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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **11EC210 /EC289** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **PULSE AND WAVE SHAPING CIRCUITS** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | What is linear wave shaping circuit? | (1) |
| 2. | When does the low pass RC circuit act as integrator? | (1) |
| 3. | List the practical applications of bistable multivibrator. | (1) |
| 4. | Define stable state. | (1) |
| 5. | Why monostable multivibrator is called as univibrator? | (1) |
| 6. | Why astable multivibrator is called as free running oscillator? | (1) |
| 7. | What is meant by flyback time? | (1) |
| 8. | The current sweep waveform is mainly used in \_\_\_\_\_\_\_\_\_\_\_\_   1. Electrostatic deflection systems b) Cathode ray oscilloscope c) Video Camera   d) Magnetostatic deflection systems | (1) |
| 9. | What is blocking oscillator? | (1) |
| 10. | Why base timing monostable blocking oscillator is impractical? | (1) |

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| **PART -B(5 X 3= 15 MARKS)** | | |
| 11. | Justify that the coupling capacitor in high pass RC circuit is called as dc blocking capacitor. | (3) |
| 12. | Mention the need for including speed-up capacitors in bistablemultivibrator. | (3) |
| 13. | An astablemultivibrator is designed to generate square wave using the following components,  C1 =C2 =100 pF and R1 =R2 =10 kilo ohm. Calculate the period and frequency of the output. | (3) |
| 14. | Define slope error with mathematical and graphical representations. | (3) |
| 15. | When do we call a sampling gate as a noise threshold gate? | (3) |

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| **PART- C(5 X 15= 75 MARKS)** | | | |
| 16. | Draw the basic single-section RC high-pass circuit and explain how this circuit responds to a step input. | | (15) |
| (OR) | | | |
| 17. | Sketch and describe the working of the following clipping circuits:  (a) Series positive clipper  (b) Parallel negative clipper | | (15) |
| 18. | Discussthe working of fixed bias bistable multivibrator with appropriate diagrams. | | (15) |
| (OR) | | | |
| 19. | Draw the circuit of a Schmitt trigger and explain its working. Derive the expression for Lower Tripping Point Voltage and Upper Tripping Point Voltage. | | (15) |
| 20. | a. | Explain the operation of collector coupled monostable multivibrator. | (8) |
| b. | Prove that the gate width in monostable multivibrator is 0.69RC. | (7) |
| (OR) | | | |
| 21. | a. | Explain the operation of collector coupled astable multivibrator. | (10) |
|  | b. | Derive the expression for the frequency of operation of the astable multivibrator. | (5) |
| 22. | With the help of neat circuit diagram, explain the exponential charging time base generator and derive the expression for slope error. | | (15) |
| (OR) | | | |
| 23. | a. | Discuss the general considerations of Miller time base generator and derive the expression of slope error. | (10) |
| b. | Compare Bootstrap and Miller Time base generators. | (5) |
| 24. | Explain the operation of base timing Monostable blocking oscillator and neatly sketch its waveforms. | | (15) |
| (OR) | | | |
| 25. | Describe the operation of RC controlled astable transistor blocking oscillator. Make use of neat sketches of circuits and waveforms. | | (15) |

ALL THE BEST