

PRN No.

19

Total No. of
Questions: 6

JSPM's

Rajarshi Shahu College of Engineering, Tathawade, Pune- 411033

(An autonomous institute affiliated to Savitribai Phule Pune University)

Examination: Mid Semester (MSE)

Semester: II Academic Year: 2024-25

Programme: -Civil,IT,E&TC,CSBS

Examination Class: F. Y. B. Tech.

Course Code: -EC1201T Course Name and Pattern: -Basic Electronics
Engineering

Duration: 1.15 Hour

Max. Marks: 30 Marks

Instructions to the Candidates				
1. Solve sections A, B, C				
2. Assume suitable and necessary data wherever required.				
3. Use of log table, scientific calculator, steam table is allowed.				

Section A

Q. No.	Question	Bloom's Level	Marks	COs
Q.1 a	What is a Diode? List its applications.	L1	2	CO1
b	List the ideal and practical values of output resistance and voltage gain of op-Amp.	L1	2	CO1
c	Why CE configuration is mostly preferred in CE amplifiers?	L1	2	CO1
d	Which type of feedback is used in amplifier and oscillator circuits?	L1	2	CO1

OR

Q.2 a	Compare Full wave rectifier with and without centre tap on the basis of -i)PIV ii) TUF	L1	2	CO1
b	What are the doping levels in Base, Collector and Emitter in BJT?	L1	2	CO1
c	Draw the circuit diagram of application of op-Amp as Non inverting summing amplifier.	L1	2	CO1
d	What is the need of feedback?	L1	2	CO1

Section B

Q.3 a	Explain how a transistor is used as a switch?	L2	3	CO2
b	Describe the working of Full wave Rectifier with centre tap.	L2	3	CO2
c	In a Non inverting Amplifier if $R_1=10K, R_2=20K, V_{CC}=+/-15V$. Calculate its gain and output voltage when $V_{in}=0.6 \text{ mV}$	L2	3	CO2
d	A differential dc amplifier has a differential gain of 20000 and a common mode gain of 0.02. Calculate CMRR in DB	L2	3	CO2

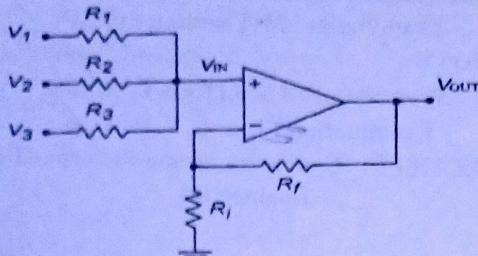
OR

- Q.4 a Identify the circuit and write the equation of output voltage .If $R_1=R_2=R_3=R_i=R_f=1\text{K}\Omega$.What is the phase difference in input and output of this circuit?

L2

3

CO2



- b Explain Output characteristics of Common Emitter configuration L2 3 CO2

- c A full wave rectifier uses two diodes having internal resistance of $15\ \Omega$. The transformer secondary voltage from center tap to each end of secondary is 60V and the load resistance of $800\ \Omega$.Find i) VLDC ii)VLRMS

L2

3

CO2

- d Draw the block schematic of op-Amp and explain the function of each block.

L2

3

CO2

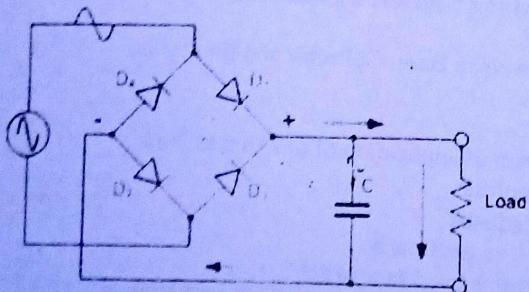
Section C

- Q.5 a Observe the following diagram and answer the following questions-i)Identify the circuit ii) Sketch the waveform across Load resistance iii)If Primary voltage 230V,50HZ ,rms secondary voltage is 120 V calculate peak voltage across secondary? iv) What is output frequency? v)What is the ripple in this circuit if Load resistance= $1\text{K}\Omega$, $C=1000\ \mu\text{F}$ and frequency is 100Hz.

L3

5

CO3



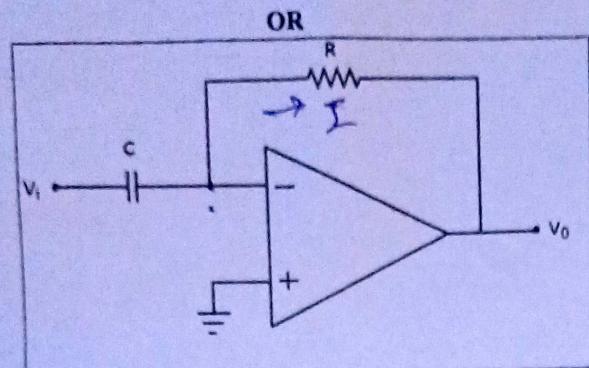
- b Ashish wants to generate triangular wave from square wave. Which application of amplifier should he select? Derive an expression of output voltage for this circuit.

L3

5

CO3

Q.6 a



L3

5

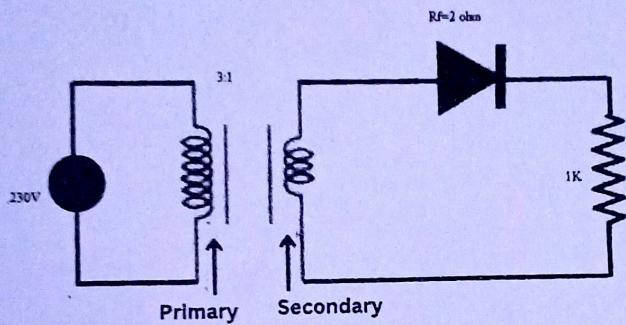
CO3

- b Identify the circuit and derive an expression of output voltage
In the following circuit if forward resistance of diode is $2\ \Omega$
 $RL=1\text{ k}\Omega$ Find i) Mean load current ii) RMS value of load
current iii) VLDC iv) ILDC v) PIV

L3

5

CO3



Bloom's Level:

- BL1- Remembering
- BL2- Understanding
- BL3- Apply