11833

M.Sc. EXAMINATION

(For Batch 2017 to 2020 Only)

(Second Semester)

PHYSICS

PHY-203

Electronics-II

Time : Three Hours　　　　*Maximum Marks :* 70

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

1. (a) Explain gain bandwidth product in brief.　　　　　　　　　2

   (b) Give the characteristics of an ideal op-amp.　　　　　　　　　2

(c) Find out the closed loop gain of an amplifier in which negative feedback has been applied with A = 4000 and $\beta = 0.2$. 2

(d) Give the advantages of active filter over the passive filter. 2

(e) Comment on arithmetic operation of 8085 microprocessor. 2

Unit I

2. (a) What do you mean by noise figure ? Prove that overall noise figure of a multistage amplifier is primarily dependent on the noise figure of the first stage ? 8

(b) State and explain the frequency response of the RC coupled amplifier. 7

3. (a) Prove that there is a wider response band for CB connections as compared to the same transistor in the CE connections. 9

(b) Define and bandwidth describe the bandwidth of cascaded amplifiers. 6

Unit II

4. (a) Draw the circuit diagram for summing, scaling and averaging amplifier using op-amp. Explain their working also. 7

(b) Discuss the AC analysis of a differential amplifier. 8

5. (a) Describe op-amp as integrator along with input and output waveforms and its frequency response also. 10

(b) Discuss the disadvantages of open loop op-amp. 5

Unit III

6. (a) Explain construction and working of a square wave generator with the help of an op-amp.   9

   (b) Discuss first-order low-pass Butterworth filter and explain its design also.   6

7. (a) Explain the construction and operation of Phase shift oscillator.   8

   (b) Define analog to digital converters and explain counting A/D converter along with tracking converter also.   7

Unit IV

8. (a) Explain the data addressing mode and programme memory addressing mode in a microcomputer.   7

   (b) Discuss rotate and compare instructions in detail.   8

9. (a) Explain the working of 8085 microprocessor with the help of architecture.   9

   (b) Explain the term stack and subroutines in detail.   6