B.Voc Even Semester Examination, 2025

FARM MACHINERY AND POWER TECHNOLOGY

Course No.: BVAM-201
(Tractor and Power Tiller Operation Servicing & Maintenance)

Full Marks: 70
Pass Marks: 28

Time: 3 hours

Note:
1. Attempt any one question from each unit.
2. Begin each answer in a new page
3. Answer parts of a question at a place
4. Assume reasonable data wherever required
5. The figures in the right margin indicate full marks for the question

UNIT-I

1. Enlist the components of Fuel Supply system in a tractor. Explain with a suitable diagram. 4+10=14

2. Write the short notes on- 2x7=14

   a) Octane Number

   b) BHP

   c) Mechanical efficiency

   d) Compression ratio

   e) IHP

f) Cetane number

g) Swept volume

UNIT-II

3. Enlist the components of Engine of a tractor. Write down the functions of any five components. 4+10

4. A four cylinder four stroke diesel engine has a cylinder diameter of 20 cm, stroke-bore ratio is 1.45, clearance volume 4508 cm3, engine speed 250 rpm, mean effective pressure 6.8 kg/cm2 and mechanical efficiency is 75%. Calculate (i) IHP, (II) BHP (iii) Compression ratio and (iv) Swept volume. 14

UNIT-III

5. Calculate (i) IHP (ii) BHP (iii) Stroke bore ratio (iv) Compression ratio (v) Swept volume of a four stroke four cylinder I.C. engine with the following data:

Cylinder size: 12.5 15 cm

Fly wheel speed: 1200 rpm

Mean effective pressure: 7 kg/cm2

Mechanical efficiency: 70%

Clearance volume: 150 CC 14

6. Explain all components of power tillers with a suitable diagram 14

UNIT-IV

7. What are the factors to be considered while choosing a tractor? 14

8. Enumerate different precautions while handling fuel system. 14

UNIT-V

9. a) Define: Depreciation, Salvage value, Housing and Insurance and taxes. 2x5=10

b) Enlist the different factors in determining operating cost. 4

10. Find the cost of using a tractor per hp-hr when the cost of 35 hp tractor is Rs. 6,00,000/- life of tractor is 10 year, rate of interest 10% and working hours per year is 1000 hours. Make necessary assumptions if any.

[Assumptions:

Cost of diesel = Rs. 100/- per litre,

Fuel consumption = 5 litres/hour,

Wages of the driver = Rs. 450/- per day,

Lubricants cost = 35% of fuel cost

Repairs and replacements cost = 10% of initial cost] 14

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