



Sanjay Ghodawat University, Kolhapur

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2018-19

EXM/P/09/01

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

End Semester Examination

Time:

Max Marks: 100

Monday 29 Nov 18

(ESE)

2:30 to 5:30

Instructions:

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

Q.1	Solve any two 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 $470\mu\text{F}$ 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
	a) Avg. d.c load current b) R.M.S value of load current c) Rectification Efficiency d) Ripple factor			
b)	With the help of neat circuit diagram, explain the operation of Class AB amplifier. State any two advantages.	07	L ₁	CO2
OR				
b)	For the circuit shown in fig. $\beta = 100$ Calculate V_{CE} & I_C	07	L ₃	CO2

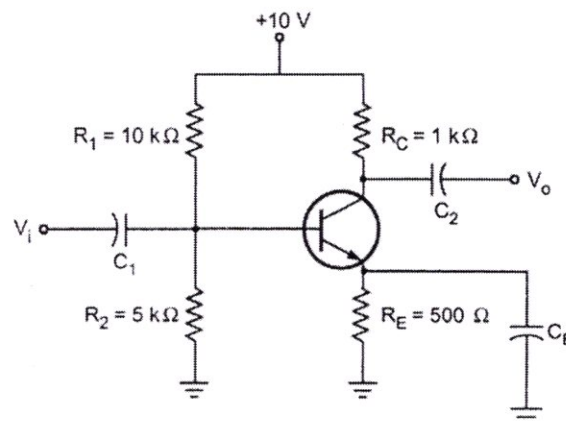


fig 3b

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Q.2 Solve any Two					
a)	Explain the construction & working of Wein bridge 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 JFET. 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	
Q.3 Solve any Two					
a)	With the help of neat circuit diagram & waveforms, explain the working of positive & negative Clamper Circuit.	08	L ₂	CO1	
b)	With the help of circuit diagram & KVL equations explain the working of fixed 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)	Write short note on Slew rate & CMRR for Opamp.	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 series feedback amplifier.	09	L ₂	CO6	
c)	With the help of neat diagram & waveforms explain the working of Full wave precision rectifier.	09	L ₂	CO6	

Q.6 **Solve any Three**

- | | | | | |
|----|--|----|----------------|-----|
| a) | Derive the expression for closed loop gain of ideal non-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) | Determine the output voltage of differential amplifier for the input voltages of 300 μ V & 240 μ V. The differential gain of the amplifier is 5000 & the value of CMRR is i) 100 & ii) 10 ⁵ | 06 | L ₃ | CO6 |
| d) | A square wave of 750mV p-p amplitude has to be amplified to peak to peak amplitude of 3.8 V, with the rise time of 4.5 μ S or less. Can opamp IC 741 be used for the purpose? | 06 | L ₃ | CO6 |
