

### End Term Examination (December 2018)

**School:** School of Engineering

**Program:** B.Tech (First Yr DIV II)

**Course:** Basic Electronics & Electrical Engineering

**Course code:** ENG108

**Semester:** I

**Max Marks:** 40

**Duration (mins) :** 120

#### PART-A

**(Write Very Short / One Line Answer)**

**Note: Answer all questions. Each question carries 1 mark.**

**[10]**

1. Explain ohm's law.
2. Explain series & parallel circuit.
3. Define peak factor & form factor.
4. Draw the symbolic representation of OR, AND & NOT gate and write its truth table.
5. Explain KCL & KVL.
6. What is the potential difference?
7. Draw the V-I characteristics of practical p-n junction diode.
8. Explain the source transformation.
9. What is the binary equivalent of the decimal number 15?
10. Convert  $(234)_8$  into base 2.

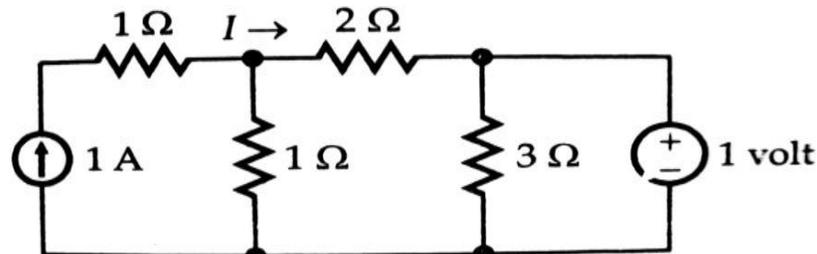
#### PART-B

**(Short Answer Questions – Not More Than 150 Words)**

**Note: Answer any four questions. Each question carries 5 marks.**

**[20]**

11. A resistor of  $100 \Omega$  is connected in series with  $456 \mu\text{F}$  capacitor to a supply of  $230 \text{ V}$ ,  $50 \text{ Hz}$ , find (a) the impedance (b) circuit current (c) phase angle (d) power factor (e) voltage across the resistor and across the capacitor.
12. Using superposition theorem to find the current in  $2 \Omega$  resistor of the network shown in fig.



13. Sketch the circuit for a full-wave rectifier. Explain its operation and derive the expression for the dc current.
14. What are the universal gates? And why it is called as universal gate? Draw the symbol and write its truth table.

15. Draw the voltage and impedance phasor diagram with an expression when circuit having  
(a) series R and L (b) series R and C (c) series R , L and C.
16. Convert the following hexadecimal numbers to decimal numbers. (a) 3FC (b) DF8.28

### PART-C

**(Long/Case Study/Essay Type Answer Questions)**

**Note: Answer any one question. Each question carries 10 marks. [10]**

17. Draw the circuit diagram of half-wave rectifier. Explain its working principle. What is the peak inverse voltage of a diode? Determine the following parameters.
- (a) Dc output voltage
  - (b) average dc load current
  - (c) rms output voltage
  - (d) rms load current
  - (e) ripple factor
  - (f) regulation
  - (g) efficiency

- 18 .State and prove maximum power transfer theorem for a D.C. circuit. Find the value of R in the circuit shown below Such that maximum power transfer takes place. What is amount of this power?

