

Roll No.

Total Pages : 02

BT-I/D-21

41022

BASICS OF ELECTRONICS ENGINEERING
ECE-101N (Opt. 1)

Time : Three Hours]

[Maximum Marks : 75

Note : There are total eight questions. Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What do you understand by active and passive components ? Explain in detail. **8**
- (b) With the help of circuit diagram, explain the working of P-N junction diode. **7**
2. Define Rectifier. How many types of rectifiers are there ? Explain the full wave rectifier in detail. **15**

Unit II

3. With the help of necessary diagrams, explain the amplifying action and V-I characteristics of three configurations of BJT. **15**
4. What do you mean by biasing ? What are the relevant configuration of it ? Explain any *three* of them in detail. **15**

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Unit III

5. What is Opamp ? Draw the equivalent circuit of an ideal opamp and explain its working operation. Discuss its applications such as a differentiator and integrator in detail. **15**
6. Explain the characteristics of an ideal opamp. Draw the circuit diagrams and derive the equations for voltage gain of opamp as an inverting and non-inverting amplifier. **15**

Unit IV

7. Describe E-MOSFET and D-MOSFET. Explain their working principle and input-output characteristics in detail. **15**
8. Explain the following in detail :
 - (a) TRIAC **7**
 - (b) SCR. **8**