1. The barrier voltage for germanium is 25degree
   Ans: 0.3 v
2. Reverse saturation current…. For every 10 degree rise in temperature
   Ans: Doubles
3. The center tapped full wave rectifiers efficiency is
   Ans: 81.2%
4. TUF for a half wave rectifier and center tapped full wave rectifier is ---- and respectively.
   Ans: 28.6%, 57.2%
5. The rectifier efficiency of a half-wave rectifier is if the input power to the rectifier is150 Wand output power is50W.
   Ans: 33.33%
6. If input frequency is 100Hz for a half-wave rectifier, the ripple frequency of it would be.
   Ans: 100Hz
7. The ripple factor for a half-wave rectifier without filter is.
   Ans: 1.21
8. Which type of impurity is to added to a pure semi-conductor to get an n-type semiconductor?
   Ans: Pentavalent impurity
9. The process of adding pentavalent and trivalent impurities to a pure semiconductor is called:
   Ans: Doping
10. Which of the following materials has large number of free electrons in it?
    Ans: Conductors
11. In an intrinsic semiconductor there are
    Ans: Equal number of free electrons and holes
12. Which of the following has the highest mobility
    Ans: Electron
13. The temperature co-efficient of an intrinsic semiconductor is–
    Ans: Negative
14. Which of the following is tetravalent?
    Ans: Germanium
15. The minority carrier concentration is largely a function of
    Ans: Temperature
16. Which of the following element belongs to the same group of periodic tables as that of silicon and lead?
    Ans: Carbon
17. Which of the following materials is a semiconductor?
    Ans: Selenium
18. If an atom losses one or more electrons, it becomes.....
    Ans: Electrically positive
19. Fermi energy level for n-type extrinsic semiconductors lies.....
    Ans: Close to conduction band
20. In a semiconductor, the resistivity
    Ans: Depends on temperature
21. To prepare a P-type semiconducting material the impurities to be added to silicon are?
    Ans: Boron, Gallium
22. The impurity added to extrinsic semiconductors is of the order of
    Ans: 1 in million
23. The number of valence electrons of P and Si are respectively?
    Ans: 5 and 4
24. Which one of the following material has lowest resistivity?
    Ans: Conductors
25. When an electron is removed from an atom, it becomes
    Ans: ionized
26. The donor type of impurity is
    Ans: Phosphorous
27. Which of the following is a trivalent?
    Ans: All options are correct
28. What is the resultant charge in a body whenever the number of protons equal the number of electrons in it?
    Ans: Zero charge
29. The basic shift register operation is :
    Ans: All options are correct
30. The electrons in the outer most orbit of an atom are known as:
    Ans: Valence electrons
31. The number of valence electron in boron is…..
    Ans: 3
32. The plate current in a triode can be controlled by controlling……..
    Ans: Grid voltage
33. The conductivity of silicon can be expected around:
    Ans: $0.5\square 10^{-3} S/m$
34. A p-type semiconductor is
    Ans: Uncharged

35. The drift velocity of electrons, in silicon.....
Ans: Increases linearly with electric field at low values of electric field and gradually saturates at higher values of electric field
36. Resistivity of a semiconductor depends on.....
Ans: The atomic nature of the semiconductor
37. A germanium atom contains.....
a) Four valence electrons
38. A hole is the vacancy created when.....
Ans: An electron breaks its covalent band
39. For bidden energy gap between valence band and conduction band is least in the case of.....
Ans: Impure silicon
40. Donor impurity atom in a semiconductor result in new.....
Ans: Discrete energy level just below conduction level
41. In a semiconductor, movement of charge carriers under influence of an electric field is called.....
Ans: Drift
42. In pure silicon, major part of the drift current is due to free electrons because.....
Ans: Mobility of electrons is greater than the mobility of holes
43. Semiconductor may be made n-type by adding donor impurity.....
Ans: During crystal pulling
44. Resistivity measurements are often used to determine:
Ans: Carrier concentration in extrinsic semiconductor
45. In Ge, when atoms are held together by the sharing of valence electrons:
Ans: Valence electrons form reversible covalent bonds
46. In a pure semiconductor, electric current is due to:
Ans: Both holes and electrons
47. Accept or impurity atoms in a semiconductor result in new :
Ans: Discrete energy level just above valence level
48. A n-type semiconductor is:
Ans: Electrically neutral
49. When a free electron is recaptured by a hole, the process is called:
Ans: Recombination
50. At room temperature intrinsic carrier concentration is higher in germanium than in silicon because:
Ans: Energy gap in Ge is smaller than in Si
51. Epitaxial grow this best suited for growing:
Ans: Very thin single crystal layer on a substrate
52. Which particles act as a current carrier in a metallic conductor?
Ans: Only electrons
53. The donor atoms in an N-type semi-conductor at normal temperature:
Ans: Carry a positive charge
54. Consider a single crystal of an intrinsic semiconductor. The number of free carriers at the fermi level at room temperature is:
Ans: Half the number of free electrons in the crystal
55. When an electric current flows through a conductor, its temperature rises. This is because of.....
Ans: Collisions between conduction electrons and atoms
56. An electron device means the device in which the conduction of electrons takes place through.....
Ans: Gas, vacuum, semiconductor
57. Which of the following impurity is to be added in pure germanium to obtain p type semiconductor
Ans: Gallium
58. In silicon energy must be supplied to push the electron from valance band to conduction band.
Ans: 1.1 eV
59. Germanium Behaves as an insulator at temperature of
Ans: 0 K
60. Which of the following statement sis FALSE about LED lamps?
Ans: An LED is doped with silicon and germanium like all semiconductor devices
61. For a germanium diode having a forward current of 10 mA and 30ns as charge carrier transit time, the diffusion capacitance is.
b) 1 nF

62. The diffusion capacitance for a silicon diode with 20 mA forward current, if the charge carrier transit time is 70ns, is.
Ans: 2 nf

63. What is the number of diodes used in a bridge rectifier, full wave rectifier and half wave rectifier respectively?
Ans: 4, 2, 1

64. The value of form factor and ripple factor of a half wave rectifier are and respectively.
Ans: 1.57, 1.21

65. Choose the INCORRECT statement with regard to a forward biased pn diode.
Ans: The potential barrier is constant irrespective of magnitude of the applied voltage.

66. The potential barrier existing across pn junction.
Ans: Prevents flow of minority carriers

67. The diffusion potential across a p-n junction:
Ans: Increase with increase in doping concentrations

68. As compared to a full-wave rectifier using two diodes, the four diode bridge rectifier has the dominant advantage of:
Ans: Lower peak inverse voltage requirement

69. Frequency multiplication by a resistor can be achieved, if:
Ans: It is a diode

70. Applications of precision diode are:
i. Half wave rectifier
ii. Peak detector
iii. Window detector
Ans: i, & ii

71. A device having characteristics very close to that of an ideal voltage source is.....
Ans: Zener diode

72. For the rm ionic emission.....
Ans: A material with low work function is Preferable

73. A photo cell is illuminated by a small bright source placed 1 meter away. When the same source of light is placed two meters away, the electrons emitted by the photo cathode.....
Ans: Are one–quarter as numerous

74. The depletion region of PN junction is consist of:
c) IM Mobile charge

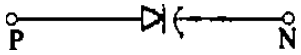
75. Which of the following terms is NOT associated With diodes?
Ans: Gate

76. Which of the following devices is used in voltage limiters as a fixed reference voltage in the network?
Ans: Zener diode

77. Transistor when working in the saturation region acts as and in the cut off region acts as.
Ans: Closed switch; open switch

78. Which of the following is used with a photo meter for the conversion of light into electric current?
Ans: Photo diode

79. Identify the device in the following symbol.



Ans: Varactor diode

80. Which of the following diode is also known as a volt cap or 'voltage-variable' 'capacitor diode'?
Ans: Varactor diode

81. The Ebers-Moll model is applicable to-
Ans: Bi polar junction transistors

82. In which of the following amplifier configurations, The power gain is the largest?
Ans: Common-Emitter

83. In an electronic circuit transistor is used for switching ON and OFF a relay, when the transistor switches OFF the relay, a higher voltage appears across the transistor. How can a transistor be protected from this voltage?
Ans: A diode parallel to the relay

84. For active region operation of NPN transistor
Ans: Emitter is negative with respect to base

85. The operating point is also called the:
Ans: Quiescent point

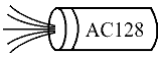
86. Transistor can be used to:
Ans: All options are correct

87. β gain of the transistor signifies:
Ans: Amplification capability of the transistor

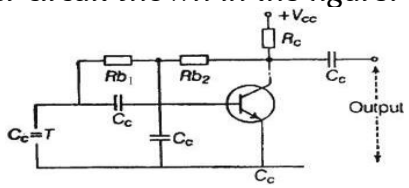
88. In a vacuum tetrode secondary emission is because of emission of.....
Ans: Electrons from the plate due to bombardment of the fast moving electrons emitted from the cathodes

89. For normal operation of a transistor, the collector-base junction is–
Ans: Always reverse biased

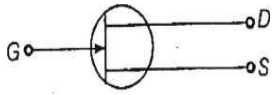
90. The disadvantage of base resistor method of transistor biasing is that it
Ans: Is sensitive to changes in beta (β)
91. To operate properly a transistor's base-emitter junction must be forward biased with reverse bias applied to which junction?
Ans: Base-collector
92. With the positive probe on an NPN base, an ohm meter reading between the other transistor terminals should be?
Ans: Low resistance
93. A transistor can be made to operate as a switch by operating it in which of the following regions?
Ans: Saturation region, cut-off region
94. If the temperature increases, the value of V_{BE}
Ans: Is decreased
95. In the figure below you see an electronic component. Which type of electronics component is shown in the figure?



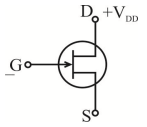
Ans: Low power transistor
96. A transistor consists of.....
Ans: Two p-n junction
97. For normal operation of a transistor, the collector-base junction is–
Ans: Always reverse biased
98. ∝ -Cut off frequency of bipolar junction transistor increase:
Ans: With the decrease in base width
99. What is the characteristics of an ideal voltage amplifier with respect to the input and output impedance?
Ans: High input and low output impedance
100. The collector circuit in a transistor amplifier circuit is.....
Ans: Reverse bias at all times
101. Which of the following circuit is mostly used as an amplifier
Ans: Common emitter circuit because it has high voltage and current gain
102. What is the method of biasing used in the amplifier circuit shown in the figure?



Ans: Collector to base bias
103. For n-JFET, the channel is a/an channel and gates are.
Ans: N type; P type
104. In an E-MOSFET, the surface is coated with.
Ans: Silicon dioxide
105. JFET is a/an device.
Ans: Unipolar
106. What kind of device is Field Effect Transistor?
Ans: Unipolar semiconductor
107. AFET is essentially a
Ans: Voltage driven device
108. Figure represents a



Ans: Junction field effect transistor
109. Identify the device based on the given symbol



Ans: N-channel JFET
110. Choose the correct statement when $V_{GS} = 0$ and $V_{DS}=0$ in a JFET.
Ans: The depletion regions around the p-n junctions are equal in thickness and symmetrical.
111. The threshold voltage of an n-channel MOSFET can be increased by.....
Ans: Reducing the gate oxide thickness
112. The transit time of the current carriers through the channel of an FET decides its .....characteristics:
Ans: Switching
113. An amplifier is used to obtain
Ans: An increased voltage, current or power of an input signal
114. The function of the emitter by pass capacitor in CE amplifier is
Ans: Provide a low resistance path for the AC signals
115. The current gain of common base amplifier is
Ans: Less than 1
116. What is the characteristics of common collector configuration amplifier with respect to the input and output impedance?
Ans: High input and low output impedance
117. The gain of a CE amplifier is highest at
Ans: Mid frequencies

118. The efficiency of the class B amplifier is Approximately?
Ans: 70% to 100%

119. The circuit that provides the best stabilization of operating point is:
Ans: Potential divider bias

120. The circuit that would be used for 455kHz, if amplifier is:
Ans: Double tuned transformer

121. NPN and PNP are types of:
Ans: Transistors

122. Input resistance of a common emitter transistor of the order of
Ans: 1 kΩ

123. In Bipolar Junction Transistors, the type of configuration which will give both voltage gain and current gain is:
Ans: CE

124. What is the position of the input and output signals of CE amplifier?
Ans: 180^0 out of phase

125. The CE amplifier Is most commonly used because of…….
Ans: More power gain

126. What is the range of an FET's input impedance?
Ans: 1 MΩ to 100 MΩ

127. An amplifier has a gain of 10,000 expressed in decibels the gain is?
Ans: 40

128. In an RC coupled amplifier, low frequency response is improved with
Ans: Less gain

129. The type of circuit that does not need a coupling capacitor is
Ans: Transformer coupled

130. A semiconductor has a band gap of 2 eV. The wavelength of radiation emitted from the semiconductor when electrons and holes recombine is……
Ans: 625 nm

131. In an RC-coupled common emitter amplifier:
Ans: Both coupling and bypass capacitance affect the le response only

132. Class-A transformer coupled, transistor power amplifier is required to deliver a power output of 10 watts. The maximum power rating of the transistor should not be less than :
Ans: 20W

133. Class AB operation is often used in power (large signal) amplifiers in order to……
Ans: Overcome a crossover distortion

134. _____is the dominant form of distortion produced by the simple push-pull amplifier:
Ans: Crossover distortion

135. The advantage of negative feedback is
Ans: All of the above

136. Which of the following methods can result in a square waveform?
Ans: Multi vibrators

137. A tank circuit consists of
Ans: A pure inductance and a pure capacitance connected in parallel

138. An oscillator uses-
Ans: Positive feedback

139. The output time period of a transistorised mono-stable multi-vibrator using base resistor Rb and coupling Ct for the output transistor is given by
Ans: 0.69 RbCb

140. A current mirror can be used as an active load because…..
Ans: It has high AC resistance

141. In general, if a sine wave is fed into a Schmitt trigger, the output will be
Ans: A square wave

142. A special case of non-inverting amplifier in which all of the output voltage is fed back to the inverting input of the op-amp is called:
Ans: Voltage follower

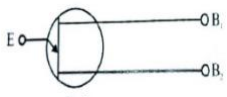
143. Silicon has a preference in IC technology because?
Ans: Of the availability of nature oxide SiO2

144. The number of slip rings of a single-phase and a three-phase converter are respectively……
Ans: 2 and 6

145. A switched mode power supply operating at 20kHz to 100kHz range uses as the main switching element is :
Ans: MOSFET

146. Which of the following is NOT a disadvantage of the direct laying method?
Ans: Heat can be dissipated easily

147. Figure given below represents a



Ans: Unijunction transistor

148. Which one of the following is used as an active device in electronic circuits?
Ans: SCR

149. Which of the following diodes is a PNPN device with two terminals
Ans: Light emitting diode

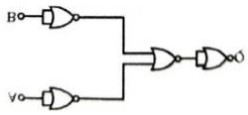
150. TRIAC is equivalent to
Ans: Two SCRs connected in parallel

151. 4F2D is a/an number
Ans: Octal

152. In the below circuit, X=?

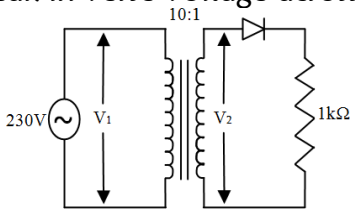
Ans: A.B

153. The output of logic circuit given below represents



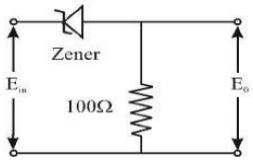
Ans: NAND

154. An AC supply of 230 V is applied to half-wave rectifier through transformer of turns ratio 10 : 1 as shown in figure. Determine the peak in verse voltage across the diode.



Ans: 32.5V

155. Find the output voltage of the given network if E_{in} = 6 V and the Zener breakdown voltage of the Zener diode is10V.



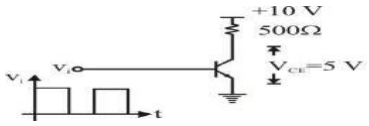
Ans: 0 V

156. LED lamp average a life expectancy of:
Ans: 50000 hrs

157. The output resistance (inkΩ)of a common base transistor, circuit is of the order of :
Ans: None of these

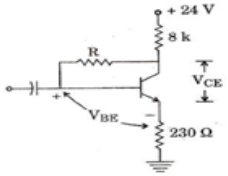
158. A transistor has a current gain of 0.99 in common base mode. Its current gain in common emitter mode is
Ans: 99

159. The switching transistor as shown, carries in the collector side an rms current of 8 mA. If the frequency of rectangular pulse train v_i is 50 Hz, then on-time of the transistor is



Ans: 12.8ms

160. If the transistor having V_{CE}=5V, V_{BE}=0.7V has kΩ=45, value of R is



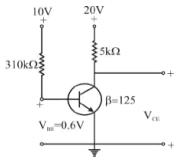
Ans: 85.64kΩ

161. In a CE (Common Emitter) transistor, V_{CC}= 12 V and the zero signal collector current is 1 mA. Determine the operating point when collector load ($R_{ANS:}$ is 6kΩ
Ans: 6 V, 1 mA

162. For a certain transistor , β=50.Find the value of ∝.
Ans: 0.98

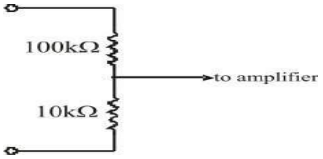
163. Calculate the value of emitter current for a transistor with $\propto_{dc}$ = 0.98, I_{CBO} = 5μA and I_B =95μA.
Ans: 5 mA

164. A transistor is operating in common emitter mode as shown in figure given below. The voltage V_{CF} is.....



Ans: 1.05V

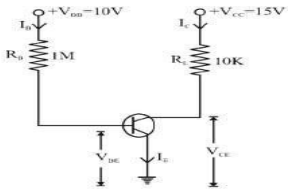
165. An altenuator probe as shown ,is connected to an amplifier of input capacitance 0.1 μF. Value of C that must be connected across 100kμ to make the overall gain independent of frequency, is



Ans: 0.01 μF

166. A transistor connected in a common base configuration has the following readings: I_E = 2mAandI_B =20[]A, Find the current gain .
Ans: 0.99

167. Find the approximate collector current in the given transistor circuit. (Take current gain, □=100)



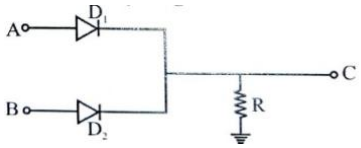
Ans: 1 mA

168. A delayed full-wave rectified sinusoidal current has an average value equal to one-third is maximum value. Find the delay angle.
Ans: Cos¹ 0.047

169. 2's complement of the number of 1010101 is
Ans: 0101011

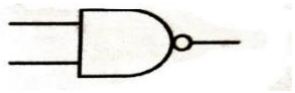
170. In Excess-3 code the 4-bit group that is used is
Ans: 0011

171. Which of the following logical operations could be computed by the given network?



Ans: C=A+B

172. The standard 2-input TTL gate for the below shown electrical symbol is



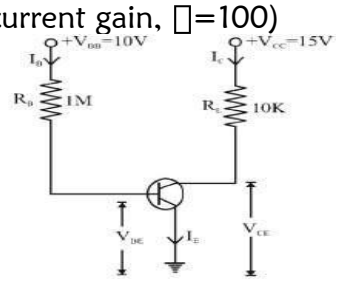
Ans: 7400

173. If the range of an analog transducer is 0 to 10V, then for a resolution of 5mV, the bits of ADC will be.....
Ans: 11

174. In Boolean algebra (A.**ANS:** + A = ?
Ans: A

175. 160 A transistor connected in a common base configuration has the following readings: I_E = 2mAandI_B =20□A, Find the current gain.
Ans: 0.99

176. Find the approximate collector current in the given transistor circuit.
(Take current gain, □=100)



Ans: 1 mA

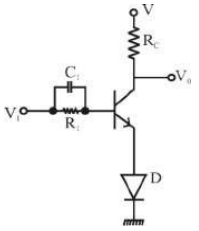
177. For a CE configuration, the transistor supplyvoltageis12V.Theloadresistanceis900Ω.The voltage drop across load resistance is 0.9V.The value of collector-emitter voltage is_____
Ans: 11.1V

178. The gain of a CE amplifier is highest at
Ans: Mid frequencies

179. The efficiency of the class B amplifiers Approximately?
Ans: 70%to100%

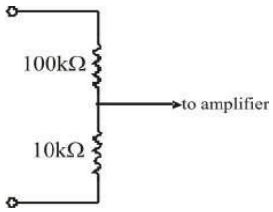
180. The input impedance of an amplifie ris:
Ans: V_{in}/ I_{in}

181. In the given circuit the function of the diode D is



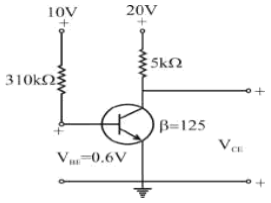
Ans: To protect the base-emitter junction

182. An attenuator pro beas shown, is connected to an amplifier of input capacitance 0.1 μF. Value of C that must be connected across 100kμ to make the overall gain independent of frequency, is



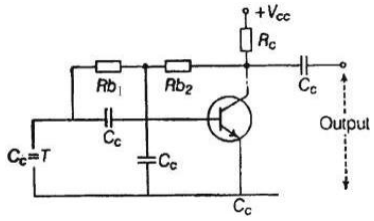
Ans: 0.01 μF

183. A transistor is operating in common emitter mode as shown in figure given below. The voltage V_{CF} is.....



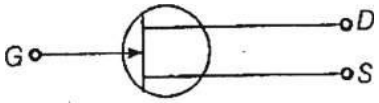
Ans: 1.05V

184. What is the method of biasing used in the amplifier circuit shown in the figure?



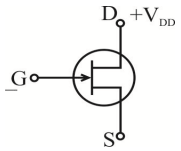
Ans: Collect or to base bias

185. Figure represent



Ans: Junction field effect transistor

186. Identify the device based on the given symbol.



Ans: N-channel JFET

187. Choose the correct statement when V_{GS} = 0 and V_{DS}=0 in a JFET.

Ans: The depletion regions around the p-n junctions are equal in thickness and symetrical

188. The threshold voltage of an n-channel MOSFET can be increased by.....

Ans: Reducing the gate oxide thickness

189. The transit time of the current carriers through the channel of an FET decides its ..... characteristics:

Ans: Switching