

**MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE**  
**SEMESTER END THEORY EXAMINATION**  
**B.Sc.(Hons.) A.B.M.**

Semester : II (New)	Term : Second	Academic Year : 2021-22
Course No. : ENGG 121	Title : Farm Machinery and Power	
Credits : 2 (1+1)	Time : 09:00 to 11:00 hrs	Total Marks : 40
Day & Date : Thursday, 22.09.2022		

- 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 diagram wherever necessary.

**SECTION 'A'**

- Q.1 Explain the working of four-stroke engine with a neat sketch.
- Q.2 What is the purpose of engine cooling? What are the different methods of engine cooling? Write the advantages and disadvantages air-cooled engine.
- Q.3 Differentiate between four-stroke and two-stroke engine on any four points.
- Q.4 Define tillage. What are the main objectives of tillage?
- Q.5 Enlist different types of sprayers. Write the advantages and disadvantages of spraying.
- Q.6 What are the different types of seed metering mechanisms? Explain the working of fluted feed type with diagram.
- Q.7 What is harrow? Describe in detail the working of a tractor drawn off-set disc harrow.
- Q.8 Calculate the cost of seeding for one hectare of land with bullock drawn seed drill of 5 x 30 cm size. The speed of bullocks is 3 kmph. Hire charges of bullocks is Rs.100/- per pair, hire charges of drill is Rs. 200/- per day and wage of operator is Rs. 200/- per day of 8 hours.
- Q.9 Calculate the BHP of a 4 stroke, 4 cylinder I.C. engine; which has a cylinder bore of 14 cm, stroke length of 16 cm, crankshaft speed of 1100 rpm, frictional horse power of 30 and mean effective pressure is 8 kg/cm<sup>2</sup>.
- Q.10 Calculate the area covered per day of 8 hours by a tractor drawn four bottom 35 cm plough, if the speed of ploughing is 5 kmph and the time lost in turning is 10%.

**SECTION 'B'**

Q.11 Define the following terms:

- |                       |               |
|-----------------------|---------------|
| 1) Thermal Efficiency | 2) Stroke     |
| 3) Tilt Angle         | 4) Scavenging |

Q.12 Fill in the blanks:

- 1) \_\_\_\_\_ is provided at one end of the crankshaft for smoothening the uneven torque produced by the engine.
- 2) \_\_\_\_\_ is a machine used to cut herbage crop and leave them in swath.
- 3) Disc angle of a good plough varies between \_\_\_\_\_<sup>0</sup> to \_\_\_\_\_<sup>0</sup>.
- 4) Compression ratio of diesel engine is \_\_\_\_\_ to \_\_\_\_\_.

