



Sanjay Ghodawat University, Kolhapur

2018-19

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/10/01

Year and Program: 2018-19

School of Technology

Department of E.E. E, S. Y B.Tech

Course Code: EET203

Course Title: Analog Electronics

Semester – III

Day and Date Friday

End Semester Examination

Time: 3 Hrs

Max Marks: 100

6th May, 2019

(ESE)

2.30 to 5.30 PM

Instructions:

- 1) All questions are compulsory.
- 2) Assume suitable data wherever necessary.
- 3) Figures to the right indicate full marks.

Q.1	Solve the following	Marks	Bloom's Level	CO
a)	A full wave rectifier uses center tapped transformer whose turns ratio to secondary is 10:1 & is supplied with 230V, 50Hz. The load resistance is 50Ω. Calculate the load voltage & ripple voltage. If now a capacitor of 470μF is used, recalculate the load voltage & ripple voltage assuming the same load current.	08	L ₃	CO1
OR				
a)	Derive the equations for the various parameters of FWR given below	08	L ₂	CO1
	<div style="display: flex; justify-content: space-between;"> <div>a) Avg. d.c load current</div> <div>b) R.M.S value of load current</div> </div> <div style="display: flex; justify-content: space-between;"> <div>c) Rectification Efficiency</div> <div>d) Ripple factor</div> </div>			
b)	With the help of circuit diagram explain the working of transformer coupled Class B amplifier. State any two advantages.	07	L ₁	CO2
OR				
b)	Design a fixed bias circuit using a silicon transistor having β=100, V _{cc} = 10V & dc bias conditions are to be V _{ce} = 5V & I _c =5mA.	07	L ₃	CO2
Q.2	Solve the following			
a)	Explain the construction & working of Hartley Oscillator. State its applications.	07	L ₂	CO3
OR				
a)	Explain the construction & working of Colpitts Oscillator. State its applications.	07	L ₂	CO3
b)	Explain the working of n-channel MOSFET. Also, explain different regions of IV characteristics.	08	L ₂	CO4
OR				
b)	With the help of Voltage Transfer characteristics, explain the working of CMOS inverter.	08	L ₂	CO4

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Q.3	Solve any Two			
a)	With the help of waveforms explain the working of fullwave voltage doubler.	08	L ₂	CO1
b)	With the help of circuit diagram & KVL equations explain the working of voltage divider biased circuit. State its advantages & disadvantages.	08	L ₂	CO2
c)	How the positive feedback amplifier can be converted into Oscillator, explain with the help of Barkhausen Criterion.	08	L ₂	CO3
d)	With the help of neat diagram explain the working of p-channel depletion MOSFET. Also, explain different regions of IV characteristics.	08	L ₂	CO4
Q.4	Solve any Two			
a)	What are the characteristics of Ideal Opamp?	09	L ₂	CO5
b)	Explain briefly Precision Rectifier? With the help of circuit diagram, expressions & waveform explain the working of full wave precision rectifier?	09	L ₂	CO5
c)	With the help of circuit diagram, waveform explain working of opamp as Differentiator & derive the expression for output voltage?	09	L ₂	CO5
Q.5	Solve any Two			
a)	With the help of circuit diagram & input output waveforms, explain the working of inverting Schmitt trigger. Hence derive the equation for Hysteresis.	09	L ₂	CO6
b)	Derive the equation for closed loop gain of opamp as Voltage shunt feedback amplifier.	09	L ₂	CO6
c)	With the help of circuit diagram & expression explain the working of three opamp Instrumentation amplifier. State its advantages.	09	L ₂	CO6
Q.6	Solve any Three			
a)	Derive the expression for closed loop gain of ideal inverting amplifier?	06	L ₂	CO5
b)	With the help of neat circuit diagram & derive the expression for output voltage of difference amplifier?	06	L ₂	CO5
c)	Draw the circuit diagram of opamp as unity feedback amplifier. Derive the expression for its gain. If input to the opamp is 2V p-p , 1KHz Sinusoidal wave what will be the output?	06	L ₃	CO6
d)	Compare Schmitt Trigger with Comparator	06	L ₃	CO6

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