PAPER ID-411536

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

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

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

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

Q no.	Question	Marks	CO
a.	What you mean by Doping. Describe its need.	2	CO-1
b.	Why Si is preferred as compared to Ge in Semiconductor Electronics.	2	CO-1
c.	Differentiate between Clipper and Clamper circuit.	2	CO-2
d.	Compare LED and photo diode.	2	CO-2
e.	State two Difference between BJT and FET.	2	CO-3
f.	Define Threshold Voltage for an E-MOSFET. Also define I_{DSS} for an JFET.	2	CO-3
g.	What is unity gain amplifier(buffer)?	2	CO-4
h.	What is SLEW RATE explain briefly?	2	CO-4
i.	Compare analog and digital instruments.	2	CO-5
j.	Write the applications of CRO.	2	CO-5

SECTION B

2. Attempt any *three* of the following:

Q no.	Question	Marks	CO
a.	Explain Avalanche and Zener Breakdown Mechanism.	10	CO-1
b.	Write a short note on Tunnel and Varactor Diode.	10	CO-2
c.	Draw the basic structure of Common Base BJT and explain its principle of operation with neat diagram with its input and output characteristics.	10	CO-3
d.	Define Op-Amp with the help of block diagram. List the ideal characteristic of an Op-Amp. Explain working of Op-Amp as a Adder.	10	CO-4
e.	Draw and explain the block diagram of Digital Storage Oscilloscope (DSO) also compare it with analog oscilloscope.	10	CO-5

SECTION C

3. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Draw the V-I characteristics of an ideal & practical diode and explain. Also write the diode equation in support of your answer	10	CO-1
b.	What do you mean by diode resistances? Draw and explain the characteristics of transition and diffusion capacitance v/s applied voltage.	10	CO-1

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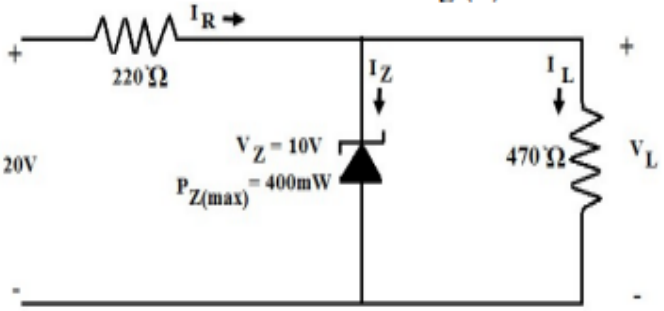
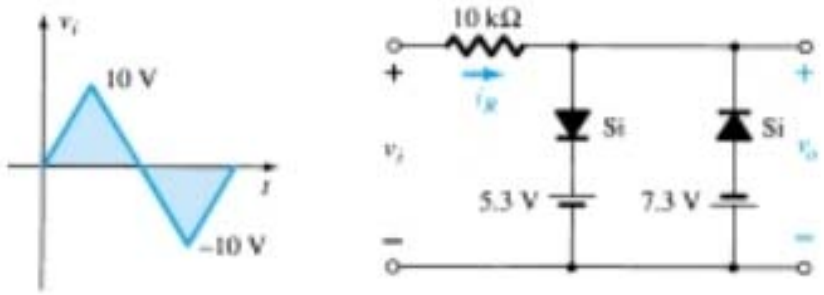
4. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Determine I_Z, I_L, I_R and V_L for the network shown in given fig. 	10	CO-2
b.	Determine the output waveform for a given input waveform 	10	CO-3

5. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Distinguish between enhancement type and depletion type MOSFETs. Draw the cross-section of N-channel enhancement MOSFET. Explain and draw the transfer characteristics.	10	CO-4
b.	Describe the construction of a NPN transistor. Define α and β with respect to BJT and derive the relationship between them.	10	CO-4

6. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Explain the concept of Virtual ground. Explain working of Op-Amp as a differentiator.	10	CO-5
b.	Determine the output of following Circuits (i)	10	CO-5

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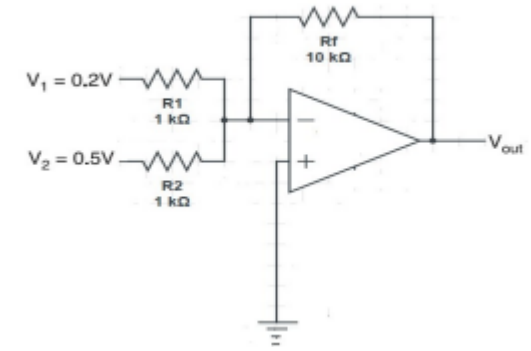
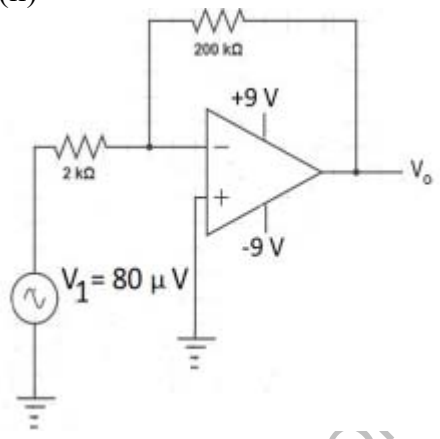


(ii)



7. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Describe measurement of Voltage, Frequency & Phase using CRO.	10	CO-1
b.	Describe the working of Digital Multimeter with their block diagram.	10	CO-1