

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



# Karunya 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

**Code : 14EC2006**  
**Sub. Name : Electronic Circuits**

**Semester : 2016-17 EVEN**  
**Duration : 3hrs**  
**Max. marks : 100**

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

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	With a circuit diagram and necessary waveforms describe the operation of a full wave rectifier circuit and derive the expression of ripple factor.	CO1	15
	b.	Find the capacitance of a full wave rectifier with 60 Hz input signal, peak output voltage $V_p=10$ V, load resistance $R = 10$ k $\Omega$ and input ripple voltage $V_r = 0.2$ V.	CO2	5
(OR)				
2.	a.	Briefly explain the operation of voltage regulator using Zener diode with neat circuit diagram.	CO1	10
	b.	Describe the operation of full wave rectifier with inductor filter.	CO1	10
3.	a.	Perform the dc analysis of a BJT fixed bias circuit and identify the Q-point in the transistor characteristic curve by plotting the load line.	CO1	10
	b.	With necessary circuit diagram, derive the expression for $I_B$ and $V_{CE}$ for a BJT voltage divider bias arrangement.	CO1	10
(OR)				
4.	a.	Determine $V_{DS}$ , $V_S$ , $V_G$ and $V_D$ for the FET voltage divider-bias network with the following specifications. [ $V_{DD}=20$ V, $R_D=3.3$ k $\Omega$ , $R_S=1$ k $\Omega$ , $R_G=1$ M $\Omega$ , $I_{DSS}=8$ mA, $V_P = -6$ V, $I_D= 2.6$ mA]	CO2	10
	b.	Explain briefly about the fixed-bias arrangement of a JFET with its circuit configuration. Also perform dc analysis for the same to identify the Q-point.	CO1	10
5.	a.	With the circuit diagram explain the operation of single stage RC coupled amplifier. Also draw the Gain versus frequency plot for the same.	CO2	10
	b.		CO3	10

		With a neat circuit diagram explain the operation of Class-B power amplifier and derive the expression of efficiency of the circuit.		
<b>(OR)</b>				
6.	a.	Explain the operation of Class B transformer-coupled push-pull amplifier circuit. Also derive the expression of efficiency.	CO3	<b>10</b>
	b.	Explain the operation of Class D power amplifier circuit.	CO3	<b>10</b>
7.	a.	Give the block diagram representation of Voltage Series feedback amplifier and derive the expression of input impedance, output impedance and gain of the amplifier.	CO3	<b>15</b>
	b.	List out the number of improvements that are obtained using negative feedback configuration?	CO3	<b>5</b>
<b>(OR)</b>				
8.	a.	In a feedback system, the open loop gain is -10, feedback factor is 0.09999. If open-loop gain changes from -10 to -9.9, then find the change or variation in gain with feedback.	CO2	<b>5</b>
	b.	Mention the four basic ways of connecting the feedback signal. Derive the gain, input and output impedance expressions of Voltage Shunt feedback amplifier.	CO3	<b>15</b>
<b><u>Compulsory:</u></b>				
9.	a.	Explain the operation of RC Phase shift oscillator and mention the expression of frequency of oscillation.	CO3	<b>15</b>
	b.	Mention the two conditions required for a sustained state of oscillation.	CO3	<b>5</b>

ALL THE BEST