Fpme.3110 **Farm Machinery and Equipment - I (2+1)** **Marks: 50**
Time: 2 hours

I **Fill in the blanks** **(10x1=10)**
1. The point at which the resultant of all the horizontal and vertical forces acts called line of ....
2. ....plough is very useful for ploughing along hillside where it is very necessary to turn all furrows downhill due to slope of land.
3. ....is the top portion of the turned furrow slice.
4. Equipment for placing seedlings in the soil is called ....
5. Offset disc harrow consists of .... in tandem.
   State True or False
6. The useful soil forces are those which the tools must overcome in cutting breaking, and moving the soil.
7. The best scouring is achieved when soil-metal friction is lower than that of soil-soil friction, at the same angle of approach of tool, soil cohesion and soil adhesion.
8. Pull is not the total force required to pull an implement.
9. The share is made of chilled cast iron consists about 0.90%-1.00% of carbon.
10. Tempering is the heat treatment used to increase ductility and toughness of metal.

II **Write short notes on ANY FIVE of the following** **(5x2=10)**
1. Define minimum tillage and write down any three bjectives of Minimum Tillage?
2. Define puddling and its advantages?
3. Define farm mechanization and its benefits?
4. Write the function of planter?
5. Write a short note on tilt angle?
6. What do you mean by field capacities of farm implements?
7. List the different methods of sowing and planting?

III **Answer ANY FIVE of the following** **(5x4=20)**
1. Explain briefly the forces acting upon tillage implement?
2. What are the different types of furrow openers used in drilling and planting machinery?
3. What are the advantages and disadvantages of disk plough over MB plough?
4. What are the different sources of farm power?
5. What are the different type of seed metering mechanism?
6. What do you understand in breakeven point for economical selection of farm machinery?
7. Calculate the seed rate per hectare of a 7 × 16 cm seed drill, whose main drive wheel has 124 cm diameter and total weight of grain collected in 20 revolutions is 0.420 kg.

IV **Write an essay on ANY ONE of the following** **(1x10=10)**
1. Write down the steps involve in calibration of ground wheel operated seed drill
2. A three bottom 40 cm trailed type MB plough costs Rs. 50000.0 and a two bottom 40 cm trailed type MB plough cost rs 40000.0. The operating speed of both the plough is 4.5 km/h and expected field performance index is 80%. If cost per hectare of tractor unit is same what would be the size of land for which both the plough will be equally economical. Assume the labour charge @ Rs. 300 per day of 8 hours. Also, use necessary assumptions if required.

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