Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**DIPLOMA ENGINEERING – SEMESTER – II EXAMINATION –WINTER - 2018**

**Subject Code: 3320701** **Date: 09-01-2019**

**Subject Name: Basic Electronics**

**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. **Use of programmable & Communication aids are strictly prohibited.**
5. **Use of only simple calculator is permitted in Mathematics.**
6. **English version is authentic.**

**Q.1** Answer any seven out of ten. દશમાંથી કોઈપણ સાતના જવાબ આપો. **14**

1. Define: (1) Resistor (2) Capacitor.

૧. વ્યખ્યા આપો. (1) Resistor (2) Capacitor.

2. What is Amplifier? Draw the symbol of it.

૨. Amplifier એટલે શુ? તેના symbol જણાવો.

3. Draw symbol of FET

૩. FET ના symbol જણાવો.

4. Give full form of LED & CMOS.

૪. LED & CMOS ના પૂરા નામ જણાવો.

5. Give the types of cables.

૫. Cables ના પ્રકારો જણાવો.

6. Define Amplitude and Wavelength.

૬. Amplitude and Wavelength વ્યખ્યા આપો.

7. List application of transistor.

૭. Transistor ના ઉપયોગો જણાવો.

8. Give general specifications of a cable.

૮. Cable ના general specifications આપો.

9. Draw symbols of any four semiconductors.

૯. કોઈ પણ ચાર semiconductors ના symbols દોરો.

10. List advantages of digital multimeter.

૧૦. digital multimeter ના ફાયદા જણાવો.

**Q.2** (a) Explain voltage source in brief. **03**

**પ્રશ્ન. ૨** (અ) voltage source સમજાવો. ૦૩

OR

(a) Draw (I) Unit Step (II) Unit Ramp and (III) Unit Impulse test signals. **03**

(અ) સિગ્નલ દોરો. (I) Unit Step (II) Unit Ramp and (III) Unit Impulse test signals. ૦૩

(b) What is test signal? Explain impulse signal and unit impulse signal **03**

(બ) ટેસ્ટ સિગ્નલ શુ છે ? impulse signal and unit impulse signal સમજાવો. ૦૩

OR

(b) What is passive component? Explain any one passive component. **03**

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| | (બ) | passive component શુ છે? કોઈ પણ એક passive component સમજાવો. | ૦૩ |
| | (c) | Explain PN diode in detail. | **04** |
| | (ક) | PN diode સમજાવો. | ૦૪ |
| | | OR | |
| | (c) | Explain zener diode in detail. | **04** |
| | (ક) | zener diode સમજાવો. | ૦૪ |
| | (d) | Explain P type semiconductor in detail. | **04** |
| | (ડ) | P type semiconductor સમજાવો. | ૦૪ |
| | | OR | |
| | (d) | Explain N type semiconductor in detail | **04** |
| | (ડ) | N type semiconductor સમજાવો. | ૦૪ |
| **Q.3** | (a) | Explain bridge rectifier in detail. | **03** |
| **પ્રશ્ન. 3** | (અ) | bridge rectifier સમજાવો. | ૦૩ |
| | | OR | |
| | (a) | What is rectifier circuit? Explain half wave rectifier. | **03** |
| | (અ) | rectifier circuit શુ છે? half wave rectifier સમજાવો. | ૦૩ |
| | (b) | List out the application of PN Junction Diode. | **03** |
| | (બ) | PN Junction Diode ઉપયોગો ની યાદી બનાવો. | ૦૩ |
| | | OR | |
| | (b) | Explain construction of Fiber Optic Cable. | **03** |
| | (બ) | Fiber Optic Cable ની રચના સમજાવો. | ૦૩ |
| | (c) | What is filter circuit? Explain" PI" Filter circuit in brief. | **04** |
| | (ક) | Filter એટલે શુ? " PI" Filter circuit સમજાવો. | ૦૪ |
| | | OR | |
| | (c) | Explain the Principle of Fiber Optic Cable. | **04** |
| | (ક) | Fiber Optic Cable નો સિધ્ધાંત સમજાવો. | ૦૪ |
| | (d) | Explain working of PMOS. | **04** |
| | (ડ) | PMOS ની કામગીરી સમજાવો. | ૦૪ |
| | | OR | |
| | (d) | Explain working of CMOS. | **04** |
| | (ડ) | CMOS ની કામગીરી સમજાવો. | ૦૪ |
| **Q.4** | (a) | Explain "T" filter in detail. | **03** |
| **પ્રશ્ન. ૪** | (અ) | "T" filter સમજાવો. | ૦૩ |
| | | OR | |
| | (a) | Explain RJ-11 connector. | **03** |
| | (અ) | RJ-11 connector સમજાવો. | ૦૩ |
| | (b) | Explain working principle of PNP and NPN transistor. | **04** |
| | (બ) | PNP and NPN transistor કામગીરી સમજાવો. | ૦૪ |
| | | OR | |
| | (b) | Explain working of Metal Oxide Semiconductor FET (MOSFET). | **04** |
| | (બ) | Metal Oxide Semiconductor FET (MOSFET) કામગીરી સમજાવો. | ૦૪ |
| | (c) | Write note on oscillator. | **07** |
| | (ક) | Oscillator વિશે નોંધ લખો. | ૦૭ |
| **Q.5** | (a) | Explain RJ-45 connector. | **04** |

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|---|---|---|---|
| પ્રશ્ન. ૫ | (અ) | RJ-45 connector સમજાવો. | ૦૪ |
| | (b) | Give difference between Analog Display and Digital Display. | **04** |
| | (બ) | Analog Display and Digital Display વચ્ચે નો તફાવત આપો. | ૦૪ |
| | (c) | Draw energy band diagram for Insulator, Semiconductor and Conductor. | **03** |
| | (ક) | Insulator, Semiconductor and Conductor માટે energy band diagram દોરો. | ૦૩ |
| | (d) | Draw symbol of: PNP Transistor, Photo Diode, SCR & LED. | **03** |
| | (ડ) | સિમ્બોલ દોરો.: PNP Transistor, Photo Diode, SCR & LED. | ૦૩ |

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