

University Institute of Engineering & Technology

(Recognised Under Section 2(f) and 12B of UGC)

Kurukshetra University, Kurukshetra

TIME – 3 Hrs 15 Min

THEORY EXAMINATION – FEB 2021

B.TECH - MECH

SEMESTER - III

M.M. - 56

PAPER - ES -203

SUBJECT - BASIC ELECTRONICS ENGINEERING

INSTRUCTIONS TO BE FOLLOWED

- Allotted time for examination is 3 hours 15 minutes that includes time for downloading the question paper, writing answers, scanning of answer sheets and E-mailing the PDF files to the designated Email ID.
- For all B Tech. Mechanical Engineering Students, the Email ID is:- btechmechuiet@kuk.ac.in
- The candidates will be required to attempt 75% of the question paper (maximum) by choosing to their any best questions accumulating 56 marks.
- The PDF files should be saved as Roll No. and Subject Code. Proper attention should be given while sending the email and in the subject line, the Roll Number and Subject Code should be mentioned.
- Maximum Page Limit should be 20 (Twenty) for attempting the question paper on A4 sheets which could be downloaded and printed from the sample sheets given in the Kurukshetra University Examination guidelines.
- Over-attemptation should be avoided.
- Handwriting should be neat and clean and diagrams should be clear and contrasted.
- The candidate should not write their Mobile No. otherwise Unfair Means Case will be made.
- While attempting the paper, the candidate will use blue/black pen only.
- Before attempting the paper, the candidate will ensure that he/she has downloaded the correct question paper. No complaint for attempting wrong question paper by the candidate will be entertained.
- Candidate must ensure that he/she has put his/her signature on each page of the answer sheet used by him/her. Answer sheet without the signature of the candidate will not be evaluated.

PART-A**Q. No. – 1 Answer the following questions.****15x1=15**

(i)	Define Frequency Response.
(ii)	Define Reverse saturation current of a p-n diode.
(iii)	Define Multivibrator.
(iv)	List various Universal gates.
(v)	Define oscillators and its types.
(vi)	List the value of Ripple factor of Half wave rectifier.
(vii)	List the value of Ripple factor of Full wave rectifier.
(viii)	Define modulation in communication.
(ix)	Define Minterms and Maxterms.
(x)	Define Boolean Laws.
(xi)	Draw the truth table, logic diagram of AND gate.
(xii)	Draw the truth table, logic diagram of NAND gate.
(xiii)	List various configurations of Operational Amplifiers.
(xiv)	Define De-Morgan's Laws.
(xv)	Define Barkhausen criterion of oscillators.

PART-B

2	Explain the working of Zener Diode as a Voltage Regulator.	5
3	Explain the inverting configuration of Operational Amplifier and derive its output voltage equation.	5
4	Simplify the following Boolean equation using Boolean laws , and write the answer: $Z = \bar{A}\bar{B} + A\bar{B} + \bar{A}B$	5
5	Draw the block diagram of a Global System for Mobile communication and explain its role in modern world.	5

PART-C

6	(a) Explain the working of Full Wave Bridge rectifier with all the waveforms. (b) Calculate the ripple factor from output waveform.	10
7	(a) Draw the structure of BJT. Explain emitter, collector and base currents. (b) Describe the Characteristic BJT as Common emitter amplifier.	10
8	(a) Draw the equivalent circuit of Operational Amplifier. (b) For Non-inverting configuration of Op- Amp derive the output voltage equation.	10
9	(a) Draw the pin diagram of 555 Timer IC. (b) Explain the Operation of Monostable multivibrator using 555.	10
10	(a) What is a multiplexer? (b) Draw the truth table, logic diagram and Boolean equation of a 8:1 Multiplexer.	10
11	(a) What is a Flip-Flop? What is its use? What are its types? (b) Draw the truth table, logic diagram, excitation table of SR, JK flip flops.	10

12	(a) What is Communication system? Draw its block diagram. (b) Differentiate between Wired and Wireless transmission media? Which is better?	10
13	(a) Why Modulation is required in Communication systems? (b) Differentiate between amplitude modulation and frequency modulation.	10