

# 12172

21112

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.

- |   | <b>Marks</b> |
|---|--------------|
| <b>1. (A) Attempt any THREE of the following :</b>                        | <b>12</b>    |
| (a) State ARAI standards and their purpose.                               |              |
| (b) State the different vehicle level performance parameters.             |              |
| (c) How engine emission test is carried out as per Indian driving cycle ? |              |
| (d) Define the terms :  |              |
| (i) Pitching  |              |
| (ii) Steady state cornering   |              |
| (e) With neat sketch explain fuel consumption test.                       |              |
| <b>(B) Attempt any ONE of the following :</b>                             | <b>6</b>     |
| (a) Explain the different requirements of vehicle testing.                |              |
| (b) Describe frontal impact & side impact collision test.                 |              |
| <b>2. Attempt any FOUR of the following :</b>                             | <b>16</b>    |
| (a) Explain production part approval process.                             |              |
| (b) What are the effects of change in steering geometry ?                 |              |
| (c) Explain Belgian pave & High speed tracks & their use in testing.      |              |
| (d) Write pressure testing procedure of cooling system.                   |              |
| (e) Describe the procedure of dry & wet compression test.                 |              |
| (f) What are the different types of NVH tests ? Explain any one of them.  |              |

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- 3. Attempt any FOUR of the following : 16**
- (a) Explain Draw bar pull test.
  - (b) State the importance of vehicle testing.
  - (c) Describe high speed performance test of tyre.
  - (d) How regulated voltage test is carried out ?
  - (e) What is Homologation process ?
  - (f) State the different ride and handling parameters of vehicle.
- 4. (A) Attempt any THREE of the following : 12**
- (a) Define the terms
    - (i) Driveability
    - (ii) Gradability
  - (b) What is the role of sampling technique in vehicle testing ?
  - (c) Explain working of diesel smoke meter.
  - (d) What is calibration & phasing of FIP ?
  - (e) How the pressure test is carried out for lubricating oil pump ?
- (B) Attempt any ONE of the following : 6**
- (a) Describe inverted vehicle drop test.
  - (b) Write barrier collision test with vehicle acceleration and occupant loading.
- 5. Attempt any FOUR of the following : 16**
- (a) Write any four SAE standards.
  - (b) How steering effort testing is carried out ?
  - (c) Explain Endurance test of tyre.
  - (d) How accelerated endurance test is carried out on deep wading trough ?
  - (e) Describe tyre wear pattern with its causes.
  - (f) Write the procedure of starter motor voltage drop test.
- 6. Attempt any FOUR of the following : 16**
- (a) How vacuum test of engine is carried out ?
  - (b) Explain testing procedure of charging system.
  - (c) Describe strength test of tyre.
  - (d) Define :
    - (i) Noise
    - (ii) Vibration
    - (iii) Harshness
  - (e) Explain pot hole & sand patch & their use.
  - (f) Draw the neat sketch of chassis dynamometer and label the different parts of it.
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