



17526

15162

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

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| 1. A) Attempt any three: | 12 |
| i) State advantages and disadvantages of LPG/CNG engine over petrol engine. | |
| ii) State purpose and function of clutch in automobile. | |
| iii) Draw neat labelled sketch of rack and pinion steering gear. | |
| iv) State types of suspension systems. | |
| B) Attempt any one: | 6 |
| i) Draw car air conditioning system layout and explain in brief. | |
| ii) State function of battery. Explain its construction and working with neat sketch. | |
| 2. Attempt any four : | 16 |
| a) State importance of aerodynamic body of car. | |
| b) Explain need of double declutching. | |
| c) Define TOE-IN and TOE-OUT, state its effects and its normal range. | |
| d) Draw neat labelled sketch of rear leaf spring suspension and explain its working. | |
| e) Explain working of Bendix drive used in starting system, with neat sketch. | |
| 3. Attempt any two : | 16 |
| a) Draw neat labelled sketch of constant mesh gear box and explain working. | |
| b) Draw neat labelled sketch of master cylinder of Hydraulic brake and explain working. | |
| c) Explain construction and working of Wishbone type suspension system with neat sketch. | |

P.T.O.

**4. A) Attempt any three :****12**

- i) Compare two wheel and four wheel drive of vehicle.
- ii) Draw neat labelled sketch of single plate coil spring clutch of automobile.
- iii) Define caster and camber angle, state effects on steering and give approximate range of angle.
- iv) Explain battery ignition system for four cylinder engine.

B) Attempt any one :**6**

- i) State need of power steering and explain general layout of power steering.
- ii) Sketch layout of an air suspension system and name the components.

5. Attempt any three :**16**

- a) Classify automobiles.
- b)
 - i) State functions of propeller shaft.
 - ii) State requirements of good steering system.
- c) Draw labelled neat sketch of telescopic type shock absorber and explain working.
- d) Explain battery capacity and rating.
- e) State important precaution while using air conditioning system of car.

6. Attempt any two :**16**

- a) Explain rear wheel drive vehicle with front and rear engine. State relative advantages and disadvantages.
 - b) Draw neat labelled sketch of differential and explain working.
 - c) Explain construction and working of alternator, state its advantages.
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