

Code No: 153AB

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, September - 2021

ANALOG AND DIGITAL ELECTRONICS

(Common to CSE, IT, ITE)

Time: 3 hours

Max. Marks: 75

Answer any five questions

All questions carry equal marks

- 1.a) Explain the characteristics and applications of a photodiode.
b) How does the reverse saturation current of a diode varies with temperature? Explain. [7+8]
- 2.a) Draw a circuit diagram of series inductor filter with half wave rectifier. Explain with input and output waveforms.
b) Explain negative peak clipper with and without reference voltage. [8+7]
- 3.a) Explain self bias. Derive the expression for S? Why it is widely used.
b) Prove that the transistor acts as an amplifier with suitable circuit diagram. [7+8]
4. Derive the expression for A_{VS} , A_{IS} , R_i , R_o of transistor amplifier using CB configuration. [15]
- 5.a) Explain the operation and characteristics of N- channel JFET.
b) Discuss any two applications of FET. [8+7]
- 6.a) Explain about Transistor-Transistor logic. Also mention the types of output configuration.
b) Prove that AND-OR network is equivalent to NAND-NAND network. [8+7]
- 7.a) Give the simplest logic circuit for following logic equation where d represents don't care conditions.
$$F(A,B,C,D) = \sum m(7) + d(10, 11, 12, 13, 14, 15).$$

b) Design a 32:1 multiplexer using 16:1 Mux and 2:1 multiplexer? [9+6]
- 8.a) Explain 4 bit parallel in serial out shift register.
b) Explain about RAM with neat sketches. [8+7]

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