



17521

15162

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.*

Marks

1. A) Attempt **any three** of the following : **12**
 - a) State any two types of drives used in two wheeler transmission system and give one example of each.
 - b) State advantages of electronic fuel injection system.
 - c) Sketch and describe overhead valve arrangement used in 4-S engines.
 - d) With schematic sketch differentiate down-draught and side draught carburetor.

- B) Attempt **any one** of the following : **6**
 - a) Draw a block diagram of wet sump pressurized lubrication system and describe its working.
 - b) Draw a schematic circuit diagram of charging system and describe its working.

2. Attempt **any four** of the following : **16**
 - a) Describe the working of gear box used in motorcycle with schematic layout.
 - b) Give functions of carburetor under four engine operating conditions.
 - c) Describe the effect of following factors on aerodynamic performance of vehicle :
 - i) Shape of head lamp
 - ii) Shape of fuel tank
 - d) What are the advantages of gas filled shock absorber used in rear end suspension ?
 - e) Give specifications of wheels and tyres for (i) Motorcycle (ii) Sports bike.

3. Attempt **any four** of the following : **16**
 - a) Describe with sketch single down-tube type frame using the engine as stressed member.
 - b) Why decompression valve is used in some engines ? Describe the arrangement with sketch.
 - c) Describe with sketch double acting type of shock absorber.
 - d) Compare variable rate coil spring and coil-in-coil spring suspension arrangement.
 - e) Describe working of internal expanding shoe type mechanical brake.

P.T.O.



4. A) Attempt **any three** of the following : 12
- a) Compare mechanical brakes with hydraulic brakes (four points).
 - b) State two benefits of (i) Twin spark ignition system (ii) LED lights in tail lamp.
 - c) Describe the working of CDI system.
 - d) State any four lighting accessories and write their functions.
- B) Attempt **any one** of the following : 6
- a) What is 'EGR' ? Describe working of EGR system with block diagram.
 - b) Describe with sketch button start system of two wheeler. Give battery rating required for button start vehicles.
5. Attempt **any four** of the following : 16
- a) Compare chaindrive with belt drive.
 - b) Differentiate between induction system used in two stroke engine and four stroke engine.
 - c) Describe the use of speedometer, odometer, tachometer and tripmeter.
 - d) Describe the use of drive gears as safety concern.
 - e) State any four good driving habits.
6. Attempt **any four** of the following : 16
- a) Write merits and demerits of microprocessor controlled ignition system over CDI system.
 - b) Compare wet sump pressurized lubrication system with petroil lubrication system.
 - c) Describe the purpose of providing
 - i) Horn
 - ii) Reflectors in head lamp and tail lamp.
 - d) Describe aesthetic aspects of
 - i) Side panels for scooter/scooterate
 - ii) Mud guard shape and position.
 - e) Describe the ergonomic effect of following :
 - i) Seating arrangement for rider and pillion.
 - ii) Handle bar position.
 - f) State importance of following :
 - i) Helmet
 - ii) Day night goggle.
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