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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**End Semester Examination – Apr/May – 2017**

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| **Code :** | **14EC2006** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ELECTRONIC 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. | With a neat circuit diagram, explain the operation of a full wave rectifier circuit and sketch the input-output waveforms. | CO1 | 10 |
| b. | Derive the expression of ripple factor and efficiency of a full wave rectifier circuit. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Derive the expression of ripple factor of full wave rectifier with capacitor filter. Draw the circuit diagram and explain its operation of filtering the ac components from the rectifier. | CO1 | 15 |
| b. | Briefly explain the operation of voltage regulator using Zener diode with neat circuit diagram. | CO1 | 5 |
| 3. | a. | For the fixed bias circuit given below, determine the following [a]  [b]  [c]  [d] | CO2 | 10 |
|  | b. | Derive the expression of stability factor for a BJT voltage divider bias circuit. | CO1 | 10 |
| (OR) | | | | |
| 4. | a. | Determine the following for the fixed bias configuration depicted below  [a]  [b]  [c] | CO2 | 10 |
|  | b. | Perform the DC analysis for a voltage-divider bias arrangement applied to a FET transistor. Also discuss on how to obtain a Q-point graphically for the same. | CO1 | 10 |
| 5. | a. | With a neat circuit diagram explain the operation of Class-A power amplifier and derive the expression of efficiency of the circuit. | CO3 | 10 |
|  | b. | With the circuit diagram, explain the operation of single stage Transformer coupled amplifier circuit. | CO3 | 10 |
| (OR) | | | | |
| 6. | a. | Explain about the operation of Single stage RC coupled amplifier with a circuit diagram and mention the functions of blocking, coupling and emitter by-pass capacitors used in the circuit. | CO3 | 10 |
|  | b. | Study the effect of cross-over distortion in Class B amplifier. Also explain how this effect is overcome in Class AB amplifier. | CO3 | 10 |
| 7. | a. | Determine the voltage gain of a voltage series feedback amplifier having A = -100 and β = -0.1. Also mention the modes of operation of a differential amplifier circuit. | CO2 | 5 |
|  | b. | Give the block diagram representation of Current Shunt feedback amplifier and derive the expression of input impedance, output impedance and gain of the amplifier. | CO3 | 15 |
| (OR) | | | | |
| 8. | a. | Draw the block diagram of a negative feedback amplifier. What are the benefits of negative feedback in an amplifier? Why is it necessary to reduce the gain of an amplifier from its open loop value? | CO3 | 5 |
|  | b. | Give the block diagram representation of Current Series feedback amplifier and derive the expression of input impedance, output impedance and gain of the amplifier. | CO3 | 15 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain the operation of Hartley Oscillator circuit and mention the expression of frequency of oscillation. Also write the basic difference between Colpitts and the Hartley oscillator. | CO3 | 10 |
|  | b. | Explain the operation of single tuned amplifier crcuit with a neat circuit diagram. | CO3 | 10 |

ALL THE BEST