

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII EXAMINATION – WINTER 2025

Subject Code: 3160213

Date:25-11-2025

Subject Name: Special Purpose Vehicle

Time: 02:30 PM TO 05:00 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.

	MARKS
Q.1 (a) Write the advantages and disadvantages of special purpose vehicles.	03
(b) Discuss the selection criteria of tracked type and wheeled type vehicles.	04
(c) Describe various provisions of adapted vehicles for the differently challenged persons.	07
Q.2 (a) Enlist the main purposes of lubrication system in SPV.	03
(b) Give the requirements of a good steering system of SPV.	04
(c) Discuss design considerations of engine for special purpose vehicles.	07
OR	
(c) Discuss design considerations of final drive for special purpose vehicles.	07
Q.3 (a) Classify tractor with details.	03
(b) Explain the working of differential unit of a tractor.	04
(c) Describe three point linkage hitch of a tractor with neat sketch.	07
OR	
Q.3 (a) Explain various types of tractor implements with detail.	03
(b) Write a short note on power tiller.	04
(c) Explain the hydraulic control system of a tractor with neat sketch.	07
Q.4 (a) List out the different types of loader.	03
(b) Describe set of controls of a forklift.	04
(c) Explain bulldozers with neat sketch.	07
OR	
Q.4 (a) Give the types of scraper and write applications of it.	03
(b) Explain tipping mechanism of a dumper.	04
(c) Show the main parts of excavators in a diagram and explain function of each part.	07
Q.5 (a) Explain stability and control systems of a mobile crane.	03
(b) Discuss the effects of noise, vibration and thermal stresses on human performance.	04
(c) Explain the features of oil tankers with detail.	07
OR	
Q.5 (a) List out the basic characteristics of truck cranes.	03
(b) Describe economics of special purpose vehicle utilization.	04
(c) Write a note on articulated vehicles.	07
