Fpme.3109   **Tractor Systems and Controls (2+1)**   **Marks: 50**
Time: 2 hours

I   **State True or False**   **(10x1=10)**
1. The clutch is fitted in between engine and gear box.
2. The inflation pressure of the tractor front wheel varies from 1.5 to 2.5 kg/cm^2.
3. Gear housing is made up of cast iron.
4. In tractors the rear part is heavier than the front part, to increase speed of tractor.
5. Planetary type final drive system is smaller and compact.
   Fill in the blanks
6. The pitman arm is a component of ---------- system.
7. In tractor the crown gear is the component of --------------.
8. The grade of oil used in the tractor gear box is ------------.
9. The clutch works on the principle of -----------.
10. In three point hitch system the upper link is ---------- compression/ tension link.

II   **Write short notes on any FIVE of the following**   **(5x2=10)**
1. What is stability of tractor?
2. Name the important components of power tiller.
3. List out the human factors in tractor design.
4. What is PTO Shaft? and where its location on tractor?
5. What are the functions of a differential in a tractor?
6. What are all the advantages of hydraulic systems in farm tractor?
7. List the major testing centers in India for the agricultural machinery.

III   **Answer any FIVE of the following**   **(5x4=20)**
1. What are the requirements of good clutch?
2. Explain the tractor tyres.
3. Explain the caster angle and camber angle with suitable diagram.
4. Write the advantages and limitations of sliding mesh gear box.
5. Classify the brake and explain the internal expanding shoe brake.
6. Explain the tractor hydraulic systems with neat sketches.
7. Discuss the hitching system of tractor drawn implements.

IV   **Write an essay on ANY ONE of the following**   **(1x10=10)**
1. Determine the moment of Inertia of a tractor with a neat diagram.
2. Explain the tractor steering system.

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