Total No. of Printed Pages:02

SUBJECT CODE NO: H-282
FACULTY OF SCIENCE AND TECHNOLOGY
S.E. (EEP/EE/EEE)
Analog & Digital Circuits
(OLD)

[Time: Three Hours]   [Max.Marks:80]

Please check whether you have got the right question paper.
N.B
      i) Question No.1 and Q.No.6 are compulsory.
      ii) Attempt from each section any two questions from the remaining questions.
      iii) Assume suitable data where necessary.
      iv) Figures to the right indicate full mark.

Section A

Q.1   Answer any five.   10
     A. What is Schmitt trigger?
     B. List applications of comparator.
     C. Draw the circuit diagram of integrator.
     D. Define Slew rate of op amp.
     E. Define biasing BJT.
     F. Define Load Line.
     G. Draw the input characteristics of common base mode and define its output resistance.

Q.2   A) Draw the circuit diagram of first order low – pass filter and explain the operation.   08
     B) With the neat diagram explain the working of two-stage Rc-coupled amplifier.   07

Q.3   A) A certain transistor has $\alpha = 0.98$, $IC = 5\mu A \ and \ IB = 100\mu A$. Find the values of β and   07
     emitter currents.
     B) Describe the ideal characteristics of op-amp.   08

Q.4   A) Explain mono stable Multivibrator using IC555.   07
     B) With the neat diagram explain the class B push. Pull amplifier?   08

Q.5   Write short note on (any three)   15
     I.   78XX IC
     II.   FET Characteristics
     III.   V to I convertor
     IV.   Op amp as differentiator

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Section B

Q.6   Answer <u>any five</u>   10
    A. Realizing using logic gates given Boolean function. $y = ABC + B\bar{C}D + \bar{A}BC$.
    B. Give the truth table and graphic symbol of D-flip-flop.
    C. Convert following from gray to binary. (110110)
    D. Convert hexadecimal no. AFC.25 into octal no. Define biasing BJT.
    E. Find 2's compliment of $(11001100)_2$
    F. Define shift registers.
    G. What are logic gates?

Q.7   A) With the help of neat sketch explain 8:1 multiplexer with truth table.   08
    B) Explain the operation of 4 bit binary counter with neat diagram.   07

Q.8   A) Explain the operation of PROMS and EPROMS.   07
    B) What are the advantages and disadvantages of Dual slope ADC? Comment on their major   08
        applications.

Q.9   A) Construct AND, OR and NOT logic using NOR gate.   07
    B) Explain edge triggered J K Flip-flop in detail.   08

Q.10   Write short note on (<u>any three</u>)   15
    I.   J-K master slave F-F
   II.   N-module counters
  III.   ADC and DAC
  IV.   Sop and pos form