

**NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY,**

|                                 |   |            |                |
|---------------------------------|---|------------|----------------|
| <b>Course/Branch</b> : B.E/ ECE | <b>Year / Semester</b> : II/III               | Format No. | NAC/TLP-07a.13 |
| <b>Subject Code</b> : EC8351    | <b>Subject Name</b> : Electronic Circuits - I | Rev. No.   | 02             |
| <b>Unit No</b> 2                | <b>Unit Name</b> : BJT Amplifiers             | Date       | 30.09.2020     |

**OBJECTIVE TYPE QUESTION BANK**

| <b>S. No.</b> | <b>Objective Questions (MCQ /True or False / Fill up with Choices )</b>   | <b>BTL</b> |
|---------------|---|------------|
| 1             | Which of the following condition is true for cut-off mode?<br><br><b>A) The Collector Current Is Zero</b><br>B) The Collector Current Is Proportional To The Base Current<br>C) The Base Current Is Non Zero<br>D) All Of The Mentioned   | L4         |
| 2             | Which of the following is true for the cut-off region in an npn transistor?<br><br>A) Potential Difference Between The Emitter And The Base Is Smaller Than 0.5V<br><b>B) Potential Difference Between The Emitter And The Base Is Smaller Than 0.4V</b><br>C) The Collector Current Increases With The Increase In The Base Current<br>D) The Collector Current Is Always Zero And The Base Current Is Always Non Zero | L4         |
| 3             | Which of the following is true for the active region of an npn transistor?<br><br>A) The Collector Current Is Directly Proportional To The Base Current<br>B) The Potential Difference Between The Emitter And The Collector Is Less Than 0.4 V<br><b>C) All Of The Mentioned</b><br>D) None Of The Mentioned   | L4         |
| 4             | Which of the following is true for the saturation region of BJT transistor?<br><br>A) The Collector Current Is Inversely Proportional To The Base Current<br><b>B) The Collector Current Is Proportional To The Square Root Of The Collector Current</b><br>C) The Natural Logarithm Of The Collector Current Is Directly Proportional To The Base Current<br>D) None Of The Mentioned                                  | L4         |
| 5             | Which of the following is true for a pnp transistor in active region?<br><br><b>A) CB Junction Is Reversed Bias And The EB Junction Is Forward Bias</b><br>B) CB Junction Is Forward Bias And The EB Junction Is Forward Bias<br>C) CB Junction Is Forward Bias And The EB Junction Is Reverse Bias<br>D) CB Junction Is Reversed Bias And The EB Junction Is Reverse Bias  | L4         |
| 6             | The curve between the collector current versus the potential difference between the base and emitter is<br><br>A) A Straight Line Inclined To The Axes<br>B) A Straight Line Parallel To The X-Axis   | L4         |

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|    | <p><b>C) An Exponentially Varying Curve</b><br/> <b>D) A Parabolic Curve</b></p>   |    |
| 7  | <p>The Early Effect is also called as</p> <p><b>A) Base-Width Modulation Effect</b><br/> <b>B) Base-Width Amplification Effect</b><br/> <b>C) Both Of The Mentioned</b><br/> <b>D) None Of The Mentioned</b></p>   | L4 |
| 8  | <p>For the BJT to operate in active mode Collector-Base junction must be</p> <p>A) Heavily Doped<br/> <b>B) Must Reversed Bias</b><br/>         C) Must Be Forward Bias<br/>         D) Lightly Doped</p>  | L4 |
| 9  | <p>Comparing the size of BJT and FET, choose the correct statement?</p> <p><b>A) BJT Is Larger Than The FET</b><br/> <b>B) BJT Is Smaller Than The FET</b><br/> <b>C) Both Are Of Same Size</b><br/> <b>D) Depends On Application</b></p>  | L4 |
| 10 | <p>For a FET when will maximum current flows?</p> <p>A) <math>V_{gs} = 0V</math><br/> <b>B) <math>V_{gs} = 0v</math> And <math>V_{ds} \geq  V_p </math></b><br/>         C) <math>V_{DS} \geq  V_p </math><br/>         D) <math>V_p = 0</math></p>  | L4 |
| 11 | <p>To use FET as a voltage controlled resistor, in which region it should operate?</p> <p><b>A) Ohmic Region</b><br/> <b>B) Cut Off</b><br/> <b>C) Saturation</b><br/> <b>D) Cut Off And Saturation</b></p>  | L4 |
| 12 | <p>The action of JFET in its equivalent circuit can be represented as which of the following?</p> <p>A) Current Controlled Current Source<br/>         B) Current Controlled Voltage Source<br/> <b>C) Voltage Controlled Current Source</b><br/>         D) Voltage Controlled Voltage Source</p> | L4 |

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| 13 | <p>Which of the following is the main advantage of Self bias?</p> <p><b>A) Eliminates The Need Of Two Power Supply</b><br/>                 B) Maximum Stability<br/>                 C) Minimum Stability<br/>                 D) Maximum &amp; Minimum Stability</p>   | L4 |
| 14 | <p>What is pinch off voltage?</p> <p>A) The Minimum Voltage Required To Turn On The FET<br/>                 B) The Maximum Voltage A FET Can Withstand<br/>                 C) Current Amplification Factor/Voltage Gain<br/> <b>D) The Value Of Voltage At Which The Current Gets Pinched To Zero</b></p>  | L4 |
| 15 | <p>What will happen if gate voltage applied is positive to pinch off voltage?</p> <p><b>A) Device Burns</b><br/>                 B) More Current Flows<br/>                 C) Nothing Happens<br/>                 D) Current Remains The Same</p>  | L4 |
| 16 | <p>How does a FET behave when the v-I characteristics are to the left of pinch off for an n channel FET?</p> <p><b>A) Voltage Controlled Resistor</b><br/>                 B) Amplifier<br/>                 C) Switch<br/>                 D) Diode</p>   | L4 |
| 17 | <p>The MOSFET combines the areas of _____ &amp; _____</p> <p><b>A) Field Effect &amp; MOS Technology</b><br/>                 B) Semiconductor &amp; TTL<br/>                 C) Mos Technology &amp; CMOS Technology<br/>                 D) None Of The Mentioned</p>  | L4 |
| 18 | <p>Choose the correct statement</p> <p>A) MOSFET Is A Unipolar, Voltage Controlled, Two Terminal Device<br/>                 B) MOSFET Is A Bipolar, Current Controlled, Three Terminal Device<br/> <b>C) MOSFET Is A Unipolar, Voltage Controlled, Three Terminal Device</b><br/>                 D) MOSFET Is A Bipolar, Current Controlled, Two Terminal Device</p> | L4 |

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| 19 | <p>The arrow on the symbol of MOSFET indicates</p> <p>A) That It Is A N-Channel MOSFET<br/> <b>B) The Direction Of Electrons</b><br/>                 C) The Direction Of Conventional Current Flow<br/>                 D) That It Is A P-Channel MOSFET</p>  | L4 |
| 20 | <p>In the transfer characteristics of a MOSFET, the threshold voltage is the measure of the</p> <p><b>A) Minimum Voltage To Induce A N-Channel/P-Channel For Conduction</b><br/>                 B) Minimum Voltage Till Which Temperature Is Constant<br/>                 C) Minimum Voltage To Turn Off The Device<br/>                 D) None Of The Above Mentioned Is True</p>  | L4 |
| 21 | <p>The output characteristics of a MOSFET, is a plot of</p> <p>A) <math>I_d</math> As A Function Of <math>V_{gs}</math> With <math>V_{ds}</math> As A Parameter<br/> <b>B) <math>I_d</math> As A Function Of <math>V_{ds}</math> With <math>V_{gs}</math> As A Parameter</b><br/>                 C) <math>I_g</math> As A Function Of <math>V_{gs}</math> With <math>V_{ds}</math> As A Parameter<br/>                 D) <math>I_g</math> As A Function Of <math>V_{ds}</math> With <math>V_{gs}</math> As A Parameter</p> | L4 |
| 22 | <p>Consider an ideal MOSFET. If <math>V_{gs} = 0V</math>, then <math>I_d = ?</math></p> <p><b>A) Zero</b><br/>                 B) Maximum<br/>                 C) <math>I_{d(On)}</math><br/>                 D) <math>I_{dd}</math></p>   | L4 |
| 23 | <p>For a MOSFET <math>V_{gs}=3V</math>, <math>I_{dss}=5A</math>, and <math>I_d=2A</math>. Find the pinch of voltage <math>V_p</math></p> <p>a) 4.08<br/> <b>b) 8.16</b><br/>                 c) 16.32<br/>                 d) 0V</p>   | L4 |
| 24 | <p>The N-channel MOSFET is considered better than the P-channel MOSFET due to its</p> <p>A) Low Noise Levels<br/>                 B) TTL Compatibility<br/>                 C) Lower Input Impedance<br/> <b>D) Faster Operation</b></p>   | L4 |

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| 25 | IGBT possess<br><br>A) Low Input Impedance<br><b>B) High Input Impedance</b><br>C) High On-State Resistance<br>D) Second Breakdown Problems   | L4 |
| 26 | In IGBT, the p <sup>+</sup> layer connected to the collector terminal is called as the<br><br>A) Drift Layer<br><b>B) Injection Layer</b><br>C) Body Layer<br>D) Collector Layer  | L4 |
| 27 | The voltage blocking capability of the IGBT is determined by the<br><br>A) Injection Layer<br>B) Body Layer<br>C) Metal Used For The Contacts<br><b>D) Drift Layer</b>  | L4 |
| 28 | The structure of the IGBT is a<br><br>A) P-N-P Structure Connected By A MOS Gate<br>B) N-N-P-P Structure Connected By A MOS Gate<br>C) P-N-P-N Structure Connected By A MOS Gate<br><b>D) N-P-N-P Structure Connected By A MOS Gate</b>     | L4 |
| 29 | In case of the UJT firing circuit, when the UJT turns on<br><br>A) The Capacitor Starts To Charge<br><b>B) The Capacitor Starts To Discharge</b><br>C) The Capacitor Remains Unaffected<br>D) There Is No Capacitor In A UJT Firing Circuit | L4 |
| 30 | In the UJT firing circuit, the pulses are generated while the<br><br>A) Capacitor Charges<br><b>B) Capacitor Discharges</b><br>C) Capacitor Voltage Is Zero<br>D) There Is No Capacitor In A UJT Firing Circuit                             | L4 |

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| 31 | Which terminal does not belong to the SCR?<br><br>A) Anode<br>B) Gate<br><b>C) Base</b><br>D) Cathode  | L4 |
| 32 | In the SCR structure the gate terminal is located<br><br>A) Near The Anode Terminal<br><b>B) Near The Cathode Terminal</b><br>C) In Between The Anode & Cathode Terminal<br>D) None Of The Mentioned   | L4 |
| 33 | The static V-I curve for the SCR is plotted for<br><br>A) $I_a$ (Anode Current) Vs $I_g$ (Gate Current), $V_a$ (Anode – Cathode Voltage) As A Parameter<br><b>B) <math>I_a</math> Vs <math>V_a</math> With <math>I_g</math> As A Parameter</b><br>C) $V_a$ Vs $I_g$ With $I_a$ As A Parameter<br>D) $I_g$ Vs $V_g$ With $I_a$ As A Parameter | L4 |
| 34 | The DIAC can be represented by<br><br>A) Two Scrs In Anti-Parallel<br>B) Two Scrs In Parallel<br><b>C) Two Diodes In Anti-Parallel</b><br>D) Two Diodes In Parallel  | L4 |
| 35 | The TRIAC can be represented by<br><br><b>A) Two Scrs In Anti-Parallel</b><br>B) Two Scrs In Parallel<br>C) Two Diodes In Anti-Parallel<br>D) Two Diodes In Parallel   | L4 |
| 36 | With the anode positive with respect to the cathode & the gate circuit open, the SCR is said to be in the<br><br>A) Reverse Blocking Mode<br>B) Reverse Conduction Mode<br><b>C) Forward Blocking Mode</b><br>D) Forward Conduction Mode   | L4 |

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| 37 | <p>For an SCR in the forward blocking mode (practically)</p> <p>A) Leakage Current Does Not Flow<br/> <b>B) Leakage Current Flows From Anode To Cathode</b><br/>                 C) Leakage Current Flows From Cathode To Anode<br/>                 D) Leakage Current Flows From Gate To Anode</p>  | L4 |
| 38 | <p>The forward break over voltage is the</p> <p>A) Anode-Cathode Voltage At Which Conduction Starts With Gate Signal Applied<br/> <b>B) Anode-Cathode Voltage At Which Conduction Starts With No Gate Signal Applied</b><br/>                 C) Gate Voltage At Which Conduction Starts With No Anode-Cathode Voltage<br/>                 D) Gate Voltage At Which Conduction Starts With Anode-Cathode Voltage Applied</p> | L4 |
| 39 | <p>For a forward conducting SCR device, as the forward anode to cathode voltage is increased</p> <p>A) The Device Turns On At Higher Values Of Gate Current<br/> <b>B) The Device Turns On At Lower Values Of Gate Current</b><br/>                 C) The Forward Impedance Of The Device Goes On Increasing<br/>                 D) The Forward Impedance Of The Device Goes On Decreasing</p>                              | L4 |
| 40 | <p>Usually the forward voltage triggering method is not used to turn-on the SCR because</p> <p>A) It Increases Losses<br/>                 B) It Causes Noise Production<br/> <b>C) It May Damage The Junction &amp; Destroy The Device</b><br/>                 D) Relatively It's An Inefficient Method</p>   | L4 |