



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 - 2016

Earth Moving Equipments and Tractors

Time: 3 hrs

Max. Marks: 100

*Note: i) Answer any FIVE full questions, selecting at least TWO full questions from each part.
ii) Draw Neat sketches using pencil.*

PART - A

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| 1. a. | Mention the applications of: Bulldozer, Scraper, ripper and shovel. | 6 |
| | b. With a neat sketch explain the working of a motor grader, mention its applications. | 10 |
| | c. Write the classification of Tractors. | 4 |
| 2. a. | Explain the need and working of, i) Automatic injection timer and ii) After cooler. | 10 |
| | b. Explain the working of a power shovel with a neat sketch. List its uses. | 10 |
| 3. a. | Describe the working of an undercarriage of a crawler tractor with a neat diagram. | 10 |
| | b. Sketch and explain : | |
| | i) Air spring suspension | 10 |
| | ii) Rubber spring suspension. | |
| 4. a. | Briefly explain the working of planetary transmission system used in EME. | 5 |
| | b. With a neat sketch describe the construction and working of a double reduction final drive system. | 10 |
| | c. Write a note on PTO used in tractors. | 5 |

PART - B

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| 5. a. | List the various components of a hydraulic system used in an EME. Sketch and explain a hydraulic pump. | 10 |
| | b. Explain the depth and draft control with neat diagrams. | 10 |
| 6. a. | Sketch and explain the linkage power steering system. | 10 |
| | b. Explain the working of Clutch-Brake steering system used in crawler vehicles. | 10 |
| 7. a. | What is preventive maintenance? Explain the purpose of maintenance schedules. | 10 |
| | b. Explain briefly the safety considerations of EMEs. | 10 |
| 8. a. | Describe the methods of selecting the EME based on : | |
| | i) Type of soil | |
| | ii) Haul distance | 10 |
| | iii) Weather condition | |
| | iv) Nature of operation. | |
| | b. Explain the method of calculating the productivity of a bulldozer with example. | 10 |