Printed Pages : 1 **EAG-605**

(Following Paper ID and Roll No. to be filled in your Answer Books)										
PAPER ID :	**Roll No.**									

B. TECH.

Theory Examination (Semester-VI) 2015-16

TRACTOR SYSTEM & CONTROL

Time : 3 Hours ***Max. Marks : 100***

SECTION-A

Q.1. Attempt all parts of the following: **(10×2=20)**

a) What is the purpose of a differential and final Drive in tractor?
b) Enlist the various types of tractors.
c) What do you mean by toe-in and toe-out?
d) What is the function of clutch?
e) Define rolling resistance
f) Define tractive efficiency.
g) Write the harmful effects of excessive vibration to tractor driver.
h) Indicate the symbols of hydraulic circuit for pressure relief valve and temperature indicator.
i) Enlist basic components of fluid power transmission.
j) Write the formula of maximum permissible drawbar pull.

SECTION-B

Q.2. Attempt any *five* parts of the following: **(10×5=50)**

a) Explain the working principle of hydrostatic transmission system with neat sketch.
b) **(b)**With figure explain the working of automatic position control & draft control.
c) Differentiate between the crawler tractor and wheel type tractor.
d) On which principle hydraulic systems of tractor work? Discuss in detail on different component of hydraulic system of tractor with a line diagram.
e) Discuss performance characteristics of tractor engine with different graph.
f) With a line diagram, show simple steering mechanism and describe the working in detail.
g) Discuss important considerations for foot and hand control in tractor.
h) Explain the Mohr-Coulomb Failure Criteria.

SECTION-C

Attempt any *two* parts of the following: **(15×2=30)**

3. What are the methods for calculating Centre of gravity of a tractor? Discuss each briefly.

OR

Discuss different factor which need to be considering tractor/farm machinery for human factor point of view.

4. Write short notes on following-

(i) Rolling Resistance (ii) Vibration (iii) Rim Pull (iv) Transmissibility (v) Tractive efficiency

OR

A tractor has following specifications: Total weight of tractor W=25 KN, Wheel base L=2170 mm, Dia of Rear wheel Dr=1450 mm, Dia front wheel D_f=740 mm, Weight of front wheel on level ground N_f=8.5 KN, Weight on front wheels when lifted 420 mm above the ground, N_f=7.6 KN. Determine location of C.G. dr=1450mm.

5. A single plate clutch which both sides effective has an outer dia of 30 cm and inner dia of 20 cm. The maximum intensity of pressure at any point of contact surface is not exceed 1 Kg/cm^2. If the coefficient of friction is 0.3, determine the HP transmitted by clutch speed of 2000 rpm.

OR

Explain the performance characteristics of hydrostatic transmission in different configuration.