

17617

21415

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.

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| 1. (A) Attempt any THREE : | 12 |
| (a) With a neat sketch illustrate an example of SPDT switch. | |
| (b) Define battery rating. State two types of battery ratings. | |
| (c) State the procedure to conduct free speed test. | |
| (d) State the need of ignition system. Enlist any four components used in ignition system. | |
| (B) Attempt any ONE : | 6 |
| (a) Draw a neat circuit diagram to describe testing of circuit defects for
(i) Open circuit
(ii) Short circuit | |
| (b) State the importance of battery terminal test. Describe the procedure to conduct the test. | |
| 2. Attempt any FOUR : | 16 |
| (a) Describe the operation of relay used in a horn circuit. | |
| (b) Draw a neat simplified wiring diagram of a blower motor. | |
| (c) Enlist the different components used in an alternator. State importance of voltage regulator. | |
| (d) State the function of fusible link. Under which condition a fusible link is used ? | |
| (e) With a neat sketch describe the working of engine oil pressure gauge. | |
| (f) State the working principle of starter motor. Give the specification of a starter motor used in a 1000 c.c. petrol vehicle. | |

P.T.O.

- 3. Attempt any FOUR :** **16**
- (a) Describe the operation of Automatic headlight dimming system.
 - (b) Describe step-wise procedure to test engine coolant sensor.
 - (c) With a neat sketch describe working of automatic resetting type circuit breaker.
 - (d) Describe the use of hall effect sensor used for triggering of primary circuit in ignition system.
 - (e) State the function of detonation sensor and cylinder identification sensor used in ignition system.
- 4. (A) Attempt any THREE :** **12**
- (a) Enlist any two applications of fiber optics in an Automobile. Describe its working.
 - (b) Name the sensors used in park assists system. Describe the purpose of the system.
 - (c) Draw a neat labeled diagram indicating the construction of oxygen sensor.
 - (d) Describe any one of the Diagnostic Trouble Code (DTC) as mentioned in SAE J2012 standards.
- (B) Attempt any ONE :** **6**
- (a) State the importance of field current draw test. Describe the procedure to conduct this test.
 - (b) With a neat sketch describe the procedure to conduct Jump starting of a battery & list down the safety precautions.
- 5. Attempt any FOUR :** **16**
- (a) Draw a neat block diagram to indicate the use of microprocessor in cars.
 - (b) Describe the operation of automatic door lock system.
 - (c) Describe the concept of dry charged batteries.
 - (d) State the principle used in measuring pressure inside intake manifold. Describe its working.
 - (e) Write down the procedure applied to conduct tests on rotor & stator for open and short.
 - (f) Draw a neat circuit diagram to show electronic voltage regulation system.
- 6. Attempt any FOUR :** **16**
- (a) State four factors affecting battery life.
 - (b) Describe the importance of insulated circuit resistance test in starting system.
 - (c) Draw a neat block diagram to show the operation of Electronic Spark timing.
 - (d) Describe the operation of computer controlled ignition system.
 - (e) State the importance of trickle charging. Describe its procedure.
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