



**KERALA AGRICULTURAL UNIVERSITY**  
**B.Tech. (Agri. Engg.) 2023 & previous admissions**  
**V Semester Final Examination - January 2026**

Fpme.3109

**Tractor Systems and Controls (2+1)**

**Marks: 50**  
**Time: 2 hours**

**(10x1=10)**

**I**

**Fill in the blanks**

1. The first tractor in India was manufactured in the year.....
2. Weight transfer of tractor .....with increase in wheel base.
3. 0 dB sound is equals to.....N/m<sup>2</sup> pressure.
4. ADDC stands for.....
5. Steering of tractor becomes .....when CG moved ahead.

**State True or False**

6. Moment of Inertia of tractor about its C.G. is proportional to weight of tractor.
7. Centrifugal force causes instability of tractor in lateral direction.
8. Inflation pressure in rear wheels of tractor is more than front wheels.
9. Direction control valve of hydraulic system controls the amount of fluid.
10. In reverse gear, input shaft and main shaft of gearbox rotate in same direction.

**II**

**Write short notes on ANY FIVE of the following**

**(5x2=10)**

1. Define:  
(a) Wheel base  
(b) Track width
2. What do you mean by the transmission system of a tractor?
3. What is the function of differential in a tractor?
4. What is Ackerman steering system?
5. Briefly explain weight transfer phenomena in a tractor.
6. What are the factors for selecting a suitable rear tire for a tractor?
7. What is ballasting? Enlist advantages of ballasting in tractor.

**III**

**Answer ANY FIVE of the following**

**(5x4=20)**

1. What is the working principle of friction clutch? Write the function of the main components of a friction clutch.
2. Explain methods of determining the CG of a tractor.
3. What is PTO? How single clutch PTO is different from Dual clutch PTO?
4. What is tractor testing? Discuss PTO and Drawbar tests.
5. What is the necessity of brake in a tractor? Discuss types of brakes.
6. What are the factors affecting the front wheel alignment of a tractor? Discuss Castor and Camber angle.
7. What is traction? What are the different factors affecting traction?

**IV**

**Write an essay on ANY ONE of the following**

**(1x10=10)**

1. Discuss the Hydraulic system of a tractor in detail
2. Discuss the Gear box of a tractor in detail

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