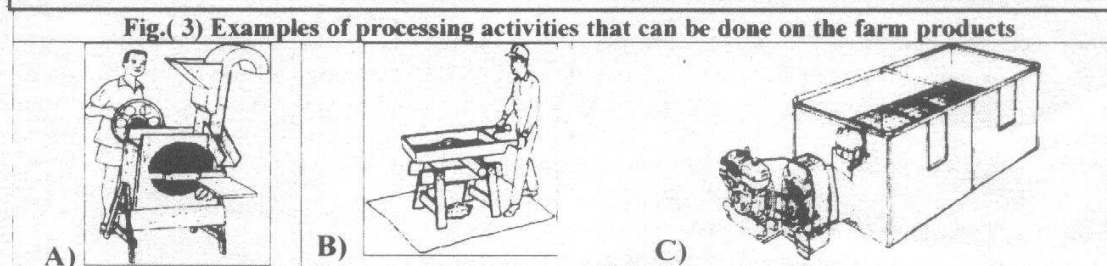
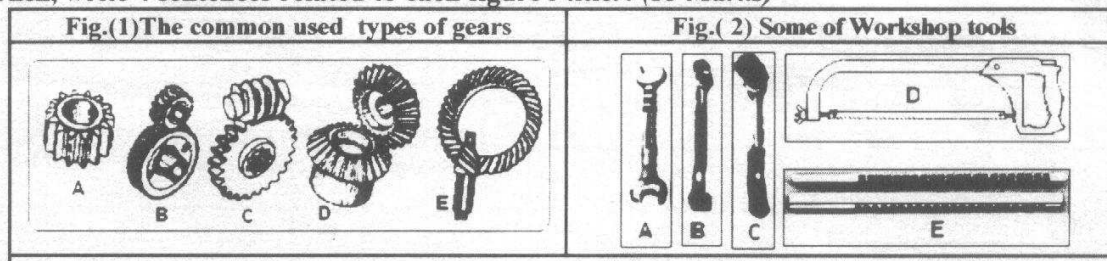


Mansoura University	Programme on which the course is given	Faculty of Agriculture
Total Marks :- (80)	Agriculture Engineering & Biosystems	Dept:-Agric Engineering.
Time : 2 Hours	Level of Students in programme:--one	Date :- 24 / 6/ 2010

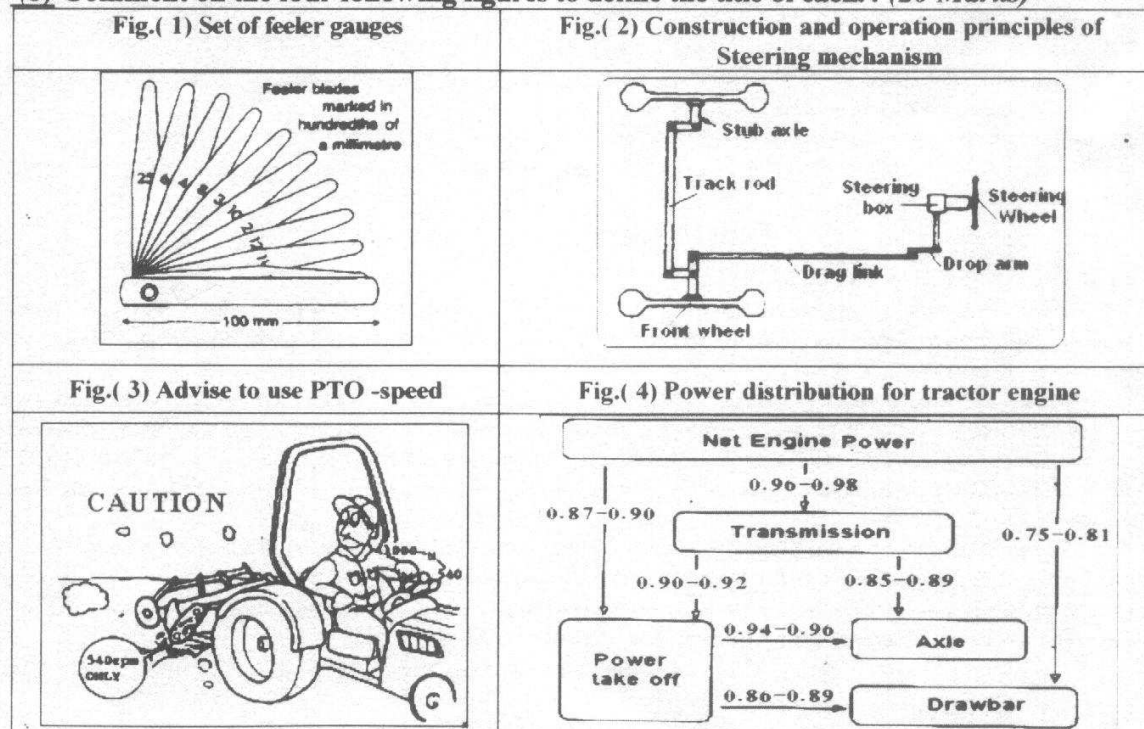
Please, answer the following questions:- (Questions are distributed on two pages)

**First Question (35 Marks)**

(a) State the names that referred by the alphabets (A, B, C, etc) on each of the following figures. Then, write 4 sentences related to each figure's title. (15 Marks)



(b) Comment on the four following figures to define the title of each. (20 Marks)



### Second Question (15 Marks)

Write the defined terminology for each of the following statements:-

No.	Statements of terminology
1	It is a plane figure with four sides having the opposite sides parallel and equal. The area of that figure = length $\times$ width
2	It is defined as the force per unit area, and usually expressed in Kilo-Pascal, or bar.
3	A device which converts mechanical energy into hydraulic energy
4	A person who specializes in machining operations in a workshop
5	They are devices fitted on the two rear wheels to stop or to slew the motion of tractors or vehicles in one direction.
6	They are machinery required for carrying out various agricultural operations, starting from the opening of the land to harvesting
7	Deep tillage operation done by chiseling, below 16 in.(406 mm) for the purpose of loosening soil for root growth and/or water movement
8	An irrigation system, in which water is sent and run through plastic pipes with holes in them. These pipes are laid along the crops row or even buried along their root lines.
9	A process of removing moisture from a farm product to such a moisture content that decrease in quality from molds, enzymes action.
10	A process of removing bran and germ from brown rice to change it into white rice.

### Third Question (15 Marks)

Complete the following to make meaningful sentences

- 1) If a car is being pulled on level ground by a force of 10 kN at an angle of  $20^\circ$  to the horizontal, the pull force can be resolved into two components as follows:- Vertical components=.....,Horizontal component=.....
- 2) Tractors can be classified according to the engine type into the following:-..... and .....
- 3) Examples of machine tools in workshop are: -..... , ..... and.....
- 4) Examples of primary tillage implements are:....., and.....
- 5) Examples of secondary tillage implements are:....., and.....
- 6) The..... is common type of spray-irrigation systems. It has an..... to move a number of metal frames in a big circle around the field
- 7) Examples of planting machinery are: -..... , ..... and.....
- 8) The..... is defined as any processing activity that maintains or raise the ..... or changes the form or characteristics of a farm product
- 9) The techniques that farmers use to get more-efficient surface-irrigation are:.... , ..., and.....
- 10) The..... is a process of removing heat from a farm product that is below the temperature of its surroundings?

### Fourth Question (15 Marks)

Translate the following into Arabic

The available sources of farm power are classified as: Human power, Animal power, Mechanical power (Tractors+ Self propelled machines + Oil engines), Electric power and Renewable energy (Bio Gas+ Solar+ Wind)

On an average a man develops nearly 0.1 horse power (hp). While, a medium size animal can develop between 0.50 to 0.75 hp. Mechanical Power is available through tractors and oil engines. The oil engine is a device for converting fuel into useful work. The efficiency of engine varies between 32 to 38 per cent. The largest use of electric power in the rural areas is for irrigation and domestic water supply.

The availability of wind power for farm work is limited. Where the wind velocity is more than 32 km/hr, wind mills can be used for lifting water. A wind mill having 3.6 m diameter wheel mounted on 12.0 m tower is able to produce from 0.1 to 0.9 hp with the wind velocity varying from 6.4 to 37 kmph. Thus the average capacity of a wind mill would be above 0.5 hp.

End of questions. Wish You Good Luck ;;;

Prof. Dr. A.E. Abou El-Magd

Prof. Dr. E.B. El-Banna

Prof. Dr. M.M. Abo Habaga