



University of Engineering & Management, Kolkata

1st Term Examination, September, 2022

Programme Name: B.Tech (CSE / CSE(AI ML) / CSE(IOT, CYS, BCT))

Semester: 3rd

Course Name: Analog Electronic Circuits

Course Code: ESC301

Full Marks: 30

Date: 20th September, 2022

Time: 9.30am - 10.30am

GROUP – A (10 marks)

Answer the following questions. Each question is of 2 marks

5 x 2 = 10

1. i) Define Operational Amplifier.
- ii) Mention few applications of Operational Amplifier
- iii) State the Characteristics of ideal Operational Amplifier
- iv) Define Q Point of a Transistor.
- v) Explain the parameter h_{12} of hybrid parameters.

GROUP – B (10 marks)

Answer the following questions. Each question is of 5 marks

2 x 5 = 10

2. Draw the circuit diagram of an Op-amp of an inverting amplifier and derive the expression of the voltage gain.
3. Explain the CE mode operation of a Transistor and find out the equation for gain and current in a NPN Transistor.

GROUP - C (10 Marks)

Answer the following question. The question is of 10 marks

1 x 10 = 10

4. A) Draw the circuit diagram of Op-amp integrator and derive the expression of its output voltage.
- B) Calculate output voltage of an Op-Amp for input voltage $V_{i1}=150\mu V$, $V_{i2}=140\mu V$, differential gain $A_d=4000$ and $CMRR=100$.

(5+5)
