

SUBJECT CODE NO:- P-375
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E. (EEP/EE/EEE) Examination May/June 2017
Analog & Digital Circuits
(Revised)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i) Q.Nos.1 and Q.No.6 are compulsory.
 - ii) Attempt from each section any two questions from the remaining questions.
 - iii) Assume suitable data whenever necessary.
 - iv) Figure to the right indicates full marks.

Section A

- Q.1 Solve any five. 10
- i. Draw the input characteristics of CE mode and label all variable.
 - ii. List the advantages and disadvantages of FET over Bipolar transistor.
 - iii. Define push-pull amplifier
 - iv. Draw the circuit diagram for voltage regulator of IC LM317
 - v. What is multistage amplifier circuit?
 - vi. Define an operational amplifier?
 - vii. What is I to V converter
 - viii. State high-pass filter?
- Q.2 a. Explain the working of transformer coupled amplifier with suitable diagram. 08
b. Describe the consumption of FET with symbol. 07
- Q.3 a. What is the instrumentation amplifier? what are the basic requirement of an instrumentation amplifier? Explain. 08
b. What is comparator? How op-amp can be used as comparator? 07
- Q.4 a. What is active filter? What is the role of the amplifier of the active filter? 08
b. Explain the operation of 555 timer in monostable mode with neat circuit and waveform. 07
- Q.5 a. Write short note on (any three) 15
- i. Peak detector
 - ii. BJT configurations
 - iii. Schmitt trigger
 - iv. Voltage regulator

Section B

- Q.6 Solve any five 10
- i. Why are NAND and NOR gates known as universal gates.
 - ii. Convert decimal no- 22.64 to hexadecimal number
 - iii. Simplify the Boolean function $F(x,y,z)=\sum(1,2,3,6,7)$ using three variable k-map.
 - iv. List the different types of shift- registers.
 - v. Draw the logic diagram of master slave flip flop
 - vi. What is mean by up-down counter

- vii. Define static and dynamic RAM.
- viii. What is the difference between multiplexer and Demultiplexer.
- Q.7 a. Simplify the Boolean function $F(ABCD) = \sum m(0,1,2,4,5,6,8,9,12,13,14)$ using k-map method. **08**
- b. Represent decimal no. 8620 in
- BCD code
 - Excess-3 code
 - Hexadecimal
 - Octal no.
- Q.8 a. Explain the operation of clocked SR flip-flop with logic diagram and excitation table. **08**
- b. Describe the operation of twisted ring counter. **07**
- Q.9 a. Explain the operation of PROM and EPROM. **08**
- b. What do you mean by a selector? Draw the logic circuit for 4-input mux and explain its operation with truth table. **07**
- Q.10 Write short note on (Any three) **15**
- Gray code
 - Digital to analog converter
 - Shift register
 - De-Morgan's theory.