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GIET UNIVERSITY, GUNUPUR – 765022
B. Sc. (Ag.) (Third Semester) Examinations, February – 2023
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. (0.5 x 10 = 5 Marks)

- IHP is always than brake horse power of engine.
- In diesel engine fuel is injected in the cylinder through.....
- In force feed lubrication system, pump is driven by
- Radiator is present in type cooling system of tractor.
- is a walking type tractor.
- An Angular movement of front wheels is governed by operator through a system known as
- The complete path of power from engine to rear wheel of tractor is known as.....
- An implement that pulled and guided by single hitch point of tractor is
- The power consumed in secondary tillage operation per unit area is as compared to primary tillage operation.
- The slat type mould board is used in

Q. 2. Define (or) Explain the following in one or two sentences. (1 x 5 = 5 Marks)

- Flywheel.
- Clutch
- Theoretical Field Capacity
- Depreciation
- Draft

Q3. Match the following (0.5 x 10 = 5 Marks)

Column – A		Column – B	
(a)	Carburetor	(i)	Friction plate
(b)	Piston pin	(ii)	Finer tillage operation
(c)	King pin	(iii)	Cut, turn and invert the furrow slice
(d)	Scavenging	(iv)	Weeding in paddy crop
(e)	Clutch System	(v)	SI Engine
(f)	Secondary tillage	(vi)	Wrist pin
(g)	MB plough	(vii)	Combine Harvester
(h)	Reaper	(viii)	Removal of burnt gas from cylinder
(i)	Cono Weeder	(ix)	Harvest cereal crops
(j)	Reel	(x)	Steering

Q4. Write True or False against each statement

(0.5 x 10 = 5 Marks)

- a. The two-stroke cycle engine complete all the events in 720° of crankshaft.
- b. The firing order of 4 cylinder engine is 1-3-4-2.
- c. Crankcase breathers are provided to remove the vapours when the engine is operating.
- d. Differential helps in developing full traction on both the drive wheels.
- e. The PTO speed operating under load is 540 ± 10 rpm or 1000 ± 10 rpm.
- f. Jointer and Coulters are the part of MB plough.
- g. The size of mould board plough is expressed by depth of cut.
- h. Disc angle of standard disc plough varies from $42-45^\circ$.
- i. The procedure of testing seed drill for correct seed rate is Metering.
- j. Per hectare application rate of ultra-low volume sprayer is 5 litres.

PART – B

Attempt ANY FIVE questions. All question carries equal marks

(6 x 5 = 30 Marks)

5. Explain difference between two stroke engine and four stroke engine.
6. Explain Fuel Supply System of Diesel engine.
7. Explain Mould Board Plough with neat sketch.
8. A four stoke four cylinder has mean effective pressure of 686kPa, area of piston is 730cm^2 , stroke length 45cm, torque due to break load 1078Nm, Fuel Consumption per hour is 4.5kg and working speed 240 rpm. Calculate the a) indicated power b) brake power c) mechanical efficiency d)specific fuel consumption.
9. Explain calibration of Seed drill.
10. Calculate the cost of operation (Rs/hr) for a 45 hp tractor with following specification.
(i) Cost of tractor = 4.5 lakhs; (ii) Interest rate = 10% per year; (iii) Life of the tractor = 12 years; (iv) Working hours per year = 1000 hours; (v) Insurance, tax and shelter = 4.5% of cost; (vi) Fuel consumption per hour = 4 liters; (vii) Diesel cost = Rs. 70 per liter; (viii) Oil consumption is 30% of the fuel cost (ix) Salary of driver = Rs. 330/- per day; and (x) Maintenance cost = 6% of cost.

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