Reg. No. ☐☐☐☐☐☐☐☐☐☐

ELH 401

First Semester M.Sc. Degree Examination, Dec. 2018/Jan. 2019
(CBCS Scheme)
ELECTRONICS
Analog Devices and Circuits

Time : 3 Hours   Max. Marks : 70

*Instruction : Answer **all** questions in Part **A** and Part **B**.*

PART – A

Answer **all** the questions.   **(2×5=10)**

1. a) Define Hall effect.

    b) Draw PIN diode and write down its significant features.

    c) Define Hybrid parameters for CE configuration.

    d) Write down the advantages of negative feedback in op-amp circuits.

    e) Mention the characteristics of instrumentation amplifier.

PART – B

         (20×3=60)

2. a) Discuss the energy band theory of crystals, insulator, semiconductor and metal.   **10**

    b) Explain the terms mobility, conductivity and concept of electrons and holes in intrinsic semiconductor.   **10**

         OR

3. a) Explain the V-I characteristic of a P-N diode.   **5**

    b) Discuss the Tunneling Phenomenon, characteristics and advantages of a Tunnel diode.   **15**

P.T.O.

4. a) Describe the small signal analysis of CE configuration. **8**

   b) Give a detailed analysis of Voltage divider bias CE Configuration using hybrid model. **12**

OR

5. a) Discuss the construction and characteristics of JFET. **15**

   b) Describe the characteristics of p-channel enhancement MOSFET. **5**

6. a) Derive the voltage gains of both inverting and non-inverting amplifiers using Op-Amp. **10**

   b) Define bias current and offset voltage of Op-Amp and describe offset voltage compensation circuits. **10**

OR

7. a) Describe the working of Op-Amp based Integrator and differentiator circuits. **12**

   b) Mention advantage of active filter and discuss the design and working of the first order Butterworth low pass filter. **8**

_____