

17453

14115

3 Hours / 100 Marks

Seat No.

--	--	--	--	--	--	--	--

- 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 SIX :

12

- (a) Enlist sources of farm power.
- (b) Define a heat engine.
- (c) State the function of flywheels in an IC engine.
- (d) Enlist various engine supporting systems.
- (e) Define a tractor.
- (f) State the functions of clutch in an automobile.
- (g) Define steering ratio.
- (h) Enlist the uses of tractor in farms.

(B) Attempt any TWO :

8

- (a) Explain the working of hydraulic brake system.
- (b) State the classification of IC engines.
- (c) Draw a neat sketch of overhead valve mechanism.

2. Attempt any FOUR :

16

- (a) Draw a neat labelled sketch of a biogas plant showing different components.
- (b) Explain the four strokes of an IC engine with sketches.
- (c) Explain Battery ignition system with neat sketch.
- (d) Justify the need of air-cleaning system in an IC engine.
- (e) Explain the factors affecting selection of tractor.
- (f) Explain working of single plate clutch with a neat sketch.



P.T.O.

- 3. Attempt any FOUR :** **16**
- (a) Differentiate between 2-stroke and 4-stroke IC engine.
 - (b) Define governor. Explain hit and miss type governing systems.
 - (c) Enlist the various functions of carburettor in an IC engine.
 - (d) Enlist four make, models and HP ranges of tractors available in the market.
 - (e) Explain the working of sliding mesh gear box.
 - (f) Explain with neat sketch the steering geometry of an automobile.
- 4. Attempt any TWO :** **16**
- (a) Differentiate between flywheel and governor.
 - (b) Explain water cooling system of an automobile.
 - (c) State the working and importance of power take off (PTO) shaft in tractors.
- 5. Attempt any FOUR :** **16**
- (a) State various methods of collection of solar radiations. Explain any one in detail.
 - (b) Explain the function of differential unit in a tractor.
 - (c) Justify the necessity of differential lock in a tractor.
 - (d) Describe the working of power steering with neat sketch.
 - (e) Explain the construction of internal expanding shoe brake.
 - (f) Enlist the merits of hydraulic system over mechanical system.
- 6. Attempt any TWO :** **16**
- (a) Explain the need of lubrication in various parts of a tractor.
 - (b) List various types of gear boxes available on tractors. Explain any one in detail.
 - (c) Describe mixed control system.
-