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

(An Autonomous Institution affiliated to VTU, Belagavi)

Eighth Semester, B.E. - Automobile Engineering

Semester End Examination; May / June - 2019

Earth Moving Equipments and Tractors

Time: 3 hrs

Max. Marks: 100

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

UNIT - I

- 1 a. How do you classify dozers? Explain the working of bull-dozer with a neat sketch. 10
- b. With schematic diagram, explain the construction, working and applications of motor graders. 10
- 2 a. Enumerate the various functions that a form tractor can perform. Highlight any one in detail. 10
- b. What is meant by chassis and chassis-less tractors? Sketch the different sections of the chassis frame used. 10

UNIT - II

- 3 a. With a neat sketch, explain the construction and working of under carriage components. 10
- b. Explain the rubber spring suspension and air spring suspension system. 10
- 4 a. Explain the maintenance schedule for the earth moving equipments. Mention the purpose and advantages of the same. 10
- b. Explain in brief the safety aspects of Earth moving equipments. 10

UNIT - III

- 5 a. Explain the planetary gear transmission used in earthmoving equipments. 10
- b. What are the types of PTO Shafts? Explain any one with neat sketch. 10
- 6 a. Sketch and explain single and double reduction final drive. 10
- b. Explain with neat sketch Twin and Triple counter shaft transmission. 10

UNIT - IV

- 7 a. Differentiate between positive and non-positive displacement types of pumps and also mention their applications. 4
- b. Explain the working of any two positive displacement pumps. 12
- c. Explain with sketch, the working of centrifugal pump. 4
- 8 a. What are the main components of a hydraulic system? 3
- b. Explain the different types of control valves in the hydraulic system. 5
- c. Explain the depth and draft control systems in tractors, with neat sketches. 12

UNIT - V

- 9 a. Sketch and explain linkage power steering system. 10
- b. With a neat layout. Explain the clutch / brake steering system. 10
- 10 a. Explain with sketch, the disc brake mechanism in tractors. 10
- b. Explain the construction and working of hydraulic type retarder. 10