

Total No. of Questions : 12]

SEAT No. :

P755

[Total No. of Pages : 3

[4659] - 379

B.E. (Automobile) (Semester - I)

OFF-ROAD VEHICLES

(2008 Pattern) (Elective - II (C))

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Answer any 3 questions from section I and 3 questions from section II.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *Assume suitable data, if necessary.*
- 6) *Calculator allowed.*

SECTION - I

- Q1)** a) Discuss the History and construction layout of Off-Road Vehicles. [8]
b) Classify the off-road vehicles and give atleast 2 application of each. [8]

OR

- Q2)** a) What do you mean by off-road vehicle? Explain Aggregate mixing plant with neat sketch. [8]
b) Discuss the chassis and transmission considerations in off-road vehicles.[8]
- Q3)** a) Determine the Horse power of the tractor required to pull the 30cm bottom plough with working depth 15cm. Number of plough is 4, speed of tractor 6kmph and soil resistance is 0.7 kg/cm². [9]
b) Explain the types of dozer blades with neat sketch and their application.[9]

OR

P.T.O.

- Q4)** a) Explain the 2 types of Dump trucks with neat sketch and their application. [9]
b) Explain the construction and working of wheeled-bull dozer with neat sketch. [9]

- Q5)** a) Compare the shovel with loaders with neat sketches. [8]
b) Explain the working of scrapper with neat sketch. [8]

OR

- Q6)** a) Explain the construction and working of motor graders with neat sketch. [8]
b) Explain the construction layout of the Draglines with its purpose. [8]

SECTION - II

- Q7)** a) Distinguish between continuous running drive P.T.O and Independent drive P.T.O. [10]
b) Explain with a neat sketch disc plough and rotary plough. [6]

OR

- Q8)** Explain any two [8 + 8 = 16]
a) Design aspects of Dumper body
b) Types of Farm Equipments with neat sketch
c) Gun carriers
d) Pulverizers and rollers

- Q9)** a) Explain OCDB and dry disc calliper brake system of vehicle with neat sketch. [8]
b) What are the safety features and safe warning systems in Dumpers. [8]

OR

Q10)a) Explain the power steering system of vehicle in brief. **[8]**

b) Describe the hydraulic components of the system in off-road vehicles with neat sketch. **[8]**

Q11)a) Explain the layers of soil diagrammatically with all horizons. **[10]**

b) Discuss the types of soils with its characteristics. **[8]**

OR

Q12) Explain any three: **[18]**

a) Mean maximum pressure

b) Mobility Index (MI)

c) Vehicle Cone Index (VCI) and Rated Cone Index (RCI)

d) Soil properties (Minimum 5 properties)

