

**PARUL UNIVERSITY**  
**COLLEGE OF AGRICULTURE**

**B.Sc.(Hons.) Agriculture Winter 2019-20 Examination**

Semester: 3

Date 22/11/2019

Subject Code: 20106202

Time: 2:00pm to 4:30pm

Subject Name: Farm Machinery and Power

Total Marks: 50

**Instructions**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1 Do as Directed.****A. Fill in the blanks. (Each of 0.5 marks)****(05)**

1. Blade of the sickle is made of \_\_\_\_\_ metal and it is in a \_\_\_\_\_ shape.
2. \_\_\_\_\_ is used to rotate the flywheel.
3. Power available from a farm labour is \_\_\_\_\_ **hp**
4. \_\_\_\_\_ is a cultivator with tines or blades mounted on a power driven horizontal shaft.
5. \_\_\_\_\_ is the operation of placing the seeds in line at a desired depth.
6. Wind energy is a \_\_\_\_\_ energy.
7. \_\_\_\_\_ is used to connect the piston and connecting rod.
8. \_\_\_\_\_ is used as a fuel in SI engine.
9. \_\_\_\_\_ is the part of a cone nozzle which imparts rotation to the liquid passing through it.
10. The mouldboard plough is forced into the soil by the \_\_\_\_\_ of the plough, while the disc plough is forced into the ground by its \_\_\_\_\_.

**B. Multiple choice type questions. (Each of 0.5 marks)**

- 1 It is a harrow with tough flexible teeth, suitable to work in hard and stony soils.
 

a) Spike tooth harrow	c) Triangular harrow
b) Spring tooth harrow	d) Blade harrow (Bakhar)
2. It is a mechanism between the pump and the nozzle to control the flow of liquid from the sprayer. This is operated by hand.
 

a) Cut-off valve	c) Nozzle boss
b) Nozzle disc	d) Pressure regulator
3. It is the material as left by the harvesting machine
 

a) Windrow	c) Windrower
b) Swath	d) None of the above
4. Which are the different type of furrow openers use in seed drill
 

a) Shovel type	c) Spike type
b) Spring type	d) Tine type
5. It is the preparations of soil in such a way that plant residues or other mulching materials are specially left on or near the surface.
 

a) Mulch tillage	c) Minimum tillage
b) Strip tillage	d) Rotary tillage
6. Compression ratio for SI engine is .....

- a) 1-4  
b) 16-20\*
- c) 6-10  
d) None of the above
7. Compression ratio for CI engine is .....
- a) 1-4  
b) 16-20
- c) 6-10  
d) None of the above
8. Petrol is also known as .....
- a) CNG  
b) Gasoline
- c) Both  
d) None of the above
9. Motors use ..... power.
- a) Human  
b) Mechanical
- c) Animal  
d) Electrical
10. The mixing of air fuel in petrol happens in .....
- a) Inlet Manifold  
b) Combustion Chamber
- c) Carburettor  
d) None of the above
12. Dams are used to generate .....
- a) Bio gas  
b) Cooling
- c) Electricity  
d) None of the above
13. A perfect seedling gives
- a) Correct amount of seed per unit area.  
b) Correct depth at which seed is placed in the soil.
- c) Correct spacing between row-to-row and plant-to-plant.  
d) All of the above
14. An open trench left in between two adjacent strips of land after finishing the ploughing is called
- a) Back furrow  
b) Dead furrow
- c) Head Land  
d) Crown
15. The engine operated power weeder has petrol start kerosene run engine of below said capacity to operate the weeder.
- a) 7 hp  
b) 5hp
- c) 1 to 2 hp  
d) 3hp
16. In Vertical conveyer reaper (Self operated/Tractor mounted) crop is guided by which component to cutter bar and held in vertical position by the springs
- a) Cage wheel  
b) Shield
- c) Conveyor belt  
d) Star wheel
17. Tractor drawn disc harrows have concave discs of size varying from ..... cm diameter.
- a) 35-70 cm  
b) 70-90 cm
- c) 25-40 cm  
d) 100-120 cm
18. It is the actual area covered by the implement based on its total time consumed and its width.
- a) Soil Inversion Efficiency  
b) Theoretical field capacity
- c) Field Efficiency  
d). Effective field capacity

- 19 It is a combination of rigid or resistant bodies having definite motions and capable of performing useful work is called.
- |              |            |
|--------------|------------|
| a) Implement | c) Machine |
| b) Tractor   | d) Tool    |
20. Which component of Conventional Type of Mower is pinned to the crankshaft with the help of a pin and transmits reciprocating motion to a knife head.
- |                  |                |
|------------------|----------------|
| a) Pitman        | c) Knife back  |
| b) Knife section | d) Grass board |

**A. Define the following. (Any five)**

**(05)**

1. Combine harvesting machine
2. Main function of sprayer
3. Tilt angle of disc plough
4. Define Inlet Manifold:
5. What is Cylinder Bore :
6. Star wheel seed metering mechanism
7. Repair
8. Define Spark plug

**B. Answer the following. (Any Five)**

**(05)**

1. Enlist different component of seed drill.
2. Write function of mould-bould plough.
3. Write the purpose of piston
4. Enlist intercultural operation equipment.
5. Enlist different types of cooling system
6. Enlist different types of nozzle of sprayer.
7. Enlist different types of lubrication system

**Q.3 Write short notes. (Any five)**

**(10)**

1. Write a note on advantages and disadvantages of animal farm power.
2. Write a note on requirement of lubrication system.
3. Explain different components of MB plough.
4. Enlist different components of conventional type movers.
5. State the different components of power operated Rice Transplanter
6. State different types of spray in plant protection equipment.

**Q.4 Attempt any Three/Long Questions/Example**

**(15)**

1. Explain working of combine harvester to cut the crops
2. Explain the advantages and disadvantages of air-cooling system.
3. Write difference between SI engine and CI engine.
4. Describe different types of seed metering mechanisms and explain anyone in details