



A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE
(AUTONOMOUS) (Grant-in-Aid)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Bachelor of Science (Semester - 4)
External Examination – 2026
US04MIELE01: Transistor Circuits

Date: 27-03-2026, Friday

Time: 01:45 pm to 03:15 pm

Total marks: 25

Note: - Figures on the right indicates marks.

Q.1 Choose the correct answer (Attempt all) (05)

- (1) The ratio of the number of electrons arriving at the collector to the no of electrons emitted is called _____.
(A) Base transportation factor. (B) Base efficiency.
(C) Collector transportation factor. (D) Collector efficiency.
- (2) Input resistance of common collector configuration is _____.
(A) Zero. (B) Low.
(C) Very high. (D) None of above.
- (3) To bias NPN transistor for active operation, the emitter-base junction must be in ____ bias condition.
(A) Reverse (B) Forward
(C) Unbiased (D) None of above
- (4) The potential-divider method of biasing is used in amplifiers to _____.
(A) Keep Q point independent of β . (B) Reduce the base current.
(C) Limit the input ac signal. (D) Reduce cost of circuit.
- (5) Where the Q point (Operating Point) in a voltage amplifier circuit is selected?
(A) In cut off region. (B) In active region
(C) In saturation region. (D) Near saturation region.

Q.2 Draw the input and output characteristics for CE configuration and explain it in details. (10)

OR

Q.2 Explain how a transistor works as an amplifier with necessary diagrams. (10)

Q.3 Draw the voltage divider biasing circuit and using approximate analysis derive its operating point. (10)

OR

Q.3 Draw the fixed bias circuit using two battery and one battery and derive an expression for the operating point. (10)

