

**B TECH**  
**(SEM IV) THEORY EXAMINATION 2018-19**  
**FARM POWER**

*Time: 3 Hours**Total Marks: 100***Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A**

- 1. Attempt *all* questions in brief. 2 x 10 = 20**
- a. What is the basic cooling trouble?
  - b. Explain the Indicated Horse Power.
  - c. List functions of a crankshaft.
  - d. Write the human factors involved in the design of seat of tractor?
  - e. Differentiate between the general purpose tractors and power fillers.
  - f. What is knocking of I.C. engine?
  - g. Give the difference between wet and dry liners.
  - h. Write the properties of coolants.
  - i. State the second law of thermodynamics.
  - j. For what function an Economizer is used?

**SECTION B**

- 2. Attempt any *three* of the following: 10 x 3 = 30**
- a. Select a tractor and matching implements for production and operation in mango orchard.
  - b. What are the sources of farm power in India? Mention the advantages and disadvantages of any three sources. What is the importance of human power in Indian farming in reference to its availability, cost of the use, adoptability and the horse power development?
  - c. Write short notes on :—
    - (i) Ignition coil
    - (ii) Distributor
    - (iii) Condenser
    - (iv) Spark plug
    - (v) Breaker point.
  - d. Classify the conventional and non-conventional energy sources. Explain wind energy sources.
  - e. Discuss mechanics of tractor chassis with the help of diagram.

**SECTION C**

- 3. Attempt any *one* part of the following: 10 x 1 = 10**
- (a)
    - i. List and describe in brief about different types of power sources available on the farm.
    - ii. Differentiate between compression ring and oil ring.
  - (b) What is meant by tractor performance? Discuss field performance of tractors?

4. Attempt any *one* part of the following: 10 x 1 = 10
- (a) What do you understand by Gear spacing in a tractor? How it affects the performance of a tractor?
  - (b) What is a crown wheel? What are the main functions of crown wheel assembly?
5. Attempt any *one* part of the following: 10 x 1 = 10
- (a) What are the different types of lubricants? What is the purpose of lubrication in an internal combustion engine?
  - (b) What are the different systems of ignition? Describe the principle of heat of compression type ignition system.
6. Attempt any *one* part of the following: 10 x 1 = 10
- (a) With the help of value timing diagram of a four stroke cycle engine. Explain about the value of timings.
  - (b) With the help of a neat and labeled sketch describe the value systems of an internal combustion engine. Explain the L and I shaped value functioning also.
7. Attempt any *one* part of the following: 10 x 1 = 10
- (a) Describe the points to be considered in the selection of tractors and other farm equipments. Explain in detail.
  - (b) Estimate the cost of operating a 35 H.P. diesel tractor per hour per hectare. Make necessary assumptions for calculations.