(e) Write short notes on the following:

(i) Rolling Resistance

(ii) Drawbar pull

(iii) Rim pull

(iv) Coefficient of traction

(v) King pin inclination

(f) Explain in detail on different types of test performed in tractor.

(g) In tractor noise measured at the operator's ear level and the bystander's position are found to be 84db and 76 db respectively. What would be the corresponding RMS values in N/m^2. If the sound pressure is increased four times, Determine resulting sound pressure in decibels.

(h) What do you understand by traction improvement?

—x—

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(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 180614

Roll No. | | | | | | | | | | |

B.Tech. (Semester VI)

CARRY OVER EXAMINATION, 2015-16

TRACTOR SYSTEM & CONTROL

Time : 3 Hours] *[Total Marks :100*

Note: Attempt all questions.

1. Attempt any four patrs of the following: 10×2=20

(a) Define tractor.

(b) What do you mean by tractor chassis?

(c) Define toe-in and toe-out on tractor.

(d) What do you understand by blasting?

(e) Define caster and camber angle.

(f) Draw power train diagram of tractor.

(g) Define drawbar power.

(h) Write the working of differentia unit in tractor.

(i) On which principle hydraulic system of tractor works?

(j) Draw block diagram of mechanical steering system.

2. Attemot any five parts of the following: 6×5=30

(a) Describe the term tillage. Also write down the objective of tillage.

(b) What is the effect of speed upon draft? Explain in detail.

(c) Explain the Mohr-Coulomb Failure Criteria.

(d) Explain the hydraulic system of tractor with neat sketch.

(e) The line of pull on an implement is 17° above the horizontal and is in vertical plane which is at an angle of 12° with direction of travel.

(i) Calculate the draft and side draft force for a pull of 15 kN.

(ii) What drawbar power would be required at 5 km/hr.

(f) What factor should be considered during the designing of tillage tools?

(g) Explain the force acting on tillage tools during the operation with neat sketch.

3. Attempt any five parts of the following: 10×5=50

(a) A two wheel drive 35 HP tractor has 1.5 m rear wheel diameter. The engine runs at 1200 rpm. The reduction of speed is 30:1, find the traveling speed of the tractor in km/hr and tractive force for each driving wheel.

(b) What do you mean by clutch? Explain different types of clutch used in tractor system.

(c) Describe the performance characteristics of tractor engine with suitable graph.

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