B. Tech.

(SEM. IV) EXAMINATION, 2006-07

ADVANCE FARM POWER

Time : 3 Hours] [Total Marks : 100

Note : Attempt all questions.

1. Attempt any two parts of the following : 2×10=20
   (a) What is meant by tractor performance? Discuss field performance of tractors.
   (b) Discuss relationship between (i) speed and power (ii) speed and torque with the help of diagram.
   (c) Define specific fuel consumption. Explain relationship between specific fuel consumption and power.

2. Attempt any two parts of the following : 2×10=20
   (a) Define traction. Explain different types of traction aids available for performing operations.
   (b) Discuss mechanics of tractor chassis with the help of diagram.
   (c) What do you understand by tractor stability? Suggest measures for safe operation of tractor.

V–8058] 1 [Contd...
3. Attempt any **four** parts of the following: \(4 \times 5 = 20\)

   (a) Compare steering of four wheel and two wheel drive tractors with diagram.

   (b) What are the different types of steering boxes? Name them, discuss any one with the help of diagram.

   (c) Discuss hydraulic assisted mechanical steering with the help of diagram.

   (d) Discuss effort of steering geometry when driving around a curve, with the help of diagram.

   (e) Discuss different types of hitches with the help of diagram.

   (f) What are the main components of hydraulic system? Discuss.

4. Attempt any **four** parts of the following: \(4 \times 5 = 20\)

   (a) What are the advantages of tractor testing? Discuss.

   (b) Discuss methodology of drawbar test of tractor.

   (c) What are the instruments used for power take off test? Discuss.

   (d) Discuss working principles of water brake dynamometer with the help of diagram.

   (e) Discuss procedures of haulage test of tractor.

   (f) What are the parameters measured in field test of tractor? Discuss.
5. Attempt any four parts of the following: 4x5=20

(a) What are the human factors involved in the design of seat of tractor? Discuss.

(b) Discuss any instrument used for measuring anthropometric data of operators.

(c) What are the human factors pertaining to environment? Discuss.

(d) Suggest measures to check tractor accident in transport operations.

(e) What are the precautions to be observed for safe operation in field? Discuss.

(f) Discuss role of plastic in human engineering design.