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 – April/May– 2017**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **16EC2004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ELECTRON DEVICES AND CIRCUITS** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. |  | Explain in detail about the operation of JFET with the drain and the transfer characteristics supported by necessary equations. | CO1 | 20 |
| (OR) | | | | |
| 2. |  | Discuss the voltage divider biasing technique in a BJT with necessary diagrams and equations. | CO1 | 20 |
| 3. | a. | Solve for dc analysis on the circuit given below. Also state the conditions for doing a dc analysis. Given beta = 150.  C:\Users\Anbalagan\Desktop\k2.png | CO1 | 10 |
|  | b. | Explain the working of E-MOSFET with necessary equations and graph. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | A single tuned amplifier consist of tuned circuits having R=5Ω, L=10mh,C=0.1µf. Determine a) resonant frequency b) quality factor of tank circuit c) band width of amplifier | CO2 | 10 |
|  | b. | Relate the class AB, B and D amplifier in all performance aspects. | CO2 | 10 |
| 5. | a. | Explain a general amplifier model with its properties. | CO2 | 10 |
|  | b. | Illustrate that G=G1 x G2 x G3 where G1, G2 and G3 are individual block gains. Considering the input to first stage as V and the output of first stage = G1V. | CO3 | 10 |
| (OR) | | | | |
| 6. |  | Express the efficiency of class A amplifier with necessary diagrams and equations. | CO2 | 20 |
| 7. |  | Explain in detail about differential amplifier and its modes with necessary equations. | CO3 | 20 |
| (OR) | | | | |
| 8. | a. | Write short notes on principles of crystal oscillator and equivalent diagram with equations. | CO3 | 10 |
|  | b. | Sketch the block diagram of an tuned amplifier and explain its working with application. | CO3 | 10 |
|  | | **Compulsory:** |  |  |
| 9. |  | Sketch and explain a RC phase shift oscillator and how to determine resonant frequency and of transistor. | CO3 | 20 |