PRN No.	Total number of		QP Code:
RBF28ST006	questions-6		

JSPM's

RajarshiShahu College of Engineering, Tathawade, Pune- 411033

(An autonomous institute affiliated to SavitribaiPhule Pune University)

Examination: Mid Semester Examinations (MSE)

Semester: II   **Academic Year: 2023-24**

Class: F. Y. B. Tech. (All Programs)

Department: Engineering Sciences and Humanities

Subject Code: EC1201   **Subject Name and pattern: Basic ElectronicsEngineering(2023)**
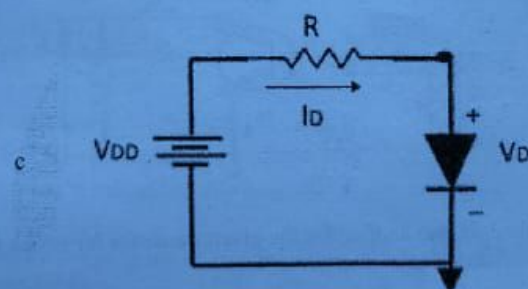
Duration: 1 Hour   **Max. Marks: 20 Marks**

Instructions to the Candidates

1.Solve Q.1 or 2,Q.3 or 4,Q.5 or 6

2. Assume suitable and necessary data wherever required.

3. Neat diagram must be drawn wherever necessary

Q. No.			Marks	BL	CO
Q.1	a	A diode whose internal resistance is 20Ωis to supply power to a 1000Ωload from a 110V(rms) source of supply. Calculate i) DC load voltage ii)RMS load current	03	BL3	CO1
	b	What is filter circuit? Draw neat sketch of Bridge rectifier with capacitor filter?	02	BL1	CO1
	c		02	BL3	CO1

In the above circuit VDD=10V, R=920Ω find the current through the circuit?

OR

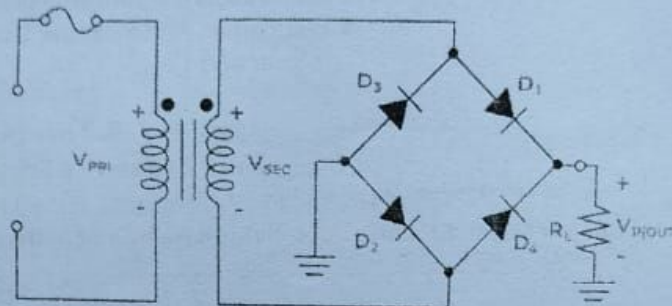Q.2 a From the following circuit answer the following questions---

1) What type of circuit it is?

2) Sketch the voltage waveform across RL

3) calculate PIV if Vpri=230V ,Vsec(rms)=120V,RL=1KΩ   03   BL3   CO1

b A 50 V peak full wave rectified voltage is applied to a capacitor input filter. If f=120Hz,RL=100KΩ and C=1μF Determine the ripple factor?   02   BL3   CO1
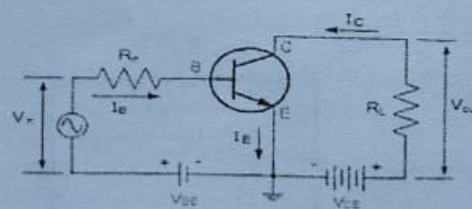
C For zener voltage regulator if IZ(min)=2mA,Izmax=20mA,Vz=5V.Determine the range of input voltage over which output voltage remains constant.Rs=1K,RL=1K   02   BL3   CO1

Q.3 a Identify the circuit and draw its Input characteristics   02   BL3   CO2

b Calculate α_{DC} and β_{DC} for the given transistor for which Ic=10mA;I$_B$=85μA   02   BL3   CO2

c What is current gain?Derive an expression for current gain in Common base and common Emitter configuration   02   BL2   CO2
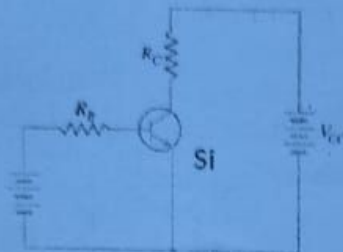
Q.4 a Compare CB,CE and CC configuration on the basis of current gain ,phase difference, input and output resistance   02   BL2   CO2

b Determine IB and IC through the following circuit if $V_{CE}=0.1$ V
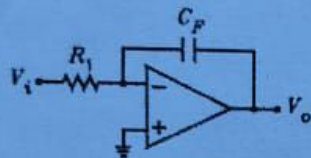$R_B=5K\Omega, R_C=500\Omega, V_{BB}=10V, V_{CC}=20V$ 02   BL3   CO2

C i)What are the biasing conditions of the base emitter and base
collector junctions for a transistor to operate as a switch   02   BL1   CO2
ii) What is Current equation for npn and pnp Transistor

Q.5   **a**

03   BL3   CO3

Identify the circuit and write the output equation

b Explain the following parameters of an op amp and write the
typical values for IC 741   02   BL2   CO3
i)Slew Rate   ii)Input resistance

C IC 555 configured to run in astable mode with R1=2KΩ,
R2=5KΩ and C=0.01 µF. Determine the frequency of the output   02   BL1   CO3
and duty cycle.

OR

Q.6   **a** Elaborate the modes of operations of operational Amplifier   03   BL2   CO3

b For the inverting amplifier using op-amp if
Rf=100kΩ,R1=10kΩ,Vcc=12V calculate the output voltage if   02   BL3   CO3
Vi= 4V.Is the result practically possible?

c Draw the circuit diagram of Non inverting summer and write
the output equation   02   BL2   CO3

************************************BEST of LUCK***