

**THE KAVERY ENGINEERING COLLEGE**  
(An Autonomous Institution)

**B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024**

*Fourth Semester*

*Agricultural Engineering*

**AI3401 – Tractors and Engine Systems**

*Regulations - 2021*

*Duration : 3 Hrs*

*Maximum : 100 Marks*

**PART – A (ANSWER ALL QUESTIONS) (Marks 10\*2=20)**

| <i>Q.No</i> | <i>Questions</i>                                      | <i>BLT</i> | <i>CO</i> | <i>Marks</i> |
|-------------|-------------------------------------------------------|------------|-----------|--------------|
| 1.          | How do you select the tractor for agricultural field? | RE         | 1         | 2            |
| 2.          | Write the firing order for 6 cylinder diesel engine?  | RE         | 1         | 2            |
| 3.          | List out the draw backs of chocking of air cleaners.  | RE         | 2         | 2            |
| 4.          | What are the functions of lubricating oil?            | RE         | 2         | 2            |
| 5.          | How mechanical power was transmitted in tractors?     | UN         | 3         | 2            |
| 6.          | What kind of brake is used in 40hp tractor?           | UN         | 3         | 2            |
| 7.          | List out the properties of fluids used in tractor.    | RE         | 4         | 2            |
| 8.          | What is meant by tractive efficiency?                 | RE         | 4         | 2            |
| 9.          | List the application of bulldozer.                    | RE         | 5         | 2            |
| 10.         | What are needs of testing and evaluation of tractor?  | UN         | 5         | 2            |

**PART – B (ANSWER ALL QUESTIONS) (Marks 5\*13 = 65)**

| <i>Q.No</i> | <i>Questions</i>                                                                                        | <i>BLT</i> | <i>CO</i> | <i>Marks</i> |
|-------------|---------------------------------------------------------------------------------------------------------|------------|-----------|--------------|
| 11.         | a    How will you classify the tractors? Describe the utilities on various farm.                        | UN         | 1         | 13           |
|             | Or                                                                                                      |            |           |              |
|             | b    Explain the types of combustion chamber in CI engine?                                              | UN         | 1         | 13           |
| 12.         | a    With neat sketch explain valve and valve operating mechanism?                                      | UN         | 2         | 13           |
|             | Or                                                                                                      |            |           |              |
|             | b    List the different types of lubricating system and explain splash and pressure lubricating system? | UN         | 2         | 13           |
| 13.         | a    Explain the different types of gear box available in tractor with neat sketch?                     | UN         | 3         | 13           |
|             | Or                                                                                                      |            |           |              |
|             | b    Explain advantages and working of power steering system with neat diagram?                         | UN         | 3         | 13           |

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|-----|---|----------------------------------------------------------------------------------------------------------------|----|---|----|
| 14. | a | Explain the working of hydraulic system in tractor and also explain position control and draft control system? | UN | 4 | 13 |
|     |   | Or                                                                                                             |    |   |    |
|     | b | Explain the method of determining the of location of C.G of tractor.                                           | UN | 4 | 13 |
| 15. | a | Differentiate the power tiller and tractor.                                                                    | UN | 5 | 13 |
|     |   | Or                                                                                                             |    |   |    |
|     | b | Discuss the result of PTO test performed on the tractor?                                                       | UN | 5 | 13 |

*PART – C (Marks 1\*15 = 15)*

| <i>Q.No</i> |   | <i>Questions</i>                                                                               | <i>BLT</i> | <i>CO</i> | <i>Marks</i> |
|-------------|---|------------------------------------------------------------------------------------------------|------------|-----------|--------------|
| 16.         | a | List the different components in an IC engine with a neat diagram?                             | UN         | 1         | 15           |
|             |   | Or                                                                                             |            |           |              |
|             | b | How constant and synchromesh gear box are working and enlist the advantages and disadvantages? | AP         | 3         | 15           |