

**PARUL UNIVERSITY**  
**COLLEGE OF AGRICULTURE**  
**B.Sc.(Hons.)Agriculture Winter 2018-19 Examination**

Semester: 3

Date: 25/10/2018

Subject Code: 20106202

Time: 10:30am to 1:00pm

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

**B. Multiple choice type questions. (Each of 0.5 marks)****(10)**

1. Compression ratio for SI engine is .....
 

a) 1-4	c) 6-10
b) 16-20	d) None of the above
2. Compression ratio for CI engine is .....
 

a) 1-4	c) 6-10
b) 16-20	d) None of the above
3. Petrol is also known as .....
 

a) CNG	c) Both
b) Gasoline	d) None of the above
4. Motors use ..... power.
 

a) Human	c) Animal
b) Mechanical	d) Electrical
5. The mixing of air fuel in petrol happens in .....
 

a) Inlet Manifold	c) Carburettor
b) Combustion Chamber	d) None of the above
6. Dams are used to generate .....
 

a) Bio gas	c) Electricity
b) Cooling	d) None of the above
7. A perfect seeding gives
 

a) Correct amount of seed per unit area.	c) Correct spacing between row-to-row and plant-to-plant.
b) Correct depth at which seed is placed in the soil.	d) All of the above
8. Which are the different type of furrow openers use in seed drill
 

a) Shovel type	c) Spike type
b) Spring type	d) Tine type

9. 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
10. It is the material as left by the harvesting machine.
- a) Windrow  
b) Swath  
c) Windrower  
d) None of the above
11. 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
12. Which component of Conventional Type of Mower is pinned to the crankshaft with the help of a pin and it transmits reciprocating motion to a knife head.
- a) Pitman  
b) Knife section  
c) Knife back  
d) Grass board
13. Which component of Combine Harvester Machine pushes the standing crops towards the cutting unit and it is adjustable up and down as in or out.
- a) cutter bar  
b) conveyor  
c) concave unit  
d) reel
14. It is a combination of rigid or resistant bodies having definite motions and capable of performing useful work is called.
- a) Implement  
b) Tractor  
c) Machine  
d) Tool
15. It is a harrow with tough flexible teeth, suitable to work in hard and stony soils.
- a) Spike tooth harrow  
b) Spring tooth harrow  
c) Triangular harrow  
d) Blade harrow (Bakhar)
16. 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
17. 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
18. It is a mechanism between the pump and the nozzle to control the flow of liquid from the sprayer.
- a) Cut-off valve  
b) Nozzle disc  
c) Nozzle boss  
d) Pressure regulator
19. 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
20. 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  
b) Strip tillage  
c) Minimum tillage  
d) Rotary tillage

**Q.2 Do as Directed.**

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

**(05)**

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

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

**(05)**

1. Write the purpose of piston.
2. Enlist different types of cooling system.
3. Enlist different types of lubrication system.
4. State different components of seed drill.
5. Enlist different types of nozzle of sprayer.
6. Enlist different types of intercultural operation equipment.
7. Write function of Mould Board plough.

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

**(10)**

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

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

**(15)**

1. Explain the advantages and disadvantages of air cooling system.
2. Write difference between SI engine and CI engine.
3. Describe different types of seed metering mechanisms and explain any one in detail use in seed drill
4. Explain working of combine harvester machine