PAPER ID-421344

Subject Code: KOE048

Roll No: | | | | | | | | | | | | | |

BTECH
(SEM IV) THEORY EXAMINATION 2021-22
ELECTRONICS ENGINEERING

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2x10 = 20

Qno	Questions	CO
(a)	Si is preferred as compared to Ge in semiconductor devices. Justify this statement.	1
(b)	Describe the term PIV.	1
(c)	Enlist the application of LED.	2
(d)	Describe the tunneling phenomenon.	2
(e)	Derive the relationship between α and β for BJT.	3
(f)	Draw the transfer characteristics of JFET.	3
(g)	Describe the term CMRR and slew rate of an op-amp.	4
(h)	Enlist the characteristics of ideal op-amp.	4
(i)	Enlist the essential components of a CRT.	5
(j)	Explain the application of DSO.	5

SECTION B

2. Attempt any *three* of the following: 10x3 = 30

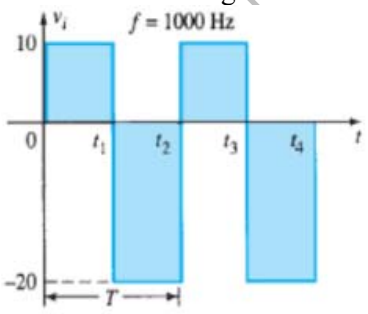
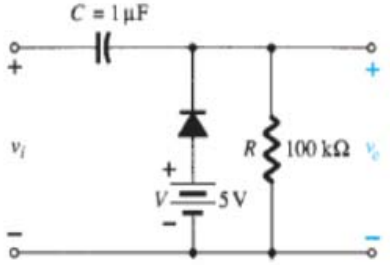
Qno	Questions	CO
(a)	Explain the working of PN junction diode with no-bias condition, forward bias condition and reverse bias condition. Also draw the V-I characteristics of PN junction diode.	1
(b)	Illustrate the working of half wave rectifier using circuit diagram also determine its different parameter.	2
(c)	Mention the different biasing techniques used in BJT. Explain any two of them.	3
(d)	Draw the block diagram and equivalent circuit of an op-amp. Also explain op-amp as inverting and non-inverting amplifier.	4
(e)	Illustrate the working of digital multimeter with their block diagram.	5

SECTION C

3. Attempt any *one* part of the following: 10x1 = 10

Qno	Questions	CO
(a)	Illustrate the diode resistance and diode capacitance.	1
(b)	Differentiate between Avalanche breakdown and Zener Breakdown mechanism.	1

4. Attempt any *one* part of the following: 10x1 = 10

Qno	Questions	CO
(a)	Determine the output voltage and output waveform for a given input waveform. Assuming Silicon diodes.  	2

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(b)	Explain the principle of operation and characteristics of an LED and Tunnel diode.	2

5. Attempt any *one* part of the following: 10x1 = 10

Qno	Questions	CO
(a)	Draw the CE amplifier circuit and derive the expression for different characterizing parameters.	3
(b)	(i) Explain the construction and working of JFET. (ii) An enhancement type NMOS transistor with Vt =0.7 V has its source terminal grounded and a 1.5 V applied to the gate. In what region does the device operate for a) V_D = 0.5 V b) V_D = 0.9 V c) V_D = 3 V.	3

6. Attempt any *one* part of the following: 10x1 = 10

Qno	Questions	CO
(a)	Draw the circuit diagram of an integrator and differentiator also find their output.	4
(b)	Illustrate the following op-amp parameters (i) input offset voltage (ii) output offset voltage (iii) input biased current (iv) input offset current (v) differential mode gain	4

7. Attempt any *one* part of the following: 10x1 = 10

Qno	Questions	CO
(a)	Describe measurement of voltage, current, frequency and phase using CRO.	5
(b)	Draw the block diagram of digital voltmeter. Also explain the ramp technique of digital multimeter.	5