

**17521****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.

MARKS

1. A) Attempt **any three** : **12**
a) State function of frame and list the types of it.
b) List advantages of multiple valves (4 points).
c) Compare two stroke engine and four stroke Engine (4 points).
d) Draw the labelled sketch of overhead valve arrangement and state its two advantages.
- B) Attempt **any one** : **6**
a) Draw and describe working of four stroke Engine.
b) Describe the working of microprocessor controlled Ignition system with sketch.
2. Attempt **any four** : **16**
a) Describe working of constant mesh gearbox.
b) State four advantage of electronic fuel injection system.
c) State the importance of ergonomic aspects of seat arrangement for rider and pillion rider.
d) State four advantages of Gas filled shock absorber for rear end suspension.
e) Write the criteria of selection of tyre for :
i) Motor cycle ii) Sports bike.
f) State importance of aerodynamic aspect for tail lamp and indicator light arrangement.
3. Attempt **any four** : **16**
a) Draw a schematic diagram of Double Cradle from and label it.
b) Describe concept of petrol lubrication with separate oil pump for two stroke engine.
c) Describe the handle bar arrangement in two wheeler.
d) i) Why coil-in-coil spring arrangement is used in suspension ?
ii) How does coil in coil spring affect suspension system ?
e) Draw layout of mechanical braking system used in a motor cycle and label it.

P.T.O.

4. A) Attempt **any three** :

a) Differentiate between wheels of motor cycle and scooter on the basis of :

- i) Size
- ii) Construction
- iii) Tyre rotation
- iv) Off road driving suitability.

b) State the purpose of following :

- i) Head lamp,
- ii) Tail and number plate lamp
- iii) Turn signal lamp
- iv) Side stand indicator lamp.

c) Describe working of charging system of a two wheeler.

d) Describe working of condenser discharge ignition system with neat sketch.

B) Attempt **any one** :

a) List the types of muffler and state their applications.

b) Draw and describe a schematic diagram of kick start arrangement.

5. Attempt **any four** :

a) Compare Gear box of two wheeler with four wheeler.

b) Why modern scooter exhaust tail pipe is raised.

c) State benefits of twin spark ignition system.

d) Describe the purpose of providing :

- i) Seat arrangement for rider and pillion rider.
- ii) Head lamp fairing of motor cycles.

e) Describe the Aerodynamic aspects for :

- i) Head lamp shape
- ii) Shape of fuel tank in motor cycles.

f) Describe the purpose of providing :

- i) Handle bar position
- ii) Mudguard shape and position.

6. Attempt **any four** :

a) State use of :

- i) Reflector
- ii) Horn
- iii) Mobile charge point
- iv) Tachometer.

b) Describe concept of wet sump pressurized lubrication for two stroke engine.

c) Draw a schematic diagram showing AC and DC circuits of a two wheeler and label it.

d) State the importance of :

- i) Side panels of scooter and motor cycle
- ii) Ground clearance.

e) State importance of following :

- i) Driving habits
- ii) Daynight goggle.