

17614

21819

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Figures to the right indicate full marks.
 - (3) Assume suitable data, if necessary.

Marks

1. (A) Attempt any THREE : 12
- (a) Describe the working of constant mesh gear box with neat labelled sketch.
 - (b) Define : (i) Toe-in, (ii) Toe-out
 - (c) Draw a neat labelled sketch of Front Engine Front Wheel drive.
 - (d) Classify Automobile vehicles.
- (B) Attempt any ONE : 6
- (a) State the importance of aerodynamics. List the aerodynamic aspects. which are considered while designing the body of vehicle ?
 - (b) Explain the construction and working of diaphragm clutch with suitable sketch.
2. Attempt any FOUR : 16
- (a) Describe the working of differential with neat labelled sketch.
 - (b) Explain the working of drum brake with suitable sketch.
 - (c) Draw a neat labelled sketch of telescopic shock absorber.
 - (d) Explain foaming and welding processes in Car body manufacturing.
 - (e) Describe the design procedure for a simple fixture used in Drilling.
 - (f) Explain the design considerations for jig and fixture.

- 3. Attempt any FOUR :** **16**
- (a) State the necessity of clutch.
 - (b) Draw a neat sketch of rack and pinion steering gear box.
 - (c) Describe wishbone type of Independent suspension system with suitable sketch.
 - (d) Explain any two manufacturing processes used for production of cylinder block.
 - (e) List the types of milling fixtures.
- 4. (A) Attempt any THREE of the following :** **12**
- (a) Draw a neat labelled sketch of synchromesh gear box.
 - (b) Explain working of disc brake with neat suitable sketch.
 - (c) Describe the construction and working of Trailing link suspension.
 - (d) Explain cutting and drilling processes in manufacturing of leaf spring.
- (B) Attempt any ONE :** **6**
- (a) Explain design process for a simple fixture.
 - (b) Explain forging and machining process of crank shaft.
- 5. Attempt any FOUR :** **16**
- (a) Explain construction and working of propeller shaft.
 - (b) Write any four advantages of drum brake.
 - (c) Differentiate between rear axle and front axle.
 - (d) Explain painting and finishing process in car body manufacturing.
 - (e) List the types of locators. Explain any one type with sketch.
 - (f) Explain the terms in leaf spring manufacturing :
 - (i) Hardening, (ii) Tempering

6. Attempt any FOUR :**16**

- (a) Write down design procedure for a simple jigs used in milling.
 - (b) Describe necessity of suspension system. List the types of suspension system.
 - (c) Explain the construction and working of pneumatic brakes with suitable sketch.
 - (d) Describe working of epicyclic gear box with neat sketch.
 - (e) Write down special clamping devices used in design of milling fixture.
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