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## P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Seventh Semester, B.E. - Automobile Engineering

Semester End Examination; Dec - 2016/Jan - 2017

Earth Equipments and Tractors

Time: 3 hrs

Max. Marks: 100

**Note:** Answer **FIVE** full questions, selecting **ONE** full question from each unit.

### UNIT - I

- 1a. Discuss briefly the various types of earth moving equipments used in automobiles, with their uses. 10
- b. Enumerate the various functions that a farm tractor can perform. Highlight any one in detail. 10
- 2 a. What do you understand by supplementary systems in a tractor? What is their role? 10
- b. Explain the construction of bulldozer with a neat sketch. 10

### UNIT - II

- 3 a. What is under carriage? Compare tyre and tracked vehicle discuss the advantage and disadvantage. 10
- b. Discuss various types of maintenance schedules. Describe the maintenance schedule of bulldozer. 10
- 4 a. Discuss the advantages and disadvantages of tyre and tracked vehicles. 10
- b. Explain the construction and working of air suspension system. 10

### UNIT - III

- 5 a. Discuss the salient features of final drive of a tractor. 10
- b. Explain the working of twin counter shaft. 10
- 6 a. What is the purpose of power take off? Explain its construction. 10
- b. Explain different safety methods for using earth moving equipments. 10

### UNIT - IV

- 7 a. Explain with neat sketch the hydraulic motors and hydraulic cylinders. 10
- b. Sketch and explain the depth and draft control system. 10
- 8 a. Write a note on hydraulic control valves. 10
- b. Explain the working of positive displacement pump. 10

### UNIT - V

- 9 a. Sketch and explain the linkage power steering system. 10
- b. Explain with sketch semi integral power steering system. 10
- 10 a. Explain the working of planetary steering system used in tractors with neat sketch. 10
- b. With a neat sketch explain the working of disc brake system. 10