

**MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE**  
**SEMESTER END EXAMINATION**  
**B.Sc. (Agri.)**

Semester	: V (New)	Term	: I	Academic Year	: 2015-16
Course No.	: ENGG 353	Title	: Farm Power and Machinery		
Credits	: 2(1+1)				
Day & Date	: Friday, 30.10.2015	Time	: 14.00 to 16.00	Total Marks	: 40

- Note :
1. Solve ANY EIGHT questions from SECTION "A".
  2. All questions from SECTION "B" are compulsory.
  3. All questions carry equal marks.
  4. Draw neat diagrams wherever necessary.

**SECTION "A"**

- Q.1 What are the different sources of farm power available in India? Highlight each of them in short. ✓
- Q.2 Enlist the different types of sprayers. State the purpose and function of sprayers. ✓
- Q.3 Calculate the cost of seeding one hectare of land with bullock-drawn seed drill of 5 x 30 cm size. The speed of bullock is 3 km/hr. Hire charges of bullock pair are Rs.500/- per day, hire charges of seed drill Rs.150/- per day and wage of operator Rs.250/- per day of 8 hours. ✓
- Q.4 Explain the working of four stroke cycle engine with the help of neat sketch. ✓
- Q.5 A four cylinder four stroke diesel engine has cylinder diameter of 25 cm, stroke bore ratio is 1.8, clearance volume 4500 cm<sup>3</sup>, engine speed 240 rpm, mean effective pressure 6.8 kg/cm<sup>2</sup> and mechanical efficiency is 75%. Calculate (i) IHP, (ii) BHP, (iii) Swept volume and (iv) Compression ratio. ✓
- Q.6 What is the principle of air cooling? Give the advantages and disadvantages of air cooling system. ✓
- Q.7 Find the field capacity (actual and theoretical) of 7 tyne cultivators running at 4 km/h speed. The spacing between tynes is 45 cm and 5.5 per cent time loss is expected during the operation. Find the time required to cover 13 hectare of land with this cultivar. ✓
- Q.8 What are the advantages of disc plough? What adjustments are made on disc plough for controlling depth and width of ploughing? ✓
- Q.9 What do you understand by proper registration and alignment of mower? ✓
- Q.10 What is carburetor? State the important functions and different parts of carburetor.

**SECTION "B"**

- Q.11 Define the following terms.
- 1) Threshing
  - 2) Specific fuel consumption
  - 3) Tilt angle
  - 4) Furrow
- Q.12 Fill in the blanks.
- 1) The process of removal of burnt gases from engine cylinder is known as \_\_\_\_\_.
  - 2) \_\_\_\_\_ is a machine to cut the grain crops. *Harvesting Machine*
  - 3) \_\_\_\_\_ is the process of placing the seeds in the holes made in seedbed and covering them. *Dibbling*
  - 4) Camshaft is rotated at \_\_\_\_\_ of the engine speed.

