U.S.N ⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜

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

(An Autonomous Institution affiliated to VTU, Belgaum)

Eighth Semester, B.E. - Automobile Engineering

Semester End Examination; June/July - 2015

Earth Moving Equipments and Tractors

Time: 3 hrs   Max. Marks: 100

Note: *Answer any FIVE full questions, selecting at least TWO full questions from each part.*

PART - A

1. a. Discuss briefly different types of excavators and also discuss different operations that can be performed by excavator.	6
b. Explain with schematic diagram the construction and working of scraper.	8
c. Discuss briefly the main factors which affect the output of a power shovel and also mention the formula used to calculate the output.	6
2 a. Explain with sketch the automatic injection timer.	10
b. Discuss different types of Dozers and its different operations.	10
3. a Explain the following with sketch: (i) Track shoes (ii) Hydraulic track adjustment.	10
b. What are the different types of Air springs? Explain with sketch diaphragm air spring assembly.	10
4. a. Sketch and explain Hydromatic gear system.	10
b. Explain with schematic diagram the planetary final drive.	10

PART – B

5 a. Differentiate between positive and non positive displacement type of pumps and also mention their application.	4
b. Explain with sketch swash plate axial piston pump.	8
c. Discuss specially designed double-acting cylinders.	8
6 a. With schematic diagram explain the working of controlled differential steering system.	8
b. Explain with schematic diagram Jacob's engine brake.	8
c. Differentiate between power steering and power brake.	4
7 a. Explain with schematic diagram a four way three position closed centre spool valve.	10
b. Discuss the different elements of preventive maintenance.	10
8 a. Discuss the method of selection of equipments based on type of soil and nature of operation.	10
b. An equipment is purchased for Rs. 80,000 and the assumed life is 10 years and scrap value Rs. 20,000. If the depreciation is charged by diminishing balance method. Calculate the percentage by which the value of the equipment is reduced every year and depreciation fund after two years.	10

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