KERALA AGRICULTURAL UNIVERSITY

B.Sc. (Hons.) Agriculture – 2008 Admission

IInd Semester Final Examination - September 2009

Cat. No. : Engg 1202 **Max. marks: 80**

Title : Farm Power & Machinery (1+1) **Time : 3 hours**

Q I: State true or false: **(20 x 0.5 = 10 marks)**

1. In the four stroke cycle type engine four strokes of the piston or two complete revolutions of the crank shaft is needed ----------

2. The extreme position of the piston near to the cover or cylinder head of the engine is called bottom dead center ----------

3. Ploughing increases the water holding capacity of the soil ----------

4. Clutch helps in easy starting of the IC engine ----------

5. Pneumatic governer is used on both carburetor engine and diesel engine ----------

6. Cooling system reduces noise of moving parts ----------

7. Tappet is the part of lubrication system ----------

8. Normally a hydraulic system with reference to a tractor is considered to be a unit responsible for lifting and lowering of an agricultural implement ----------

9. The horse power of commonly used tractors in India ranges between 30 to 45 hp ----------

10. Depreciation of a tractor is calculated by (purchase price + scrap value)/ life in years ----------

11. Land side of a MB plough helps the plough to move in a straight line ----------

12. A two stroke cycle engine has mechanical valves ----------

13. In rocking type gator sprayer pressure relief valve is used to reduce the pressure and to have uniform pressure ----------

14. A tractor is not provided with independent breaks for each wheel ----------

15. Dibbling is a method of transplanting the crops ----------

16. Cultivation usually refers to the tillage operation of manipulating the soil after the seed is planted or seedlings have emerged ----------

17. Thermal efficiency of carburetor engine varies between 25 and 32 % ----------

18. Differential unit is a special arrangement of gears to permit one of the rear wheels of the tractor to rotate slower or faster than the other ----------

19. The grade of lubrication oil used in gear box is SAE 30 ----------

20. Field capacity of plough is expressed in kmph ----------

Q II: Define / write answers in a word or sentences **(10 x 1.0 = 10 marks)**

1. Field capacity
2. Center of resistance
3. Rolling coalter
4. Unit draft
5. Tilt angle
6. Compression ration
7. Detonation
8. Dead furrow
9. Pitman
10. Clearance value

Q III: Write short notes on any ten questions) **(10 x 2.0 = 20 marks)**

1. Governer hunting
2. Utilization of solar energy
3. Functions of furrow wheel
4. Piston rings
5. Oil bath air cleaner
6. Firing order
7. Registration of mover
8. Bund former
9. Standard disc plough
10. Specific fuel consumption
11. Drag harrow
12. Puddler

Q IV: Write short essays on any four questions) **(4 x 5.0 = 20 marks)**

1. How to remove air lock in diesel engine tractor ?
2. Types of tractors
3. State different types of mould board with neat sketch where each one is used.
4. Explain working of gator sprayer with neat sketch
5. Differentiate the following (any two)

(i) Coalter and Jointer

(ii) ULV sprayer and LV sprayer

(iii) Choke and trrottle

6. A four bottom 35 cm MB plough has working depth of 15 cm and draft of 1500 kg. When it is working at a speed of 4 kmph with field efficiency of 75 per cent, calculate (a) unit draft (b) draw bar horse power (c) actual field capacity

Q V: Write essays on any two questions **(2 x 10.0 = 20 marks)**

1. Explain working principle of four stroke petrol engine with neat sketch
2. Why it is necessary to test tractor ? What are the different tests ? Explain any one in detail
3. What is the principle of carburetion? Explain working of fuel system of petrol engine