

4. Draw the circuit diagrams of the differentiator and integrator using OPAMP and find the expression of the output voltages. 5+5
5. (a) What is differential amplifier? 2
(b) Discuss transfer characteristic of a differential amplifier. 8
6. With a neat sketch, describe the construction of an n-channel JFET. Explain its principle of operation. 10
7. Write the short notes on
(i) Depletion MOSFET
(ii) Enhancement MOSFET 5+5
8. Write the short notes on
(i) RC Phase Shift Oscillators
(ii) Wien Bridge Oscillators 5+5

B. Tech Odd Semester Examination, February, 2023**Electronics & Communication Engineering**

(3rd Semester)

Course No.: ASH-305

(Basic Electronics)*Full Marks: 50**Pass Marks: 25**Time: 2 hours*

- Note:**
1. Attempt any five questions.
 2. Begin each answer in a new page.
 3. Answer parts of a question at a place.
 4. Assume reasonable data wherever required.
 5. The figures in the right margin indicate full marks for the question.
 6. All the mathematical symbols and abbreviations have their usual meanings.

1. Write the short notes on
(i) Avalanche Breakdown
(ii) Zener Breakdown 5+5
2. (a) Discuss the transistor characteristics for common emitter configuration. 7
(b) Draw the output characteristics curve of a transistor of common emitter configuration and define active and cut-off region. 3
3. (a) What is OPAMP? Give the circuit symbol of an OP AMP with a mention of the inverting and noninverting inputs. 2+2
(b) Write six characteristics of an ideal OPAMP 6