

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.VOC. –SEMESTER 1(NEW SYLLABUS) EXAMINATION- WINTER 2018

Subject Code: 1110104

Date: 19-01-2019

Subject Name: Modern Electric & Hybrid Vehicles

Time: 10:30 AM to 12:30 PM

Total Marks: 50

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

| | Marks |
|--|--------------|
| Q.1 (a) Explain social and environmental benefit of electric and hybrid vehicles. | 05 |
| (b) Explain the basic concept of hybrid electric drive trains. | 05 |
| Q.2 (a) List out the possible ways of combining the power flow to meet the driving requirements of Hybrid electric vehicle. | 05 |
| (b) Draw the architectures of hybrid electric drive trains. | 05 |
| OR | |
| (b) What is Power converter? List out the power converters used in Hybrid electric vehicle. | 05 |
| Q.3 (a) Explain series hybrid electric drive trains with neat diagram. | 05 |
| (b) Explain how piezoelectric material useful in regenerative braking system? | 05 |
| OR | |
| Q.3 (a) What is regenerative braking? Discuss advantages and disadvantages of it? | 05 |
| (b) Short note on Vibration Energy Harvesters. | 05 |
| Q.4 (a) Explain the basic of electric motor. | 05 |
| (b) Why DC motor used in Electric and Hybrid vehicle? Discuss briefly. | 05 |
| OR | |
| Q.4 (a) Explain parallel electric hybrid drive trains with neat diagram. | 05 |
| (b) Explain how shock absorbers useful in regenerative braking system? | 05 |
| Q.5 (a) Give the comparison between electric Hybrid vehicle and internal combustion engine based vehicle. | 05 |
| (b) How Step up chopper is widely useful in regenerative braking system? | 05 |
| OR | |
| Q.5 (a) Discuss Why complex hybrid electric drive trains are more preferable? | 05 |
| (b) Explain the basic of electric generator. | 05 |
