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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER B.TECH DEGREE EXAMINATION, JANUARY 2017

Course code: **EC100**

Course Name: **BASICS OF ELECTRONICS ENGINEERING**

Max. Marks: 100 Duration: 3 Hours

PART A

Answer ALL questions. Each carries 2 marks

1. Write any four applications of electronics in the field of communication.
2. Write down the capacitance values given in coded form as follows: (a) 104, (b) 2M2
3. What is the property of an inductor?
4. How a n-type semiconductor is formed?
5. Derive the relationship between α and β.
6. How does avalanche breakdown differ from zener breakdown?
7. What do you mean by ripple factor? Find the ripple factor for full wave rectifier.
8. Compare positive feedback and negative feedback.
9. Which are the important desirable characteristics of an amplifier?
10. Realize XOR gate using any one of the universal gates.
11. Differentiate between input offset current and input bias current and write down the nominal values of these currents for an ideal op-amp.
12. Draw the basic block diagram of an electronic measuring instrument and write the functions of each block.
13. What is the need for modulation?
14. Write any four advantages of FM.
15. What do you mean by geostationary satellite?
16. What is meant by superheterodyning?
17. Expand the following: SIM, MIN, MSC, PSTN related to cellular communication system.
18. What is meant by total internal reflection?
19. Write down the steps in the process of roaming.
20. Write the applications of CCTV.

PART B

Answer any 8 questions, each having 5 marks

21. With neat diagrams, explain the classification of fixed resistors.
22. Discuss the construction and operation of an electromechanical relay.
23. Explain the formation of potential barrier and establishment of current flow in forward biased p-n junction diode.
24. Differentiate between working principle of photo diode and LED.
25. How do you find the input and output static resistances (static and dynamic) of a BJT?
26. With neat circuit diagram, explain the working of a simple voltage regulator.
27. Write down the criterion for sustained oscillation. Explain the operation of RC phase shift oscillator.
28. Differentiate between inverting and non-inverting amplifiers and find out the closed loop gain for both.
29. Draw the block diagram of digital storage oscilloscope and specify the functions of each block.
30. Explain the generation of various waveforms in a function generator.

PART C

Answer any 4 questions, each having 5 marks

31. What is amplitude modulation? Derive an expression for total power transmitted in an AM system.
32. With the help of block diagram, explain the working of an FM super heterodyne receiver.
33. Which are the main elements of satellite communication system? Write the advantages and applications of satellite communication system.
34. What is the principle of cellular networks? Explain the concept of frequency reuse.
35. Sketch the functional blocks of an optical fiber communication system and describe the functions of each block. What are the advantages of optical communication?
36. Explain the operation of DTH system with block diagram.

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