

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 6 – EXAMINATION – SUMMER 2026

Subject Code: 3160213

Date: 01/06/2026

Subject Name: Special Purpose Vehicle

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

Instructions:

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Simple and non-programmable scientific calculators are allowed.**

- Q.1** (a) What do you mean by hydraulic control circuits? **03**
(b) Different between wheel and track type vehicle. **04**
(c) Explain Safety consideration during crane operations. **07**
- Q.2** (a) Classify the Special Purpose Vehicles. **03**
(b) What is articulated vehicle? Explain with suitable Example and neat sketch. **04**
(c) Explain purpose, construction and working of Excavator in detail. **07**
- OR
- Q.2** (c) Explain working principle and design consideration of lubrication system of SPV. **07**
- Q.3** (a) List out various types of semi trailers. **03**
(b) Describe fifth wheel arrangement of a truck. **04**
(c) Explain purpose, construction and working of Tipper in detail. **07**
- OR
- Q.3** (a) Write short note on safety device of Crane. **03**
(b) Explain with neat sketch of dumper. **04**
(c) Explain construction and working principle of Mobile Crane with neat sketch. **07**
- Q.4** (a) Explain the different features of Ambulance. **03**
(b) Make a layout of tractor & give the name of main components used in tractor. **04**
(c) Explain construction and working of backhoe with neat sketch. **07**
- OR
- Q.4** (a) What is “Ballasting” of tractor ? Give its advantages. **03**
(b) Write short note on Fire Extinguishing Vehicle. **04**
(c) Show all the parts of Fork lift truck and explain. **07**
- Q.5** (a) Explain the working of hover craft. **03**
(b) Explain any two steering gear box with neat sketch. **04**
(c) Explain human factor in special purpose vehicle design with reference to vibration and thermal stress on human performance. **07**

OR

Q.5

(a) What are the factors affecting on Selection of tractor?	03
(b) Explain comparison of Wheel loader and Shovel.	04
(c) Explain hydraulic and cable control system of bulldozer.	07
