

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER–VIII (OLD) - EXAMINATION – SUMMER 2017****Subject Code:180203****Date:02/05/2017****Subject Name: Special Purpose Vehicles****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.**

- Q.1** (a) Explain the concept of hybrid vehicles. Draw the layout of series and parallel hybrid power trains. **07**
- (b) Explain following types of tractor with its application: **07**
(1) orchard (2) industrial tractor (3) four-wheel drive tractor (4) universal tractor (5) garden tractor (6) crawler tractor (7) row crop tractor
- Q.2** (a) Describe special features of tractor. **07**
- (b) Classify the special purpose vehicles and give applications of each. **07**
- OR**
- (b) Explain the loader with different attachments. Give the application of loader. **07**
- Q.3** (a) Explain various possible EV (electric vehicle) configurations with neat sketch. **07**
- (b) Explain dozer and different blades of dozer. **07**
- OR**
- Q.3** (a) Draw the neat sketch of scraper. Explain the function of following parts of scraper: (1) bowl (2) apron (3) ejector **07**
- (b) Classify the crane and explain construction and working principle of mobile crane. **07**
- Q.4** (a) List and explain main parameters that specify the behavior and performance of battery of EVs. **07**
- (b) Write short note on excavator. **07**
- OR**
- Q.4** (a) Explain with neat sketch: (1) pull type implements (2) fully mounted implements (3) semi mounted implements **07**
- (b) Explain fifth wheel mechanism and describe fifth wheel ratings and capacities. **07**
- Q.5** (a) Explain forklift with its uses and operation techniques. **07**
- (b) Write short note tracked vehicle and articulated vehicle. **07**
- OR**
- Q.5** (a) Explain hydraulic brake system with neat diagram. **07**
- (b) Write short note on hydraulic power steering system. **07**
