Extra

V.P. & R.P.T.P SCIENCE COLLEGE

INTERANAL EXAM

S.Y.B.Sc.(SEM-III) INSRUMENTATION (VOC.)

SUB: - Operational amplifiers and filters Sub. Code: US03CINV23

DATE:-03/10/2019 TIME: 3:00 pm to 4:15 pm MARKS-25

Q-1 Choose correct answer [05]

1. When the two terminals are to be at same potential hence two input terminal are said to be _____.
   (A) virtually grounded (C) virtually shorted
   (B) actually grounded (D) None of above
2. _____ gives the triangular output when input is square wave.
   (A) Adding integrator (C) Differentiator
   (B) Comparator (D) integrator
3. _____multivibrator is also called free running oscillator.
   (A) Astable (C) Critical
   (B) Monostable (D) None of above
4. Active filter use _____ components basically for filtration.
   (A) copper loss (C) iron core
   (B) ferrite loss (D) None of above
5. In band pass filter _____ frequency is eliminated.
   (A) low and high (C) intermediate
   (B) high (D) low

Q-2 Explain the block diagram of op-amp. [05]

OR

Q-2 Derive the expression for inverting amplifier with feedback. [05]

Q-3 Draw the circuit of differential op-amp and derive an equation $V_{out} = -R_f/R_1(V_X - V_y)$. [05]

OR

Q-3 Explain basic comparator and draw the waveforms using op-amp. [05]

Q-4 Draw the circuit diagram of pulse-width modulation(PWM) and Explain it with necessary waveform. [05]

OR

Q-4 Explain the Monostable multivibrator. [05]

Q-5 Explain data acquisition circuit using instrumentation operational amplifier. [05]

OR

Q-5 Give an account of active low pass first order butter worth filter. [05]