B.Sc. (Agri.)

Semester	: V (New)	Term : I	Academic Year	: 2011-12
Course No.	: ENGG 353	Title : Farm Power and Machinery		
Credits	: 2(1+1)			
Day & Date	: Friday, 30.09.2011	Time : 14.00 to 16.00	Total Marks	: 40

Note : 1. Solve ANY EIGHT questions from SECTION "A".
      2. All questions from SECTION "B" are compulsory.
      3. All questions carry equal marks.
      4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1   a) Discuss about the concept of farm mechanization.

      b) Give the benefits of farm mechanization.

Q.2   a) A four stroke engine has a mean effective pressure of 7kg/cm^2, area of piston (3)
730 cm^2, stoke length 45cm, torque due to break load is 110 kg-meter, fuel
consumed per hr is 4.5 kg and working speed 120 rpm. Find IHP, BHP and
specific fuel consumption.

      b) State the functions of fly wheel.   (1)

Q.3   a) Explain about fuel supply system of spark ignition engine.

      b) What are the main objectives of secondary tillage?

Q.4   a) Determine the horse power required to pull of four bottom 30 cm plough (3)
working to depth of 15 cm. The tractor is operating at a speed of 6 km/ph. The
soil resistance is 0.7 kg/cm^2.

      b) What is mean by the term scavenging?   (1)

Q.5   a) Explain about primary tillage in short.

      b) Enlist the components of disc harrow.

Q.6   A Five tyne cultivator having tynes spaced 8 cm apart and working to a depth of
5 cm is running at a speed of 3 km/hrs. There is a time loss of 10 percent while
turning. Calculate the time required to cultivate per hectare. If the resistance of
the soils 0.6 kg/cm^2. What would be the maximum draft and HP required when
the width of each furrow is 5 cm.

Q.7   Explain in detail about different types of dusters.

Q.8   a) Give the names of different methods of sowing of crops.

      b) State the functions of seed drill.

(P.T.O.)

Q.9 a) What are the advantages of disc plough?

b) How adjustments are done on disc plough for controlling depth or width of ploughing and to increase pulverization.

(3

Q.10 a) How many acres can be covered by a harrow of width 1.5 m in a day of 8 hrs. with bullock power. The speed of the bullocks is 4 km/hr. If each spike tooth harrow is giving 1 kg resistance when there are 50 spikes. What HP would be necessary for bullocks to pull the harrow?

(1

b) Enlist the demerits of human power.

SECTION "B"

Q.11 Define the following terms.

1) Threshing
2) Piston displacement
3) Mechanical efficiency
4) Harrow

Q.12 Fill in the blanks.

1) The ~~compression ratio~~ of diesel engine varies from 14:1 to 22:1.

2) Power developed by an ~~average one~~ pair of bullocks is about 1 HP for usual farm work.

3) _____ is that part of the plough which slides against the furrow walls and gives lateral stability in the plough. ~~Land side~~

4) ~~Sprayer~~ is a machine used to spray herbicides in the form of droplets to remove weeds.