesh gear box with neat sketch.

4. Attempt any FOUR of the following: 16

- a) Draw a neat sketch of differential and label it.
- b) Explain with neat sketch split and banjo type rear axle casing.
- c) Write the functions of constant velocity Rezappa and Tripod joint.
- d) State any two advantages and any two drawbacks of torque converter.
- e) Explain steel disc wheel with neat sketch.
- f) Explain specification of tyres with one example.

- 5. Attempt any TWO of the following:** **16**
- a) Explain construction and working of three quarter floating type rear axle with neat sketch.
 - b) Draw a neat sketch of full floating rear axle and explain how it differs from semi floating and three quarter floating rear axle from construction point of view.
 - c) Explain construction and operation of hollow tube propeller shaft with neat sketch.
- 6. Attempt any TWO of the following:** **16**
- a) Explain any two types of frames with neat sketch. State any two advantages of each.
 - b) Explain tyre construction with neat sketch.
 - c) Differentiate between tube tyre and tubeless tyre on the basis of weight, fuel efficiency, life and road holding.
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