Hall Ticket Number:

Code No. : 13207 O

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (CSE) II Year I-Semester Backlog Examinations, December-2017

Basic Electronics

Time: **3** hours Max. Marks: **70**

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks

1. Describe how PN junction is formed in a diode.
2. Write the principle of working of full wave rectifier.
3. Define Early effect in transistor. How does it affect the V-I characteristics?
4. Briefly discuss the phenomenon of Zener breakdown.
5. List out the types of feedbacks used in amplifier circuits.
6. State the Barkhausen's criteria required for sustained oscillations.
7. Compare an ideal op-amp with a practical op-amp.
8. Show that the dual of the Exclusive-OR is also its compliment.
9. What is LVDT?
10. Compare DIAC and TRIAC.

Part-B (5 × 10 = 50 Marks)
(All bits carry equal marks)

11. a) Describe the procedure to measure static and dynamic resistances of a p-n diode with the help of its V-I characteristics.
    b) With a neat circuit diagram and waveforms, explain the working of a full wave bridge rectifier.
12. a) Write the four hybrid parameters of a BJT in CE configuration. Draw its equivalent circuit.
    b) With neat diagrams explain the functioning of a Zener diode as a voltage regulator.
13. a) Discuss the advantages of negative feedback in amplifiers.
    b) With a neat circuit diagram, explain the working of Colpitt's oscillator.
14. a) With a neat illustration explain the functioning of an Integrator and Differentiator circuits using op-amp.
    b) Design half adder and full adder circuits using logic gates along with Boolean expressions and truth tables.
15. a) Compare and contrast Capacitive transducers and Inductive transducers.
    b) Explain the constructional details of CRO.
16. a) Discuss the conductivity and mobility aspects of semiconductors.
    b) Describe the input and output characteristics of NPN transistor in CB configuration.
17. Answer any ***two*** of the following:
    a) How negative feedback affects the bandwidth of an amplifier? Discuss why the gain-bandwidth product remains constant with the introduction of negative feedback.
    b) Describe the construction and working principle of SCR.
    c) Write the broad classification of Transducers.