

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:3160213****Date:10/06/2022****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.

MARKS

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|------------|---|-----------|
| Q.1 | (a) Explain in brief articulated vehicle. | 03 |
| | (b) Explain any two steering gear box with neat sketch. | 04 |
| | (c) Classify the special purpose vehicles and give the application of each. | 07 |
| Q.2 | (a) Enlist different types of crane are used in SPV. | 03 |
| | (b) Explain the working of hover craft. | 04 |
| | (c) Explain forklift with its uses and operation techniques. | 07 |
| | OR | |
| | (c) Write short note on PTO shaft. Explain three standard types of PTO drives. | 07 |
| Q.3 | (a) Give the advantage and limitation of ripper. | 03 |
| | (b) Explain the construction of Mobile crane. | 04 |
| | (c) Describe dozer. Explain different types of dozer blades. | 07 |
| | OR | |
| Q.3 | (a) What is the function of power shovel? | 03 |
| | (b) Explain advantages and disadvantages of multi axle vehicles. | 04 |
| | (c) Explain working principle and design consideration of final drive. | 07 |
| Q.4 | (a) Classify the tractor. How tractor is selected? | 03 |
| | (b) Explain with neat sketch of dumper. | 04 |
| | (c) Explain Constructional working features of tipper. | 07 |
| | OR | |
| Q.4 | (a) Discuss about power take off unit. | 03 |
| | (b) Explain different types of road roller. | 04 |
| | (c) List the various types of excavators and explain any one excavator in detail. | 07 |
| Q.5 | (a) Explain thermal stresses on human performance. | 03 |
| | (b) Different between wheel and track type vehicle. | 04 |
| | (c) Make a layout of tractor & give the name of main components used in tractor. | 07 |
| | OR | |
| Q.5 | (a) Function of (1) Ripper (2)Scraper (3)Power shovel | 03 |
| | (b) Explain air brake system in SPV with neat sketch. | 04 |
| | (c) Explain human factors in SPV design with reference to comfort. | 07 |
