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



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **14EC2012** | **Duration :** | **3hrs** |
| **Sub. Name :** | **PULSE AND WAVE SHAPING CIRCUITS** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Make use of laplace transform and obtain the response of high pass RC circuit to ramp input and draw the output waveform. | CO1 | 15 |
| b. | A 1µF capacitor is charged from a 5V source through a 10kΩ resistor. If the capacitor has an initial voltage of -2V, find its voltage after 6ms. | CO1 | 5 |
| **(OR)** | | | | |
| 2. | a. | Explain the response of low pass RC circuit to square input with neat circuit diagram and necessary waveforms. | CO1 | 15 |
| b. | Justify that the low pass filter can function as integrator. | CO1 | 5 |
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| 3. | a. | Illustrate and explain the working of following clipper circuits and show its output waveforms. Also draw the transfer characteristics of each clipper circuits.   1. Positive series clipper with bias 2. Negative series clipper with bias | CO1 | 15 |
| b. | Outline the responses of perfectly compensated, over compensated and under compensated attenuator circuits for step input. | CO1 | 5 |
| **(OR)** | | | | |
| 4. | a. | With necessary diagrams and output waveform, explain the operation of the following circuits.   1. Positive Clamper 2. Negative Clamper | CO1 | 15 |
| b. | Explain clamping theorem. | CO1 | 5 |
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| 5. | a. | Discuss the operation of fixed bias bistable multivibrator with neat circuit diagram and waveforms. Mention its various stable state currents and voltages. | CO2 | 15 |
| b. | Recommend a method to solve loading problem in bistable multivibrator. | CO2 | 5 |
| **(OR)** | | | | |
| 6. | a. | Summarize the operation of Schmitt Trigger circuit and explain why it is called as “amplitude comparator.” | CO2 | 15 |
| b. | Compare monostable with astable multivibrator. | CO2 | 5 |
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| 7. | a. | Explain the operation of astable multivibrator with neat circuit diagram and waveforms and determine the expression for time period (T). | CO2 | 15 |
| b. | List the applications of astable multivibrator. | CO2 | 5 |
| **(OR)** | | | | |
| 8. | a. | Discuss the operation of exponential charging circuit to generate sawtooth waveform and derive its slope error. | CO3 | 15 |
| b. | Define Sweep Time and Flyback Time. | CO3 | 5 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Elaborate the general considerations of miller time base generator and obtain the expression for slope error in the miller time base generator. | CO3 | 15 |
| b. | List the applications of sampling gate. | CO3 | 5 |