

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) EXAMINATION – WINTER 2022****Subject Code:3160213****Date:17-12-2022****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

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|------------|-----|---|-----------|
| Q.1 | (a) | Classification of Special Purpose Vehicles. | 03 |
| | (b) | Explain advantages & disadvantages of wheel type & & track type vehicle. | 04 |
| | (c) | Explain Lubrication and Braking System used in Special Purpose Vehicles. | 07 |
| Q.2 | (a) | Make a layout of tractor & give the name of main components used in tractor. | 03 |
| | (b) | Write short note on multi axle vehicles. | 04 |
| | (c) | Explain pneumatic & hydraulic control circuits of Special Purpose Vehicle. | 07 |
| OR | | | |
| | (c) | Explain working principle and design consideration of final drive. | 07 |
| Q.3 | (a) | Explain any one type of construction equipment dumper. | 03 |
| | (b) | Draw the sketch showing the construction of an excavator & explain its purpose. | 04 |
| | (c) | Explain gear box used in tractor with neat sketch. | 07 |
| OR | | | |
| Q.3 | (a) | What does mean by articulated vehicle. | 03 |
| | (b) | Explain the different features of Ambulance. | 04 |
| | (c) | Explain purpose, construction and working tipper in detail. | 07 |
| Q.4 | (a) | Explain air brake system with neat sketch. | 03 |
| | (b) | Give advantage and limitation of fork lift. | 04 |
| | (c) | Write short note on excavator. | 07 |
| OR | | | |
| Q.4 | (a) | Write short note on PTO unit. | 03 |
| | (b) | Explain the working of hover craft. | 04 |
| | (c) | Explain hydraulic and cable control system of bulldozer. | 07 |
| Q.5 | (a) | Write short note on fire extinguishing vehicle. | 03 |
| | (b) | Explain different accessories of wheeled tractors. | 04 |
| | (c) | Explain human factor in SPV design with reference to vibration and thermal stress on human performance. | 07 |
| OR | | | |
| Q.5 | (a) | Explain Economics of special purpose vehicle utilization. | 03 |
| | (b) | Write short note on safety devices of crane. | 04 |
| | (c) | Explain stability and design features of Mobile cranes. | 07 |
