

Roll No.

Total No. of Pages : 02

Total No. of Questions : 18

B.Sc. Honours (Agriculture) (Sem.-3)

**FARM MACHINERY AND POWER**

Subject Code : BSAG-305-19

M.Code : 78660

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**Write briefly :**

- 1) Explain cetane number.
- 2) What is the indicated hours power?
- 3) Explain the disc angle and its purpose.
- 4) What is the draft and unit draft?
- 5) What are the carburetor and its functions?
- 6) What is the difference between theoretical field capacity and effective field capacity?
- 7) Define the compression ratio.
- 8) Define conservation tillage
- 9) Define traction.
- 10) What are the factors affecting the penetration of disc plow?

### SECTION-B

- 11) Find out the BHP and swept volume of a 4 stroke, 4 cylinder IC engine which has cylinder bore as 12 cm, stroke length as 15 cm and speed of the crankshaft is 1000 rpm, assume frictional hp 25 and mean effective pressure is 7 kg/cm<sup>2</sup>.
- 12) What is the working Principle of the IC engine? Explain the working of the four-stroke cycle engine with a neat sketch.
- 13) Explain the principle and working of the hydraulic control system with a neat sketch. What are the main components of the hydraulic system?
- 14) What are the differences between sprayer and duster? Describe the working of the power sprayer with a neat sketch.
- 15) What is tillage? What is the main objective of tillage? What are the differences between primary tillage and secondary tillage?

### SECTION-C

- 16) What is the seed drill? Describe the process of calibration of the seed drill. Calculate the seed rate/hectare of an 11 × 23 cm seed drill, whose main drive wheel is 150 cm diameter and the total weight of grain collected in 20 revolutions is 0.450 kg.
- 17) A farmer purchased a tractor of 30 kW power at a total cost of Rs. 500000/- and a three bottom plough of 30 cm bottom width at Rs. 100000/- only. The fuel consumption of the tractor was 6 liters per hour at the ploughing speed of 5 km per hour.
  - a) Calculate the area ploughed per hour.
  - b) Determine the cost of ploughing per hectare.

Make necessary assumptions, if any required.

- 18) Describe the working principle of a power thresher. What are the different types of the threshing cylinder used in-country? Explain with the help of a diagram.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**