

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (AE) (Sem.-7, 8)
SPECIAL PURPOSE VEHICLES

Subject Code : AE-410

Paper ID : [A0728]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students has to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students has to attempt any **TWO** questions.

SECTION-A

1. Write briefly :

- a) What do you understand by special purpose vehicle?
- b) How does the power needed to propel a vehicle vary with speed?
- c) What is the purpose of rear axle final drive?
- d) What are the main causes of stiff steering?
- e) What happens if air is present in hydraulic braking system?
- f) What is a PTO shaft?
- g) Name safety devices used in mobile cranes.
- h) How does overloading of tyre affect tyres life?
- i) What is meant by pneumatic control circuits?
- j) What is the utility of multi-axle vehicle?

SECTION - B

2. How special purpose vehicles are classified? Discuss any wheel type of special purpose vehicle.
3. Explain the steering system of a farm tractor.
4. Discuss the control system of a mobile crane.
5. What different auxiliary systems are there in a tractor? Explain.
6. Draw the layout of a farm tractor.

SECTION - C

7. Discuss the different design considerations for transmission system of a tractor.
8. Explain an articulated vehicle.
9. Discuss the construction and working of a dumper.