

17614

15116

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.

Marks

1. a) Attempt any THREE of the following: 12
- (i) Classify automobiles on the basis of:
 - (1) Ignition
 - (2) Fuel
 - (3) Capacity
 - (4) Suspension
 - (ii) What are the functions of steering system?
 - (iii) Describe the working of wishbone and trailing suspension.
 - (iv) What are the principles of Jig and fixture design?
- b) Attempt any ONE of the following: 6
- (i) Draw a neat sketch of synchromesh gear box and state its significance over constant mesh.
 - (ii) Explain the terms in leaf spring:
 - (1) Tempering
 - (2) Hardening.

P.T.O.

2. Attempt any FOUR of the following:

- a) Explain the purpose of aerodynamic shape recommended for Automobiles.
- b) Difference between coil spring and diaphragm spring type clutch.
- c) Explain the effects of caster and camber on the performance of automobiles.
- d) Describe independent suspension system.
- e) Explain any two manufacturing processes used for production of connecting rod.
- f) Explain forging process of crank shaft.

3. Attempt any FOUR of the following:**16**

- a) Explain the construction and working of differential.
- b) Differentiate between Hydraulic braking system and Pneumatic braking system.
- c) Describe the working of telescopic shock absorber with neat sketch.
- d) Explain sheet metal cutting and joining processes used for car body manufacturing.
- e) Write down design procedure for a simple fixture used in milling.

4. a) Attempt any THREE of the following: 12
- (i) Explain different types of chassis.
 - (ii) Explain with sketch working of over drive.
 - (iii) Explain construction and working and McPherson strut assembly.
 - (iv) Enlist the design consideration for Jig and Fixture design.
- b) Attempt any ONE of the following: 6
- (i) Explain with sketch working principle of power steering.
 - (ii) Explain heat treatment and machining for piston and liners.
5. Attempt any FOUR of the following: 16
- a) Explain the construction and working of propeller shaft.
 - b) What are the functions of rear axles and front axles? Also give their applications.
 - c) Explain construction and working of Rigid axle suspension system.
 - d) Explain the necessity of suspension system.
 - e) Write features and applications of any two drilling Jigs.
 - f) Explain in brief types of fixtures used in process planning of automobile components.

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Marks

6. Attempt any FOUR of the following:

16

- a) Explain the working principle of clutch with sketch.
 - b) Define:
 - (i) King pin inclination
 - (ii) Toe-in and Toe-outand explain their effects.
 - c) Classify suspension system and give their applications.
 - d) Write down the design process for a simple jig used for drilling.
 - e) Explain any two manufacturing processes used for production of crank shaft.
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