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**GIET UNIVERSITY, GUNUPUR – 765022**  
**B. Sc (AG) ( Third Semester – Regular) Examinations, December – 2020**  
**FMP (Ag) – 211 - Farm Machinery and Power**

Time: 2 hrs

Maximum: 50 Marks

**The figures in the right hand margin indicate marks.**

**PART – A**

Q.1. Fill in the blanks with suitable word / figure.

(10 x 0.5 = 5 Marks)

- A pair of bullock produce -----kW power.
- The Connecting rod of the engine connects between ----- and -----
- During Suction stroke-----and ----- admitted into the cylinders in diesel and petrol engine respectively.
- The petrol Engines have compression ratios ranging from -----to-----
- The ratio of break power to Fuel of an I.C engine is called-----
- plough is a multipurpose tool.
- part of MB plough turns the soil.
- Disk harrow is a ----- tillage equipment.
- consists of preparing seedling in nursery and planting these seedling in the prepared field.
- The capacity of Ultra low volume sprayer is -----

Q. 2. Define (or) Explain the following in one or two sentences.

(5 x 1 = 5 Marks)

- Bore and stroke ratio of an engine
- Compression ratio
- Depreciation
- combine harvester
- Differential of tractor

Q3. Match the following

(0.5 x 10 = 5 Marks)

Column – A		Column – B	
(a)	Disk plough	(i)	piston
(b)	PTO	(ii)	Petrol Engine
(c)	BDC	(iii)	Diesel engine
(d)	Cultivator	(iv)	Power outlet of tractor
(e)	Carburettor	(v)	Metering Mechanism
(f)	Injector	(vi)	Attachment of MB
(g)	Fluted roller	(vii)	Weeding
(h)	Coulter	(viii)	Furrow opener
(i)	Wheel hoe	(ix)	Secondary tillage
(j)	Shoe type	(x)	Primary tillage

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**Q4. Write True or False against each statement (10 x 0.5 = 5 Marks)**

- The compression of diesel engine is less than that of petrol engine for same power.
- Cam shaft rotates at half the speed of crank shaft
- The inlet manifold is the part of engine through exhaust gases go out of the engine cylinder
- The thermostat valve is present in piston cylinder
- The Puddling is done to reduce the percolation loss.
- Increase of disk angle of disk plough will decrease the depth of cut.
- Camshaft gear is known as half time gear
- Fluted roller mechanism consists of cups of spoons on periphery of vertical retaining disk which picks of seeds
- Flat fan type nozzles are used for herbicide application.
- Reaper is a machine to cut grain crops.

**PART – B****Attempt ANY FIVE questions. All question carries equal marks****(6 x 5 = 30 Marks)**

- What is the different sources of farm power in India?
- Difference between diesel and petrol engines with diagram
- The following results were obtained while calibrating a seed drill. Calculate the seed rate per hectare
  - No of furrows-10, b) spacing between furrows=20cm c) diameter of driving wheel=1.5m d) speed 500rpm e) seed collected =20kg
- What are the different systems of a tractor? Describe one of the system briefly with diagram..
- What is tillage? What are the main objectives of tillage? What is difference between primary tillage tools and secondary tillage tools.
- A two bottom tractor plough cuts rectangular furrow each 23cm wide and 15cm deep. If the average resistance of soil is  $0.65 \text{ kg/cm}^2$ . Calculate the power of the tractor assuming drawbar efficiency as 40% and working speed is 4km/hr

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