Ravi home tutions

12th Standard

Physics

Total Marks: 970

Multiple Choice Question 314 x 1 = 314

Q1.The barrier potential of a silicon diode is approximately, _____.

(a) 0.7 V (b) 0.3 V (c) 2.0 V (d) 2.2 V

Q2.If a small amount of antimony (Sb) is added to germanium crystal,_____.

(a) it becomes a p-type semiconductor

(b) the antimony becomes an acceptor atom

(c) there will be more free electrons than hole in the semiconductor

(d) its resistance is increased

Q3.A forward biased diode is treated as _____.

(a) An open switch with infinite resistance

(b) A closed switch with a voltage drop of 0V

(c) A closed switch in series with a battery voltage of 0.7V

(d) A closed switch in series with a small resistance and a battery

Q4.If a positive half-wave rectified voltage is fed to a load resistor, for which part of a cycle there will be current flow through the load?

(a) 0^0–90^0 (b) 90^0–180^0 (c) 0^0–180^0 (d) 0^0–360^0

Q5.The zener diode is primarily used as _____.

(a) Rectifier (b) Amplifier (c) Oscillator (d) Voltage regulator

Q6.The principle based on which a solar cell operates is_____.

(a) Diffusion (b) Recombination (c) Photovoltaic action

(d) Carrier flow

Q7.The light emitted in an LED is due to _____.

(a) Recombination of charge carriers

(b) Reflection of light due to lens action

(c) Amplification of light falling at the junction

(d) Large current capacity

Q8.When a transistor is fully switched on, it is said to be _____.

(a) Shorted (b) Saturated (c) Cut-off (d) Open

Q9.The specific characteristic of a common emitter amplifier is _____.

(a) High input resistance (b) Low power gain

(c) Signal phase reversal (d) Low current gain

Q10.To obtain sustained oscillation in an oscillator,_____.

(a) Feedback should be positive

(b) Feedback factor must be unity (c) Phase shift must be 0 or 2π

(d) All the above

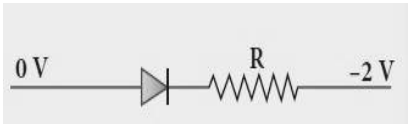
Q11.If the input to the NOT gate is A = 1011, its output is _____.

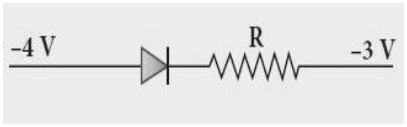
(a) 0100 (b) 1000 (c) 1100 (d) 0011

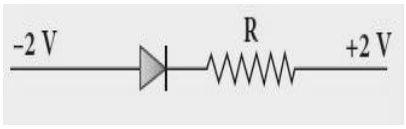
Q12.The electrical series circuit in digital form is

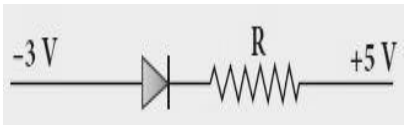
(a) AND (b) OR (c) NOR (d) NAND

Q13.Which one of the following represents forward bias diode?

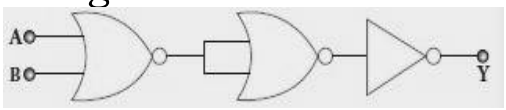
(a) 

(b) 

(c) 

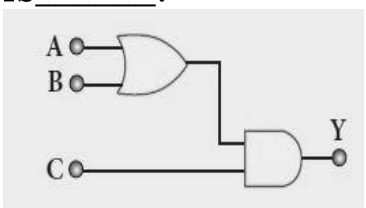
(d) 

Q14.The given electrical network is equivalent to _____.



(a) AND gate (b) OR gate (c) NOR gate (d) NOT gate

Q15.The output of the following circuit is 1 when the input ABC is_____.



(a) 101 (b) 100 (c) 110 (d) 010

Q16.The output transducer of the communication system converts the radio signal into _____.

(a) Sound (b) Mechanical energy (c) Kinetic energy

(d) None of the above

Q17.The signal is aff ected by noise in a communication system _____.

(a) At the transmitter (b) At the modulator (c) In the channel
(d) At the receiver

Q18. The variation of frequency of carrier wave with respect to the amplitude of the modulating signal is called _____.
(a) Amplitude modulation (b) Frequency modulation
(c) Phase modulation (d) Pulse width modulation

Q19. The internationally accepted frequency deviation for the purpose of FM broadcasts _____.
(a) 75 kHz (b) 68 kHz (c) 80 kHz (d) 70 kHz

Q20. The frequency range of 3 MHz to 30 MHz is used for _____.
(a) Ground wave propagation (b) Space wave propagation
(c) Sky wave propagation (d) Satellite communication

Q21. C, Si and Ge have same no of valence electrons. C is an insulator because energy required to take one electron out from _____.
(a) Si is more (b) C is more (c) Ge is more (d) C is less

Q22. By adding _____ impurity in intrinsic semi conductor, p type semiconductor is made. Charge of these p type semiconductor is _____
(a) Trivalent, neutral (b) Pentaralent, neutral
(c) Pentavalent, positive (d) Trivalent, negative

Q23. Why can't we physically join p-type and n-type semiconductor directly to form a p-n junction?
(a) Inter-atomic spacing become less than 1 A^O
(b) p -type will repet N-type
(c) There will be discontinuity for the flowing charge carriers
(d) Semi-conducting properties will be lost

Q24. Which statement is incorrect regarding for p-n junction?
(a) Donor atoms are depleted of their holes in junction
(b) No net charge exists far from junction
(c) Barrier potential V_B is generated
(d) Energy V_B is to be surrounted before any charge can flow across junction

Q25. The intrinsic semi-conductor has _____.
(a) A finite resistance which does not change with temperature
(b) Infinite resistance which decreases with temperature
(c) Finite resistance which decreases with temperature

(d) Finite resistance which does not change with temperature

Q26.The behaviour of Ge as semi-conductor is due to width of _____.

(a) conduction band being large (b) forbidden band being small

(c) conduction band being small

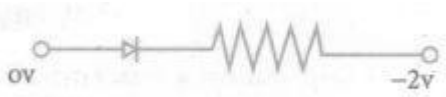
(d) forbidden band being small and narrow

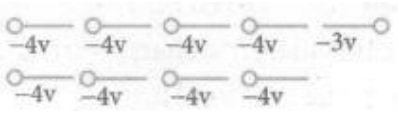
Q27.Which of the following is not the advantage of PN junction diode over tube value?

(a) Unlimited life (b) No warming-up time after switching

(c) Large efficiency (d) Low consumption of power

Q28.The forward based diode is _____.

(a) 

(b) 

(c) 

(d) 

Q29.A current gain for, a transistor working as CB amplifier is 0.90. If emitter current is 10 mA, then base current is _____.

(a) 1mA (b) 2 mA (c) 0.1 mA (d) 0.2 mA

Q30.For a transistor $\frac{I_C}{I_E}$ = 0.96, then CE current gain is _____.

(a) 12 (b) 6 (c) 24 (d) 48

Q31.At 0 k temp, a N - type semi conductor _____.

(a) Does not haveany charge carriers

(b) Has few holes but no free electrons

(c) Few holes and few electrons

(d) Has equal number of holes and electrons

Q32.In Si-crystal, impurity donor atom have valency _____.

(a) 2 (b) 3 (c) 4 (d) 5

Q33.A N-P-N transistor conducts when collector is _____ and emitter is _____ with respect to base.

(a) positive, negative (b) positive, positive (c) negative, negative

(d) negative, positive

Q34.A full wave rectifier is operating at 50 Hz, 220v the fundamental frequency of ripple will be _____.

(a) 50 Hz (b) 75 Hz (c) 110 Hz (d) 100 Hz

Q35.Reverse bias applied on a junction diode _____.

(a) Raises the barrier potential

(b) Increases majority charge carrier current

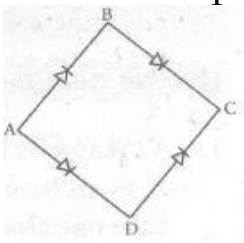
(c) Lowers the potential barrier

(d) Increases the temperature of junction

Q36.Digital circuits can be made to be respective use of _____.

(a) AND gate (b) OR gate (c) NOT gate (d) NAND gate

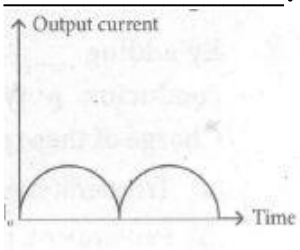
Q37.In the figure, the input is across A, and C output is across B and D. The output is _____.



(a) same as input (b) halfwave rectified (c) fullwave rectified

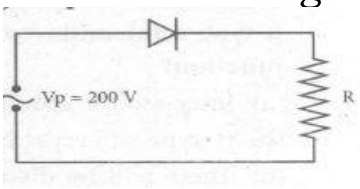
(d) zero

Q38.The output current versus time curve of a rectifier is shown in the figure. The average value of the output current is _____.



(a) 0 (b) $\frac{I_0}{2}$ (c) $\frac{2I_0}{\pi}$ (d) I_o

Q39.A sinusoidal voltage of peak value 200 volts is connected to the diode and resistor R in the circuit shown. If the diode is ideal, the r.m.s. voltage across R is _____ volt.



(a) 100 (b) $\frac{200}{\sqrt{2}}$ (c) 200 (d) 280

Q40.For a transistor, in a common base configuration the alternating current gain is given by _____.

(a) $\left[\frac{\triangle I_C}{\triangle I_B}\right]_{V_c=constant}$ (b) $\left[\frac{\triangle I_B}{\triangle I_C}\right]_{V_c=constant}$ (c) $\left[\frac{\triangle I_C}{\triangle I_E}\right]_{V_c=constant}$ (d) $\left[\frac{\triangle I_E}{\triangle I_C}\right]_{V_c=constant}$

Q41.In an N-P-N transistor circuit, the emitter, collector, and base current are respectively I_E, I_C, and l_B. The relation between them

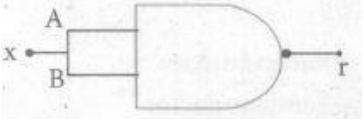
is _____.

(a) I_C EB (b) I_B CE (c) $I_B > I_C > I_E$ (d) $I_B > I_C > I_E$

Q42.Assuming that the junction diode is ideal the current through the diode is _____ mA.

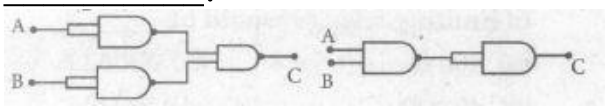
(a) 1 (b) 10 (c) 20 (d) 30

Q43.The symbol represents _____.



(a) NOT gate (b) OR gate (c) AND gate (d) NOR gate

Q44.The combination of NAND gates here under are equivalent to _____.



(a) OR gate and NOT gate (b) AND gate and OR gate

(c) AND gate and NOT gate (d) OR gate and AND gate

Q45.How many NAND gates are used to form AND gate _____.

(a) 1 (b) 2 (c) 3 (d) 4

Q46.In an P.N.P transistor circuit, the collector current is 10 mA. If 90% of the electrons emitted reach the collector _____.

(a) I_E = 9mA (b) I_E = 10mA (c) I_B = 1mA (d) I_B = - 1mA

Q47.When a p-type semiconductor is heated?

(a) Number of holes increases while that of electrons decreases

(b) Number of electron increases while that of hole decreases

(c) Number of electrons and holes remains same

(d) Number of electrons and holes increases equally

Q48.The depletion layer in PN junction diode is caused by _____.

(a) drift of holes (b) diffusion of impurity ions

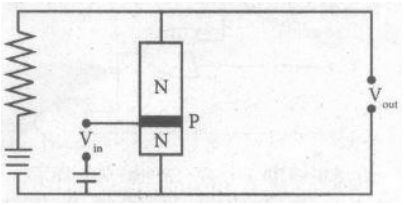
(c) diffusion of charge carriers (d) drift of electrons

Q49.The forbidden energy band gap in semi conductor, conductor and insulator are E_1, E_2 and E_3 respectively. The relation among them is _____.

(a) E_1. < E_2 > E_3 (b) $E_1 > E_2 > E_3$ (c) $E_1 < E_2 < E_3$

(d) $E_1 > E_2 < E_3$

Q50.An N-P-N transistor circuit is shown in the figure is



(a) A common base circuit (b) A common emitter circuit

(c) A common collector circuit (d) Oscillator circuit

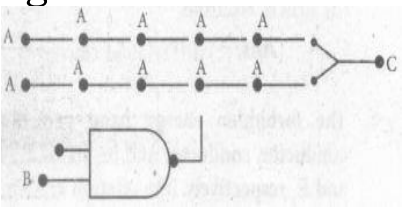
Q51.In a common emitter amplifier, output resistance is 5000 Ω and input resistance is 1000 Ω. If the peak value of signal voltage is 1 mV and β =100 than the peak value of output voltage is _____.

(a) 0.1 V (b) 0.3 V (c) 0.2 V (d) 0.5 V

Q52.The Ac current gain of a transistor is 100. If the base current changes by 100 μA. What is the charge in the collector current _____.

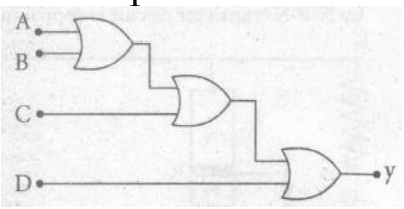
(a) 20 mA (b) 30 mA (c) 10 mA (d) 10 μA

Q53.What is the output of the combination of the gates shown in the figure below?



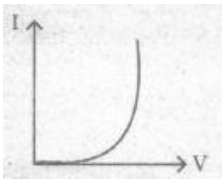
(a) $A + \overline{A.B}$ (b) A + A.B (c) $(A+B).\overline{(A.B)}$ (d) $(A+B).\overline{(A.B)}$

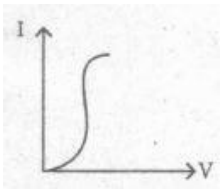
Q54.The expression of Y in the following circuit is _____.

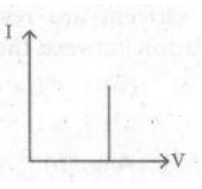


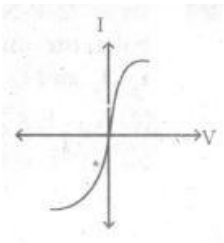
(a) AB + CD (b) A + BCD (c) A + B + C + D (d) A. B. C. D

Q55.Which of the following figure represents an ideal diode characteristics?

(a) 

(b) 

(c) 

(d) 

Q56.In the Ge sample, traces, of gallium is added as an impurity. The resultant sample would behave like_____.

(a) a conductor (b) a p -type semiconductor

(c) an N - type semiconductor (d) an insulator

Q57.A light emitting diode has a voltage drop of 2v across it when 10 mA current is passed. If this LED is to be operated with 6v battery the value of limiting resistor would be _____

(a) 400 Ω (b) 4000 Ω (c) 40 k Ω (d) 300 Ω

Q58.NAND gate is _____

(a) A Basic gate (b) Not a universal gate (c) A universal gate

(d) Multipurpose gate

Q59.How will you increase the resistivity of Ge semi conductor?

(a) on adding donar impurity (b) on adding acceptor impurity

(c) on making UV light incident on Ge crystal

(d) on decreasing the temperature

Q60.From the follwoing semi-conductor devices _____ operates in forward bias only.

(a) varactar diode (b) zener diode (c) light emitting diode

(d) photo-diode

Q61.The frequency of output signal of LC oscillator circuit is 100 Hz with capacitance value 0.1μF. IF value of capacitance is taken as 0.2 μF, the frequency of output signal _____.

(a) decreases by $\frac{1}{\sqrt{2}}$ (b) increases by $\frac{1}{\sqrt{2}}$ (c) decreases by $\frac{1}{2}$

(d) increases by $\frac{1}{2}$

Q62.In forward bias made, the P.N. junction diode resistance will _____

(a) infinity (b) zero (c) less (d) more

Q63.To obtain OR gate from NOR gate, you will need _____

(a) one NOR gate (b) one NOT gate (c) two NOT gate

(d) one OR gate

Q64.For Boolean identities match the pair

(i) $\overline{\overline{A}}$ (P) $\bar{A} + \bar{B}$

(ii) $\overline{A + B}$ (Q) A.B

(iii) $\overline{A.B}$ (R) $\bar{A}.\bar{B}$

(iv) A.($\bar{A}$ + B) (S) A

(a) 1 - (S), 2 (P), 3 - (Q), 4 - (R) (b) 1 - (S), 2 (R), 3 - (Q), 4 - (P)

(c) 1 - (S), 2 (Q), 3 - (P), 4 - (R) (d) 1- (S), 2 (R), 3 - (P), 4 - (Q)

Q65.The input resistance is _____

(a) 1k Ω (b) 10 Ω (c) 10 k Ω (d) 100 Ω

Q66.The current amplification factor is _____

(a) 20 (b) 30 (c) 50 (d) 40

Q67.If a load of 6 kΩ is used, then the voltage gain of the amplifier is _____

(a) 100 (b) 200 (c) 300 (d) 400

Q68.An amplifier has voltage gain A_v = 1000. The voltage gain in dB is _____

(a) 20 dB (b) 30 dB (c) 3 dB (d) 60 dB

Q69.A potential barrier of 0.6 V exists across a P- N junction. If the depletion region is 1μm wide, what is the intensity of electric field in the region?

(a) 4×10^5 Vm^{-1} (b) 5×10^5 Vm^{-1} (c) 6×10^5 Vm^{-1}

(d) 2×10^5 Vm^{-1}

Q70.A common - emitter amplifier has a voltage gain of 100, an input impendence of 100Ω and an output impedence of 200 Ω. The product of voltage gain and current gain is _____

(a) 1000 (b) 3000 (c) 5000 (d) 500

Q71.Essential elements of a communication system are _____.

(a) transmitter & receiver (b) receiver & communication channel

(c) transmitter and communication channel

(d) transmitter communication channel & receiver

Q72.The loss of strengh of a signal while propagating through a medium is known as_____.

(a) modulation (b) absorption (c) transmission (d) Attenuation

Q73.The process of increasing the strength of a signal using an electric circuit is called _____.

(a) amplification (b) modulation (c) demodulation

(d) transmission

Q74.Modulation is the process of superposing _____.

(a) low frequency audio signal on high frequency radio waves

(b) low frequency radio signal on low frequency audio waves

(c) high frequency radio signal on low frequency audio

(d) high frequency audio signal on low frequency radio waves

Q75.The device which is a combination of a receiver and a transmitter is _____.

(a) Amplifier (b) Repeater (c) Transducer (d) Modulator

Q76.Large band width for higher data is achieved by using _____.

(a) Large bandwidth for higher data is achieved

(b) high frequency audio wave (c) low frequency carrier wave

(d) low frequency audio wave

Q77.In a video signal for transmission of picture what value of bandwidth is used in communication system?

(a) 2.4 MHz (b) 4:2 MHz (c) 24MHz (d) 42 MHz

Q78.Which of the following is an example of breadcast made of communication?

(a) Radio (b) Television (c) Mobile (d) both (a) & (b)

Q79.The radio waves of frequency 30 MHz to 300 MHz belong to _____.

(a) high frequency band (b) very high frequency band

(c) ultra high frequency band (d) super high frequency band

Q80.For base station to mobile communication, the required frequency band is _____.

(a) 540 - 1600 KHz (b) 200 - 32 MHz (c) 840 - 935 MHz

(d) 5.9 - 6.42 GHz

Q81.Ground wave have wavelength _____.

(a) less than that of sky waves (b) greater than that of sky wave

(c) less than that of space waves (d) equal to that of space waves

Q82.The made of propagation used by short wave broadcast services is _____.

(a) space wave (b) skywave (c) ground wave (d) both (a) & (c)

Q83.The strip zero in radio wave transmission is that range where _____.

(a) there is no reception of either ground wave or skywave

(b) the reception of ground wave is maximum but sky wave is minimum

(c) the reception of ground wave is minimum but sky wave is maximum

(d) the reception of both ground wave and sky wave is maximum

Q84.FM broad cost is preferred over AM broadcast because _____.

(a) It is less noisy (b) reproduction is of much better quality

(c) it is more noisy (d) both (a) & (b)

Q85.The waves that are bent down by the ionosphere on are _____.

(a) ground waves (b) surface waves (c) space waves

(d) skywaves

Q86.A gound receiver in line of sight communication cannot receive direct waves due to _____.

(a) its low frequency (b) curvature of each (c) its high intensity

(d) smaller antenna

Q87.Which of the following modes is used for line of sight communication as well as satellite communication?

(a) Ground wave (b) Skywave (c) Space wave (d) All of these

Q88.Through which made of propagation the radio waves can be sent from one place to another _____.

(a) ground wave propagation (b) Electric field

(c) space wave propagation (d) all of these

Q89.A transmitting antenna of height 240 m and the signals broadcast from this tower will be received by a line of sight communication at a distance of(Radius of the each = 6.4×10^6m) _____.

(a) 100 km (b) 110 km (c) 55 km (d) 120 km

Q90.In frequency modulation _____.

(a) the amplitude of modulated wave varies as frequency

(b) the frequency of modulated wave varies as amplitute the frequency

(c) the amplitude of modulated wave varies as amplitute of carrier wave

(d) the frequency of modulated wave varies as frequency of modulating wave

Q91.A n-p-n transistor circuit has $\alpha = 0.985$. If $I_C = 9$ mA than the value of I_B is _____

(a) 0.003 mA (b) 0.66 mA (c) 0.015 mA (d) 0.03 mA

Q92.For a transistor amplifier, the voltage gain _____.

(a) remain constant for all frequencies

(b) is high at high and low frequencies and constant in the mid - frequency range

(c) is low at high and low frequencies and constant in the mid-frequency range

(d) None of the above

Q93.Semi-conductor has phosphorous as impurity then it will have _____

(a) $n_e > > n_h$ (b) $n_e < < n_h$ (c) $n_e = n_h$ (d) $n_e = n_h = n_i$.

Q94.Zener diode is used as _____

(a) full wave rectifier (b) Amplifier (c) A.C. voltage regulator

(d) D.C. voltage regulator

Q95.Break down voltage of a diode is 5 V. By which effect this breakdown occurs in diode?

(a) only Avalanche effect (b) only Zener effect

(c) Avalanche or Zener effect (d) None of the above

Q96.When NPN transistor is used as an amplifier then _____

(a) electron moves from base to collector

(b) hole travels from emitter to base

(c) hole goes to emitter from base

(d) electron goes to base from collector

Q97.For _____ gate, the output is 1 only when both input are '0'

(a) AND (b) NAND (c) OF (d) NOR

Q98.How many free electrons does a p-type semiconductor contain?

(a) Many (b) None (c) only those produced

(d) same number as holes by thermal energy

Q99.Most of the electron in the base of N-P-N transistor flow _____.

(a) out of the base lead (b) into the collector (c) into the emitter

(d) into the base supply

Q100.The depletion layer in the p-n junction region is caused by _____.

(a) drift of holes (b) diffusion of charge carriers

(c) migration of impurity ions (d) drift of electrons

Q101.Audio signal cannot be transmitted because _____.

(a) the signal has more noise

(b) the signal cannot be amplitude for distance communication

(c) the transmitting antenna length is very small to design

(d) the transmitting antenna length is very large and impracticable

Q102.In modulation process radio frequency wave is termed as _____.

(a) modulated wave (b) modulating wave (c) carrier wave

(d) none

Q103.Which is not an advantage of FM over AM?

(a) better noise immunity is provided

(b) lower bandwidth is required

(c) the transmitted power is more useful

(d) less modulating power is required

Q104.An EM wave travels in free space, only one of the following can happen to them _____.

(a) reflection (b) absorption (c) refraction (d) attenuation

Q105.The number of geostationary satellites needed for uninterepted global coverage is _____.

(a) 1 (b) 2 (c) 3 (d) 4

Q106.The purpose of oscillator in the AM transmitter is to _____.

(a) provide modulating signal (b) provide carrier

(c) provide enough power to meet transmission system (d) none

Q107.AM is used for broadcasting because _____.

(a) it is more noise immune than other modulation system

(b) it requires less transmitting power with other modulation system

(c) its circuit is simple

(d) it provides bandwidth for high frequency

Q108.The most commonly, employed modulation in satellite communication is the _____.

(a) amplititude modulation (b) FM (c) phase modulation (d) all

Q109.The space wave propagation is utilized in _____.

(a) only television communication

(b) can be reflected by ionosphere

(c) can be reflected by mesosphere

(d) cannot be reflected by any layer of atmosphere

Q110. Optical fiber communication is generally preferred over general communication system because _____.

(a) it has signal security (b) it is more efficient

(c) it cannot be jammed as easily as radio waves

(d) all of the above

Q111. In space communication, the sound waves can be sent from one place to another _____.

(a) through space (b) through wires

(c) by super imposing it on undamped EM waves

(d) by super imposing it on damped EM waves

Q112. The radio waves can be sent from one place to another through _____ propagation.

(a) ground wave (b) sky wave (c) space wave (d) all of above

Q113. The maximum range of ground or surface wave propagation depends on _____.

(a) power of transmitter only

(b) the frequency of the radio waves only (c) none of them

(d) both of them

Q114. For long distance, shortwave radio broadcasting _____ wave is used.

(a) ground (b) ionospheric (c) sky (d) direct

Q115. Broadcasting antennas are generally _____.

(a) unidirectional (b) vertical (c) horizontal (d) none

Q116. An antenna is _____.

(a) inductive (b) capacitive

(c) resistive above its resonance frequency (d) none

Q117. All medium wave signals received during day time use _____ wave propagation.

(a) surface (b) space (c) sky (d) ionosphere

Q118. When the transmitting and receiving antennas are close to the ground, the type of radio-wave propagation is_____ propagation.

(a) ground (b) space (c) sky (d) ionospheric

Q119. Radiowaves propagated through the troposphere of the earth are known as _____ waves.

(a) space (b) surface (c) ground (d) sky

Q120.The portion of the earth's atmosphere, which extends upto 15 km from earth's surface is _____.

(a) troposphere (b) stratosphere (c) ionosphere (d) atmosphere

Q121.In semiconductors at a room temperature _____.

(a) the valence band is partially empty and the conduction band is partially filled

(b) the valence band is completely filled

(c) the valence band is completely filled and the conduction band is partially filled

(d) the conduction band is completely empty

Q122.To obtain a p-type germanium semiconductor, it must be doped with _____.

(a) Indium (b) phosphorus (c) arsenic (d) antimony

Q123.The cause of potential barrier in a p-n diode is _____.

(a) depletion of negative charges near the junction

(b) concentration of positive charges near the junction

(c) depletion of positive charges near the junction

(d) concentration of positive and negative charges near the junction

Q124.A p-n diode can be used as _____.

(a) condenser (b) amplifier (c) rectifier (d) regulator

Q125.In forward bias the width of potential barrier in a p-n diode _____.

(a) decreases (b) remain constant (c) increases

(d) first decreases and-then increases

Q126.Doping of a semiconductor generally changes resistivity as follows _____.

(a) increases (b) decreases (c) does not alter (d) may increase

Q127.In a p-n junction diode _____.

(a) the current in the reverse biased condition is generally very small

(b) the current in the reverse biased condition is small but the forward biased current is independent of the biased voltage

(c) the reverse biased current is strongly dependent on the applied bias voltage.

(d) the forward biased current is very small in comparison to reverse biased current

Q128.Depletion layer consists of _____.

(a) mobile ions (b) electrons (c) immobile ions (d) protons

Q129. To produce n-type semiconductor which impurity is added into the silicon?

(a) B (b) Al (c) P (d) Mg

Q130. Current gain in common emitter configuration is more than I because _____.

(a) IC < IE (b) IC < IB (c) IE > IB (d) IC > IE

Q131. Space wave propagation is suitable for waves having frequency above _____ MHz.

(a) 13 (b) 30 (c) 40 (d) 100

Q132. Long distance radio communication employs _____ wave propagation.

(a) ground (b) sky (c) space (d) surface

Q133. The radio waves after refraction from different part of ionosphere on reaching the earth are called as _____.

(a) ground wave (b) sky waves (c) space waves (d) micro waves

Q134. Skip distance the shortest distance between _____.

(a) the point of transmission and the point of reception

(b) the uplink and the downlink station

(c) the transmitter and the target (d) the receiver and the target

Q135. Through which mode of propagation, the radiowaves can be sent from one place to another?

(a) Ground wave propagation (b) Sky wave propagation

(c) Space wave propagation (d) All the above

Q136. During propagation of waves, where the electron density is large in ionosphere, the angle of refraction is _____.

(a) 49^o (b) 90^o (c) 67^o (d) 180^o

Q137. The ultra high frequency range is _____.

(a) 300 MHz - 3GHz (b) 3 - 30 GHz (c) 30 - 300 GHz

(d) 3 - 30 MHz

Q138. After the angle of refraction becomes 90^o at the ionosphere, the wave travels _____.

(a) faster (b) through space (c) in a straight line

(d) towards the earth

Q139. The audio frequency range is _____.

(a) 20 Hz to 200 Hz (b) 20 Hz to 2000 Hz
(c) 20 Hz to 200,000 Hz (d) 20 Hz to 20,000 Hz

Q140. The process of superimposing the audio signal over the carrier wave is called _____
(a) superposition (b) modulation (c) demodulation
(d) extraction

Q141. The process of extracting the audio signal from the modulated wave is called _____.
(a) superposition (b) extraction (c) modulation
(d) demodulation

Q142. The high frequency wave upon which the signal wave is superimposed is called _____.
(a) carrier wave (b) signal wave (c) modulated wave
(d) superimposed wave

Q143. In AM, the amplitude of the carrier wave is changed in accordance with that of the _____ of the signal wave.
(a) frequency (b) intensity (c) phase (d) time

Q144. The strength and quality of the transmitted signal is dependent on _____.
(a) skip distance (b) modulation factor
(c) geometry of the modulator (d) carrier frequency

Q145. For effective modulation, the degree of modulation should never exceed _____ %.
(a) 10 (b) 50 (c) 100 (d) 90

Q146. The component of the modulated wave, which has a greater frequency than that of the carrier is called _____.
(a) upper side band (b) middle side band (c) lower side band
(d) stoke's band

Q147. The radiation of electrical energy is practicable only above _____
(a) 20 kHz (b) 200 MHz (c) 200 kHz (d) 20 Hz

Q148. Human voice / Music contains waves with a frequency range of _____
(a) 30 - 300 MHz (b) 3- 30 MHz (c) 300 - 3000 Hz
(d) 3000 - 30000 Hz

Q149.Messages cannot be transmitted over long distances in _____ transmission.

(a) FM (b) PM (c) AM (d) PCM

Q150.Low efficiency and small operating range are features of _____ type of transmission.

(a) PM (b) AM (c) PCM (d) FM

Q151.Current gain common base configuration is less than I because _____.

(a) IE < IC (b) IE< IB (c) IB < IE (d) IC < IE

Q152.A NPN transistor conducts when _____.

(a) both collector and emitter are positive with respect to the base

(b) collector is +ve and emitter is -ve with respect to the base

(c) collector is +ve and emitter is same potential with respect to the base

(d) both collector and emitter are -ve to the base

Q153.In a p-n junction _____.

(a) high potential at n side and low potential at p side

(b) high potential at p side and low potential at n side

(c) low potential at both p and n side

(d) high potential at both p and n side

Q154.Reverse bias applied to a junction diode is _____.

(a) increases the potential barrier

(b) increases the majority carrier current

(c) lowers the potential barrier

(d) increases the minority carrier current

Q155.The device which converts electrical energy into light energy _____.

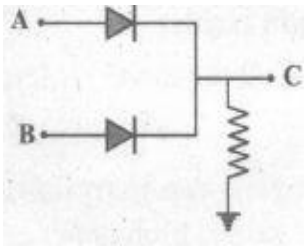
(a) photo diode (b) LED (c) Transistor (d) Photocell

Q156.Zener diode is used for _____.

(a) rectification (b) amplification (c) producing oscillation

(d) stablisation

Q157.The output of the given circuit is _____.



(a) NOR gate (b) OR gate (c) NAND (d) AND

Q158.The energy band gap is maximum in _____.

(a) metals (b) insulators (c) semiconductor

(d) superconductors

Q159.A pure semiconductor behaves slightly as a conductor of _____.

(a) low temperature (b) high temperature (c) room temperature

(d) zero degree

Q160.If the distance between the conduction band and valence band is leV, then this combination is _____.

(a) semiconductor (b) metal (c) insulator (d) conductor

Q161._____ type of modulation costless.

(a) Frequency (b) Time (c) Amplitude (d) Phase

Q162.In FM, the _____ of carrier wave is changed in accordance with the intensity of the signal.

(a) amplitude (b) frequency (c) time of transmit (d) phase

Q163.In FM, frequency variation of the carrier wave depends upon the _____ amplitude of the signal.

(a) average (b) highest (c) constant (d) instantaneous

Q164.The frequency of a FM transmitter without signal input is called _____ frequency.

(a) resting (b) maximum (c) signal (d) final

Q165.The change in the resting frequency of a FM transmitter is called _____

(a) frequency swing (b) frequency deviation

(c) range offrequency (d) centre deviation

Q166.The total variation in frequency of a FM transmitter is called _____

(a) signal swing (b) carrier swing (c) shift (d) difference

Q167.FM signal has a resting frequency of 105 MHz and the highest frequency of 105.03 MHz when modulated by a signal. Then the

carrier swing is _____.

(a) 0.03 MHz (b) 0.06 MHz (c) 0.03 kHz (d) 60 MHz

Q168. In an AM receiver, the local oscillator frequency is 2750 kHz. The tuned in station frequency is _____.

(a) 2905 kHz (b) 2295 kHz (c) 3055 kHz (d) 2250 kHz

Q169. In FM, the centre frequency is allotted to the _____.

(a) transformer (b) transmitter (c) receiver (d) channel

Q170. The shortcomings of a straight radio receiver are overcome by a _____ receiver.

(a) limiter (b) simple (c) super heterodyne (d) sample

Q171. Noise is a form of _____ variation.

(a) time (b) phase (c) amplitude (d) frequency

Q172. The centre of frequency is extremely stable in _____ modulated wave.

(a) amplitude (b) frequency (c) phase (d) pulse-code

Q173. In a transmitter, the _____ isolates the RF amplifier from the oscillator.

(a) amplifier (b) oscillator (c) buffer (d) transistor

Q174. Microphone converts _____ energy into _____ energy.

(a) sound, electrical (b) electrical, magnetic (c) magnetic, sound (d) light, heat

Q175. While used at the transmitting end, the antenna converts _____ energy into _____ energy.

(a) magnetic, electromagnetic (b) electrical, magnetic (c) electrical, electromagnetic (d) magnetic, electrical

Q176. The intermediate frequency is the _____ oscillator frequency and radio frequency.

(a) product (b) sum of (c) difference between (d) integral of

Q177. The output of the Mixer of an AM receiver is always equal to _____ Hz.

(a) 45 k (b) 455 k (c) 544 k (d) 1000 k

Q178. The ability to amplify weak signals is called _____.

(a) transmission (b) sensitivity (c) reception (d) resolution

Q179. The ability to select a particular wanted signal only and rejecting the unwanted signals is called _____.

(a) sensitivity (b) buffer action (c) reception (d) selectivity

Q180. For FM receivers, the intermediate frequency is _____ Hz.
(a) 455 k (b) 10.7 M (c) 107 k (d) 45.5 M

Q181. In an insulator the energy gap between the conduction band and valence band is of the order of _____.
(a) 2MeV (b) 5eV (c) 1eV (d) 10^{-3}eV

Q182. In an good conductor the forbidden energy gap between the conduction band and valence band is of the order of _____.
(a) infinity (b) zero (c) narrow (d) wide

Q183. Diffusion of free electrons across the junction of an unbiased diode produces _____.
(a) forward bias (b) reverse bias (c) depletion layer
(d) break down

Q184. In which of the configuration of transistors the voltage gain is the highest?
(a) common collector (b) common base (c) common emitter
(d) same in all the three

Q185. In which of the configurations of a transistor, the power gain is highest?
(a) common base (b) common emitter (c) common collector
(d) same in all the three

Q186. How many AND gates are required to form NAND gate?
(a) 1 (b) 2 (c) 3 (d) 4

Q187. Resistivity of a semiconductor at room temperature is in the range _____.
(a) 10^{-2} and 10^{4} Ω m (b) 10^{2} to 10^{-4}Ω m (c) 10^{-2} to 10^{-4}Ω m
(d) 10^{2} to 10^{4}Ω m

Q188. Resistance of a semiconductor is _____ to temperature change.
(a) directly proportional (b) indirectly proportional.
(c) a constant (d) independent

Q189. A set of closely packed energy level is called _____
(a) cluster (b) energy bands (c) constellation (d) energy pack

Q190.Atomic number of SI is _____

(a) 14 (b) 12 (c) 16 (d) 18

Q191.Completely filled energy levels are called _____

(a) core levels (b) compound levels (c) conduction levels

(d) valence levels

Q192.Vacant energy levels are called _____

(a) valence level (b) core level (c) conduction levels

(d) compound level

Q193.Partially filled outermost level is called _____

(a) valence level (b) core level (c) ground level

(d) conduction level

Q194._____ electrons occupy the conduction band.

(a) Ground state (b) Free (c) Bound (d) Valence

Q195.Energy gap between valence band and conduction band is called as the _____

(a) forbidden energy gap (b) conduction band gap

(c) valence band gap (d) filled band gap

Q196.The forbidden energy gap is largest in _____.

(a) conductor (b) metals (c) semiconductor (d) insulators

Q197.A hole is _____ in charge

(a) neutral (b) negative (c) positive

(d) charge depends on the type of semiconductor

Q198.Pure semiconductors are called _____

(a) extrinsic semiconductor (b) intrinsic semiconductor

(c) simple semiconductor (d) charged semiconductor

Q199.Doped semiconductors are _____

(a) extrinsic (b) intrinsic (c) simple (d) charged

Q200.When a pentavalent impurity is added to a pure semi conductor we get _____ semiconductor.

(a) N-type (b) P-type (c) A-type (d) B-type

Q201.The speaker converts _____ energy into _____ energy.

(a) electrical, sound (b) sound, electrical (c) light, sound

(d) sound, mechanica

Q202. Resting frequency - 97 MHz. When modulated, it becomes 97.005 MHz. Find its carrier swing.

(a) 10 kHz (b) 10 MHz (c) 1MHz (d) 50MHz

Q203. Resistance of any photosensitive material is _____ to the intensity of light exposed

(a) directly proportional (b) indirectly proportional

(c) a constant (d) independent

Q204. The electron gun assembly contains a _____.

(a) CRO (b) cathode and a control grid (c) multimeter

(d) power supply

Q205. Each small area of light or shade is called a _____

(a) picture element (b) camera (c) image (d) electron grid

Q206. In most television sets, the scanning frequency is _____per second.

(a) 250 (b) 25 (c) 2 (d) 5

Q207. In television, blanking pulse is applied to _____.

(a) horizontal plates (b) vertical plates (c) control grid

(d) filament

Q208. In a television, the sound signals are _____ modulated.

(a) amplitude (b) frequency (c) phase (d) pulse

Q209. In a television, the picture signals are _____ modulated.

(a) amplitude (b) frequency (c) phase (d) pulse-code

Q210. Television is basically a system for reproducing _____.

(a) sound (b) still picture (c) moving picture (d) dark spots

Q211. The acronym for 'Radio Detection and Ranging' is known as _____

(a) RDR (b) RDAR (c) RADAR (d) DRR

Q212. RADAR works on the principle of _____.

(a) transformation (b) radio echos (c) polarization

(d) diffraction

Q213. The electrical pulse sent by the RADAR travel with a speed of _____m/s

(a) 3×10^8 (b) 5×10^{12} (c) 8×10^3 (d) 10×10^9

Q214. The transmitter - receiver switch is also called _____.

(a) scanner (b) multiplexer (c) mixer (d) duplexer

Q215.The transmitter in a RADAR is a high power _____.
(a) cyclotron oscillator (b) magnetron oscillator
(c) Hartley oscillator (d) simple harmonic oscillator

Q216.The echo signal of a RADAR is demodulated by a _____.
(a) decoder (b) transmitter (c) superhet receiver (d) rectifier

Q217.A continuously varying voltage is called _____ voltage.
(a) analog (b) digital (c) simultaneous (d) scanned

Q218.If a signal can take any value within a given range it is _____ signal.
(a) analog (b) scanned (c) simultaneous (d) digital

Q219.The greatest technical problem with an analog communication system is _____.
(a) noise (b) low speed (c) low range (d) accessibility

Q220.Digital system is _____in nature.
(a) analog (b) binary (c) direct (d) continuous

Q221.The energy level just above the valence band is called _____ level
(a) donor (b) acceptor (c) ground (d) conduction

Q222.If half of the a.c. signal is rectified it is a _____
(a) half wave (b) full wave (c) voltage (d) bridge

Q223.Efficiency of half wave rectifier is approximately _____
(a) 60.4% (b) 40.6% (c) 46% (d) 60%

Q224.Efficiency of a bridge rectifier is approximately _____
(a) 82.1% (b) 81.2% (c) 80.2% (d) 81.3%

Q225.To remove d.c. voltage fluctuations we use _____
(a) filter circuits (b) sieve circuits (c) conductor circuits
(d) rectifier circuits

Q226.Zener breakdown is mainly due to _____
(a) collision (b) breaking of covalent bonds (c) doping
(d) recombination

Q227.The colour of the emitted light on an LED depends on _____

(a) the material (b) applied voltage
(c) the geometry of the circuit (d) the type of biasing

Q228. In a junction transistor the emitter region is heavily doped since emitter has to supply to the base Zener diode acts as a _____

(a) minority carrier (b) majority carrier (c) acceptor ions
(d) donor ions

Q229. The ratio between the base-emitter voltage to the corresponding change in base current is _____

(a) input impedance (b) output impedance (c) total impedance
(d) total current

Q230. In the output characteristics, the ohmic region is called _____

(a) saturation region (b) cut-off region (c) active region
(d) breakdown region

Q231. In order to draw a transfer characteristics of transistors _____ is kept constant.

(a) V_{CE} (b) I_B (c) I_C (d) V_{BE}

Q232. The operating point of an amplifier is also called as _____

(a) base point (b) collector point (c) emitter point
(d) quiescent point

Q233. The simplest and the best form of coupling when D.C signals are to be amplified is _____

(a) RC coupling (b) transformer coupling (c) direct coupling
(d) inductor coupling

Q234. Negative feedback _____ the amplifier gain

(a) reduces (b) increases (c) doesn't affect (d) fluctuates

Q235. In an oscillator 0° the electrostatic energy associated with the inductor is converted into _____

(a) electromagnetic energy (b) gravitational energy
(c) magnetic energy (d) nuclear energy

Q236. The circuit in which an inductor and a capacitor are connected in parallel is called as a _____

(a) tank (b) series (c) inductor (d) capacitor

Q237. Basic logic gates are _____

(a) NOT, AND, OR (b) NOR, AND, OR (c) NAND, AND, OR

(d) NAND, NOR, NOT

Q238.If the output is high for anyone of all of the inputs then it is _____ gate

(a) a NOT (b) an AND (c) an OR (d) a NOR

Q239.When the output is an complement of the input it is _____

(a) NOT gate (b) AND gate (c) OR (d) NAND

Q240.The central region of the transistor is _____

(a) base (b) emitter (c) collector (d) resistor

Q241.The abbreviation of the 'term 'Modulator and Demodulator' is _____.

(a) model (b) modem (c) alternator (d) decoder

Q242.Digital signals are converted into analog signals using _____.

(a) FAX (b) Modem (c) Cable (d) Coaxial Cable

Q243._____ is the most often used wire material.

(a) Copper (b) Aluminium (c) Sulphur (d) iron

Q244.A bundle of wires with a protective outer jacket is called _____.

(a) transmitter (b) cable (c) coil (d) packet

Q245._____ wire is used between telephones and the central office

(a) Flat (b) Multiconnector (c) Co-axial (d) Twisted pair

Q246.A multiconductor flat cable can have any number of wires in the range _____.

(a) 5 - 10 (b) 10 - 25 (c) 10-50 (d) 50 - 100

Q247.The principle used for 'transmission of light signals through optical fibre is _____.

(a) refraction (b) diffraction (c) polarisation

(d) total internal reflection

Q248.The minimum difference in frequencies between the uplink and downlink transmission is _____.

(a) 200 kHz (b) 2 GHz (c) 2 MHz (d) 20 MHz

Q249.A satellite which appears to be stationary at a given spot above the equator is called a _____ satellite.

(a) geostationary (b) polar (c) elliptical (d) spherical

Q250.A geostationary satellite completes one revolution in_____.

(a) 50 min (b) 50 days (c) 366 days (d) 24 hours

Q251.The distance of a geostationary satellite's orbit from the Earth is about _____

(a) 366 km (b) 108 km (c) 36 x 10^3km (d) 30 m

Q252.In actual practice, the range of uplink frequencies used is _____ GHz.

(a) 5.725 - 7.075 (b) 3.4 - 4.8 (c) 6 - 10 (d) 9 - 10

Q253.Mobile communication is easily established by _____ communication.

(a) mechanical switches (b) telephone cables (c) satellite

(d) optical fibres

Q254.For the purpose of coupling the transmitter and the receiver to the space link, We use _____.

(a) amplifier (b) oscillator (c) antennas (d) FAX

Q255.In AM receiver, if 900 kHz station is tuned, then the local oscillator will have to produce a frequency of _____.

(a) 600 kHz (b) 455 kHz (c) 10.7 MHz (d) 1355 kHz

Q256.The maximum carrier swing allowed in frequency modulation is _____.

(a) 455 kHz (b) 10.7 kHz (c) 75 MHz (d) 150 kHz

Q257.The resting frequency of the FM transmitter is 98.5MHz. The allowed minimum and maximum frequency on either side of the center frequency are respectively_____.

(a) 98.400 MHz and 98.600 MHz

(b) 98.450 MHz and 98.550 MHz

(c) 98.425 MHz and 98.575 MHz

(d) 98.425 MHz and 98.575 MHz

Q258.Heavily doped region of a transistor is _____

(a) base (b) emitter (c) collectorresistor (d) resistor

Q259.Supplier of majority charge carriers in a transistor is _____

(a) emitter (b) base (c) collector (d) resistor

Q260.Acceptor of majority charge carriers in a transistor is _____

(a) emitter (b) base (c) collector (d) resistor.

Q261. The collector-base junction of a transistor offers _____ resistance to current

(a) low (b) high (c) zero (d) moderate

Q262. In PNP transistors, the direction of conventional current, when emitter-base junction is forward-biased is from _____

(a) base to emitter (b) emitter to base (c) collector to base

(d) base to collector

Q263. In NPN transistors, when the emitter-base junction is forward-biased, the direction of conventional current is from _____

(a) base to emitter (b) emitter to base (c) collector to base

(d) base to collector

Q264. PNP transistor is like to _____ PN junction diodes placed back-to-back.

(a) two (b) three (c) ten (d) five

Q265. Input characteristics of an NPN transistor in (CE mode) is drawn between _____

(a) I_B and V_{BE} (b) V_{BE} and V_{CE} (c) V_{CC} and V_{EE} (d) V_B and I_E

Q266. Output characteristics of an NPN, transistor in CE mode is drawn between _____

(a) I_C and V_{BE} (b) I_E and V_{CE} (c) I_B and V_{CE} (d) I_C and V_{CE}

Q267. In the output characteristics curve of an NPN transistor, _____ is about to be a constant near knee point.

(a) I_C (b) I_B (c) I_E (d) V_{CC}

Q268. The region below the curve $I_B = 0$ in the output, characteristics of a transistor is _____

(a) saturation region (b) ohmic region (c) cut off region

(d) active region

Q269. For p-n junction, which statement is incorrect?

(a) Donor atoms are depleted of their holes in junction

(b) No net charge exists far from junction

(c) Barrier potential V_B is generated

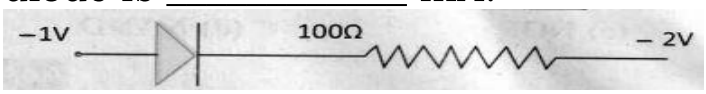
(d) Energy V_B is to be surmounted before any charge flow across junction

Q270. A NPN transistor conducts when collector is _____ and emitter is _____ with respect to base.

(a) positive, negative (b) positive, positive (c) negative, negative

(d) negative, positive

Q271.Assuming the junction diode is ideal the current through the diode is _____ mA.



(a) 1 (b) 10 (c) 20 (d) 30

Q272.The active junction area in a solar cell is _____ as we want _____ power.

(a) small, more (b) small, small (c) large, more (d) large, small

Q273.Type of material which emits white light in LED _____.

(a) GaInN (b) SiC (c) AIGap (d) GaAsP

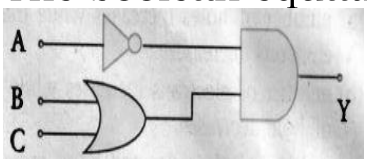
Q274.A zener diode used as voltage regulator is connected _____.

i) in forward bias
ii) in reverse bias
iii) in parallel with load
iv) in series with load

(a) (i) and (ii) are correct (b) (ii) and (iii) are correct

(c) only (i) is correct (d) only (iv) is correct.

Q275.The boolean equation for the circuit is _____.



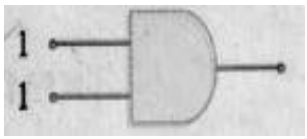
(a) $Y = \overline{A} \cdot B + C$ (b) $Y = \overline{A} \cdot (B + C)$ (c) $Y = \bar{A} \cdot (\bar{B} + \bar{C})$

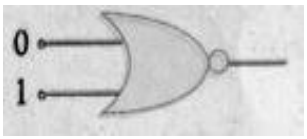
(d) $Y = \bar{A} \cdot (B + \overline{(C)}$

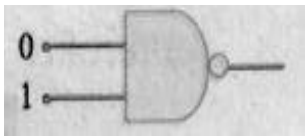
Q276.An NPN transistor circuit has $\alpha = 0.996$.. If I_C = 9 mA then the value of I_B is _____.

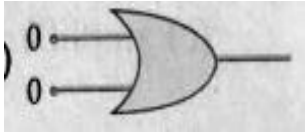
(a) 0.003 mA (b) 0.66 mA (c) 0.015 mA (d) 0.03 mA

Q277.Which of the following logic gate will have output 1?

(a) 

(b) 

(c) 

(d) 

Q278. The flow of valence electrons to the left means that holds are flowing _____.

(a) Left (b) Right (c) Either way (d) None

Q279. What kind of device is a diode?

(a) Bilateral (b) Linear (c) Nonlinear (d) UniPolar

Q280. The lord-current is approximately constant when a zener diode is _____.

(a) forward biased (b) reverse biased

(c) operating in break down region (d) unbiased

Q281. When source voltage increases in a Zener diode, which of these currents remains approximately constant?

(a) Series current (b) Zener current (c) Load current

(d) Total current

Q282. In a transistor, the base is _____.

(a) an insulator (b) a conductor of low resistance

(c) a conductor of high resistance

(d) an extrinsic semiconductor

Q283. In a CE transistor amplifier, the audio signal voltage across the collector resistance of 2kΩ is 2Y. If the base resistance is 1kΩ and the current amplification of the transistor is 100, the input signal voltage is _____.

(a) 01 V (b) 1.0 V (c) 4 mV (d) 10m V

Q284. The barrier potential of a p-n junction depends on
i) type of semiconductor material
ii) amount of doping
iii) temperature. Which one of the following is correct?

(a) (i) and (ii) only (b) (ii) only (c) (ii) and (iii) only

(d) (i) (ii) and (iii)

Q285. In a n-type semiconductor, which of the following statement is true?

(a) Electrons are majority carriers and trivalent atoms are dopants

(b) Electrons are minority carriers and pentavalent atoms are dopants.

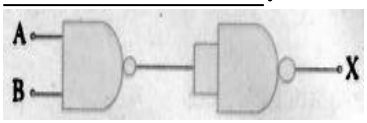
(c) Holes are minority carriers and pentavalent atoms are dopants

(d) Holes are majority carriers and trivalent atoms are dopants.

Q286. In a common Emitter (CE) amplifier having a voltage gain G, the transistor used has transconductance 0.03 mho and current gain 25. If the above transistor is replaced with another one with transconductance 0.02 mho current gain 20, the voltage gain will _____.

(a) $\frac{2}{3}$G (b) 1.5G (c) $\frac{1}{3}$G (d) $\frac{5}{4}$C

Q287. The output (X) of the logic circuit shown in figure will be _____.



(a) $X = \overline{A} \cdot \overline{B}$ (b) $X = \overline{AB}$ (c) $X = A.B$ (d) $X = \overline{A + B}$

Q288. When two Semiconductors of p and n type are brought into contact, they form p-n junction which acts like a/ an _____.

(a) conductor (b) oscillator (c) amplifier (d) rectifier

Q289. In the case of constants α and β of a transistor _____.

(a) $\alpha\beta = 1$ (b) $\beta > 1, \alpha < 1$ (c) $\alpha = \beta$ (d) $\beta > 1, \alpha > 1$

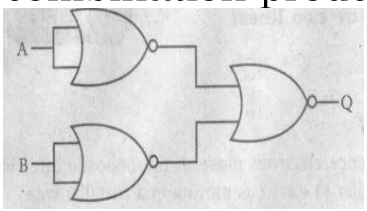
Q290. The electrical conductivity of semiconductors increases when electromagnetic radiation of wavelength shorter than 2480 nm is incident on it. The band gap (in eV) for the semiconductor is _____.

(a) 0.9 (b) 0.7 (c) 0.5 (d) 1.1

Q291. A device that converts variations in a physical quantity (Pressure, temperature, sound) into an equivalent electrical signal is called?

(a) modulator (b) oscillator (c) transducer (d) demodulator

Q292. Which logic operation does the output Q of the above gate combination produce?



(a) NOT (b) OR (c) AND (d) EXOR

Q293. Blue colour LED is made up of _____.

(a) SiC (b) AIGaP (c) AaAGaP (d) GaInN

Q294. The current gain (β) of a transistor in common emitter mode is 40. To change the collector current by 160 mA at constant VCE, the necessary change in the base current is _____.

(a) 0.2mA (b) $4\mu A$ (c) 4 mA (d) 40 mA

Q295.In an unbiased p-n junction, the majority charge carriers (that is, holes) in the p-region diffuse into n-region because of _____.

(a) the potential difference across the p-n junction

(b) the higher hole concentration in p-region than that in n-region

(c) the attraction of free electrons of n-region

(d) the higher concentration of electrons in the n-region than that in the p-region

Q296.Audio frequency range is _____.

(a) 200 Hz-2000 Hz (b) 20 Hz - 2kHz (c) 20kHz - 20000kHz

(d) 200Hz - 200kHz

Q297.In amplitude modulation _____.

(a) amplitude of the base band signal only changes.

(b) amplitude of the carrier signal only changes

(c) amplitude of both base band signal and carrier signal change.

(d) amplitude and frequency of the carrier signal change.

Q298.The resting frequency is the frequency of the _____.

(a) carrier frequency when there is no input signal.

(b) carrier frequency when the amplitude of the input signal is maximum.

(c) base band signal when the value of the carrier frequency is zero

(d) baseband signal when the value of caffLet frequency is equal to baseband signal frequency

Q299.Compressions and rarefactions occur in _____.

(a) frequency modulated wave (b) phase-modulated wave

(c) amplitude modulated wave (d) both (a) and (b)

Q300.The range of propagation for the antenna of height 2m is (Radius of earth is 6400 km) _____.

(a) 800m (b) 1600m (c) 16km (d) 8km

Q301.Which is not true with respect to skywave propagation?

(a) It is used for short wave propagation

(b) ionosphere acts as a reflecting surface

(c) The frequency range of EM waves used is 3 to 30MHz

(d) In skip zone, ground wave alone is received

Q302. In sky wave propagation the radio waves are sent back to earth. It is due to _____.

(a) reflection (b) refraction (c) scattering

(d) total internal reflection

Q303. The frequency range of 30MHz to 400GHz is used for _____.

(a) Satellite communication (b) Ground wave propagation

(c) Space wave propagation (d) Sky wave propagation

Q304. In satellite communication system the uplink and downlink frequency bands are respectively, _____.

(a) 6GHz, 4 GHz (b) 12 GHz, 6GHz (c) 4GHz, 6GHz

(d) 6GHz, 12GHz

Q305. Cellular phones use radio-waves in _____ band.

(a) long wave (b) short wave (c) medium wave

(d) ultra high frequency

Q306. The signal is affected by noise in a communication system _____.

(a) at the modulator (b) in the channel (c) at the receiver

(d) at the transmitter

Q307. The height of the transmitting and receiving antenna must be a multiple of _____.

(a) 2λ (b) $\lambda/4$ (c) $\lambda/2$ (d) 4λ

Q308. In space wave propagation, the range of coverage of the propagation depends on the height 9(h) of the antenna given by the equation _____.

(a) $\sqrt{2\mathrm{Rh}}$ (b) $\sqrt{\frac{\mathrm{Rh}}{2}}$ (c) $\sqrt{2R^2h}$ (d) $\frac{\mathrm{h}}{2\mathrm{R}}$

Q309. If the input to the NOT gate is A = 0011, its output is

(a) 0100 (b) 1000 (c) 1100 (d) 0011

Q310. The value of forbidden energy gap for Si at room temperature is:

(a) 1.1 V (b) 0.7 eV (c) 1.1 eV (d) 0.7 V

Q311. At 0 K, n - type semi-conductor:

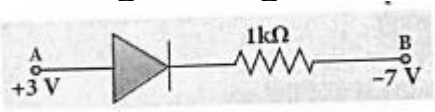
(a) does not have any charge carriers

(b) has few holes but no free electrons

(c) few holes and few electrons

(d) has equal number of holes and electrons

Q312. Consider an ideal junction diode. Find the value of current flowing through AB is



(a) 10 mA (b) 20 mA (c) 15 mA (d) 11 mA

Q313. Which of the following statement is correct for transistor LC oscillator circuit?

(a) It works with negative feedback

(b) The phase difference between output and input signal is π radian

(c) To start oscillation external signal is required

(d) The frequency of output signal is independent of the components used in feedback circuit

Q314. The dopant to be added with a pure Germanium crystal to form a n type semiconductor is _____.

(a) Boron (b) Phosphorous (c) Aluminium (d) Indium

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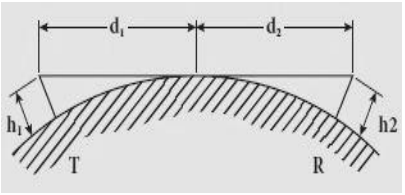
2 Marks 124 x 2 = 248

Q315. A transmitting antenna has a height of 40 m and the height of the receiving antenna is 30 m. What is the maximum distance between them for line-of-sight communication? The radius of the earth is 6.4×10^6 m.



Q316. Give the factors that are responsible for transmission impairments.

Q317. Explain centre frequency or resting frequency in frequency modulation.

Q318. What does RADAR stand for?

Q319. Define electron motion in a semiconductor.

Q320. Distinguish between intrinsic and extrinsic semiconductors.

Q321. What do you mean by doping?

Q322.A diode is called as a unidirectional device. Explain.

Q323.What do you mean by leakage current in a diode?

Q324.Draw the input and output waveform of a full wave rectifier.

Q325.Distinguish between avalanche breakdown and Zener breakdown.

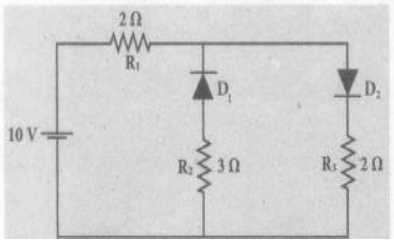
Q326.Explain the current flow in a NPN transistor.

Q327.What is the phase relationship between the AC input and output voltages in a common emitter amplifier? What is the reason for the phase reversal?

Q328.Explain the need for a feedback circuit in a transistor oscillator.

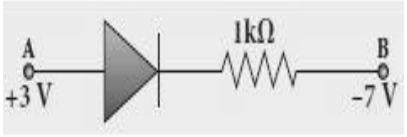
Q329.State De Morgan's first and second theorems

Q330.The given circuit has two ideal diodes connected as shown in figure below. Calculate the current flowing through the resistance R_1.



Q331.An ideal diode and a 5 Ω resistor are connected in series with a 15 V power supply as shown in figure below. Calculate the current that flows through the diode.

Q332.A silicon diode is connected with 1kΩ resistor as shown. Find the value of current flowing through AB is

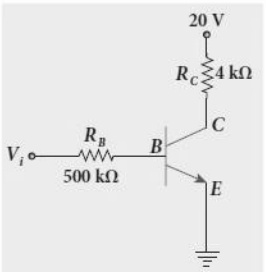


Q333.Determine the wavelength of light emitted from LED which is made up of GaAsP semiconductor whose forbidden energy gap

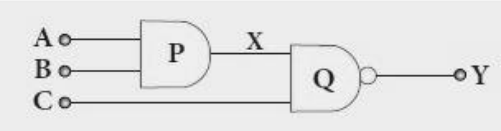
is 1.875 eV. Mention the colour of the light emitted (Take h = 6.6 x 10^{-34} Js).

Q334. In a transistor connected in the common base configuration, α = 0 95, I_E = 1 mA. Calculate the values of I_C and I_B.

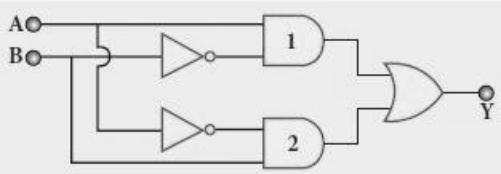
Q335. In the circuit shown in the figure, the input voltage V_i is 20 V, V_{BE} = 0 V, and V_{CE} = 0 V. What are the values of I_B, I_C, β?



Q336. What is the output Y in the following circuit, when all the three inputs A, B, and C are first 0 and then 1?



Q337. In the combination of the following gates, write the Boolean equation for output Y in terms of inputs A and B.



Q338. Prove the Boolean identity AC + ABC = AC and give its circuit description.

Q339. Define energy band

Q340. Define conduction band.

Q341. What is forbidden energy gap?

Q342. What is barrier potential?

Q343. Define bias voltage.

Q344. Define forward bias.

Q345. Define Reverse bias.

Q346.What is forward V-I characteristics?

Q347.What is rectification?

Q348.What is meant by efficiency (η)?

Q349.Define Zener effect

Q350.Mention any three application Zener diode.

Q351.Mention any three LED application.

Q352.Define photo diode.

Q353.Define photovoltaic effect.

Q354.Mention the application of a oscillators

Q355.What is meant by biasing? Mention its types.

Q356.What is called reverse saturation current?

Q357.Explain knee voltage

Q358.Define internal field emission or field ionization.

Q359.What is called output resistance?

Q360.What is called logical operators?

Q361.What is called logical variables?

Q362.What is conduction band?

Q363.Define depletion region.

Q364.What is Breakdown voltage?

Q365.Write the advantages of PM?

Q366.Define Bandwidth.

Q367.Define bandwidth of transmission system.

Q368.What do you mean by skip distance?

Q369.Write the demerits of fiber optic communication?

Q370.What is mobile communication?

Q371.Write the application of ICT?

Q372.What do you mean by communication?

Q373.What is transducer?

Q374.Write the function of Repeater.

Q375.Why ground wave propagation is not suitable for high frequency?

Q376.Why sky waves are not used in the transmission of T.V. signals?

Q377.Greater the height of a TV transmitting antenna. Explain

Q378.What is modulated wave?

Q379.Which modulation is more advantageous? AM or FM? Why?

Q380.What do you mean by noise in communication?

Q381.What are carrier waves?

Q382.Define forbidden energy gap.

Q383.Why is temperature co-efficient of resistance negative for semiconductor?

Q384.Give the Barkhausen conditions for sustained oscillations.

Q385.What are logic gates?

Q386.Write a short note on diffusion current across p - n junction.

Q387. Why can't we interchange the emitter and collector even though they are made up of the same type of semiconductor material?

Q388. Why are NOR and NAND gates called universal gates?

Q389. Define barrier potential.

Q390. List the applications of light emitting diode.

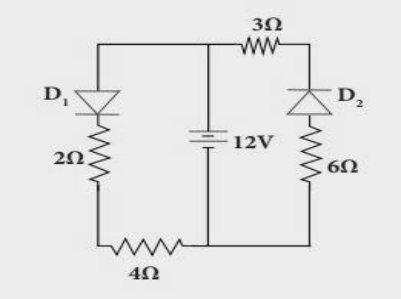
Q391. Give the principle of solar cells.

Q392. What is an integrated circuit?

Q393. What is modulation?

Q394. Give applications of RADAR.

Q395. Determine the current flowing through 3Ω and 4Ω resistors of the circuit given below. Assume that diodes D_1 and D_2 are ideal diodes.



Q396. Prove the following Boolean expressions using the laws and theorems of Boolean algebra.

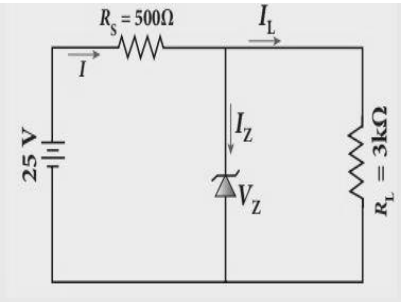
(i) $(A + B)(A + \bar{B}) = A$

(ii) $A(\bar{A} + B) = AB$

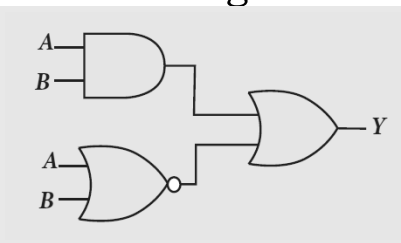
(iii) (A + B) (A + C) = A + BC

Q397. Verify the given Boolean equation $A + \bar{A}B = A + B$ using truth table.

Q398. In the given figure of a voltage regulator, a Zener diode of breakdown voltage 15V is employed. Determine the current through the load resistance, the total current and the current through the diode. Use diode approximation.



Q399.Write down Boolean equation for the output Y of the given circuit and give its truth table.



Q400.What do you mean by forbidden energy gap?

Q401.What is energy bond?

Q402.What is meant by barrier potential?

Q403.Define Biasing a diode aad bias voltage

Q404.What is threshold voltage or cut - in voltage or knee voltage?

Q405.Define Rectification

Q406.Define Efficiency

Q407.What is Zener effect?

Q408.What are the applications of Zener diode?

Q409.What are the uses of optoelectronic devices?

Q410.What is an LED? Draw the circuit symbol of it.

Q411.Write the applications of an LED

Q412.What is solar cell? Write its application?

Q413. Draw the schematic diagram of NPN transistor and PNP transistor

Q414. Draw the circuit symbol of NPN transistor in common emitter configuration

Q415. Define forward current gain (a_{de}) of a transistor

Q416. Which are very important for the effective use of transistors in circuits?

Q417. Define forward current gain in a current transfer characteristics of transistor in CE mode

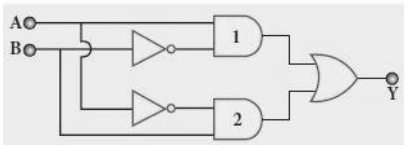
Q418. What is the relationship between α and β?

Q419. Define Amplification of amplifier and what are called as multistage amplifiers?

Q420. What is an Oscillator?

Q421. State the Barkhausen conditions for sustained oscillations

Q422. In the combination of the following gates, write the Boolean equation for output Y in terms of inputs A and B.



Q423. What are the application of oscillators?

Q424. What are main advantages of IC's over ordinary circuits?

Q425. What is the use of repecaters in communication system?

Q426. What is skip zone?

Q427. What is the necessity of having modulation?

Q428. What is amplitude modulation?

Q429. What is frequency modulation?

Q430. What are the advantages of FM over AM?

Q431. Despite some limitations, AM broadcasting is widely used. Why? [Limitations of FM]

Q432. What is phase modulation?

Q433. What is transducer?

Q434. What is base band signal?

Q435. What is bandwidth?

Q436. What are the three modes of propagation, Mention the frequency range.

Q437. What is line of sight [LOS] communication?

Q438. Write the merits and demerits of optical Fibre communication.

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3 Marks 56 x 3 = 168

Q439. Distinguish between wireline and wireless communication? Specify the range of electromagnetic waves in which it is used.

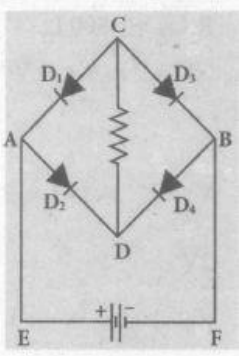
Q440. What do you mean by Internet of Things?

Q441. How electron-hole pairs are created in a semiconductor material?

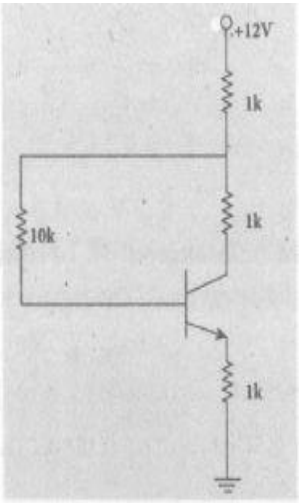
Q442. Discuss the biasing polarities in an NPN and PNP transistors

Q443. Write a note on photodiode.

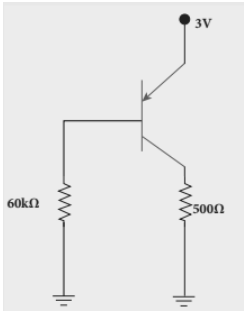
Q444. Four silicon diodes and a 10 Ω resistor are connected as shown in figure below. Each diode has a resistance of 1Ω. Find the current flows through the 10Ω resistor.



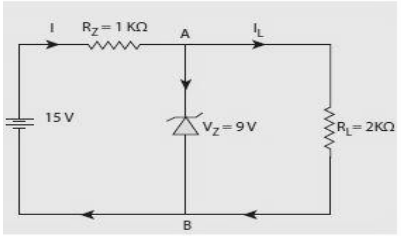
Q445. A transistor having α = 0.99 and V_{BE} = 0.7V, is connected in the common-cmiitter configuration as shown in figure. If the transister is in saturation region, find the value of the collector current.



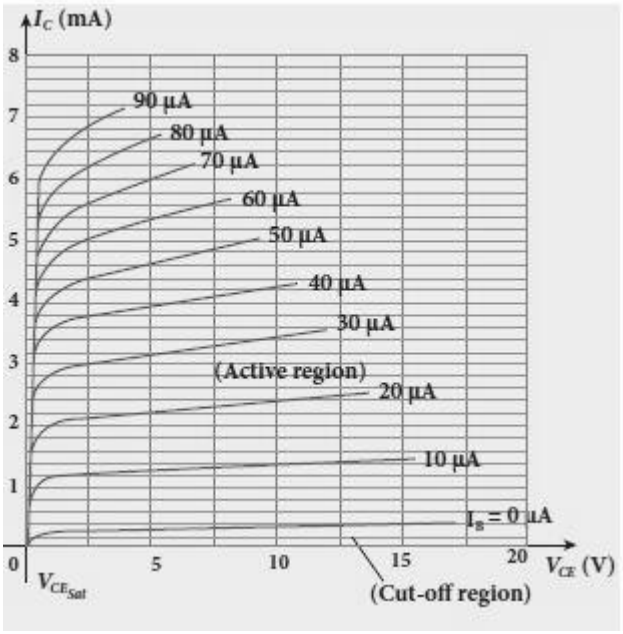
Q446. In the circuit shown in the figure, the BJT has a current gain (β) of 50. For an emitter-base voltage V_{EB} = 600 mV, calculate the emitter-collector voltage V_{EC} (in volts).



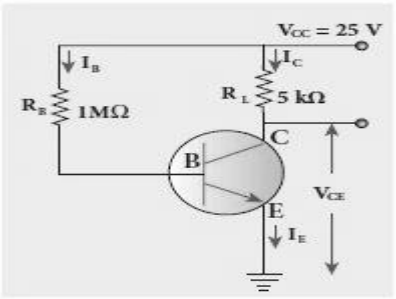
Q447. Find the current through the Zener diode when the load resistance is 2 kΩ. Use diode approximation.



Q448.The output characteristics of a transistor connected in common emitter mode is shown in the figure. Determine the value of IC when V_{CE} = 15 V. Also determine the value of I_C when V_{CE} is changed to 10 V



Q449.The current gain of a common emitter transistor circuit shown in figure is 120. Draw the DC load line and mark the Q point on it. (V_{BE} to be ignored).



Q450.Calculate the range of the variable capacitor that is to be used in a tuned-collector oscillator which has a fixed inductance of 150 µH. The frequency band is from 500 kHz to 1500 kHz.

Q451.Give the Schematic representation of valence band, conduction band, and forbidden energy gap and draw energy band structure of
(a) Insulators
(b) Semiconductors
(c) Metals?

Q452.What is electronics?

Q453.What are the advantages and Limitations of FM?

Q454.Write the limitations of AM.

Q455.What are the advantages of FM

Q456.Write the limitations of FM.

Q457.What are the application of satellite communication?

Q458.Write the applications of internet.

Q459.Why space wave propagation is limited upto small distance over earth's surface?

Q460.Explain why TV transmission towers made high.

Q461.What does the term LOS communication mean? Name the types of waves that are used for this communication. What is the range of their frequency?

Q462.Why ground wave cannot be used for long distance communication using high frequency?

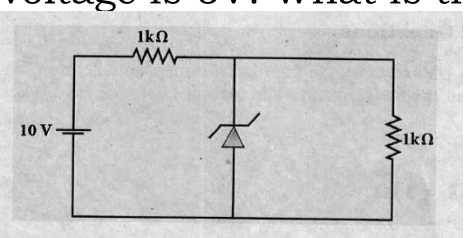
Q463.List out the advantages and limitations of frequency modulation.

Q464.What is meant of oscillator? Explain its types.

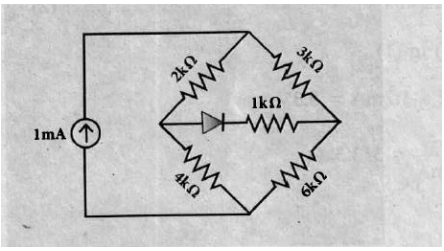
Q465.A transistor is connected in CE configuration the voltage drop across the load resistance (R_c) 3kΩ is 6v. Find the base current. The current gain α of the transistor is 0.97

Q466.Determine the minimum value of current gain β required to put the transistor in saturation
when $V_{\text{in}} = +5$ V, Assume $V_{BE}(\text{ sat }) = 0.8V, V_{CE}(\text{ sat }) = 0.2V$

Q467.In the circuit shows below, the Zener diode is ideal and zener voltage is 6V. What is the output voltage V_0 (in Volts).



Q468.The diode in the circuit given below has V_{oN} = 0.7V but ideal otherwise. What is the current (in mA) in the 4 kΩ resistors?



Q469. Assuming V_{CEsat} = 0.2 V and β = 50, find the minimum base current (I_B) required to drive the transistor given in the figure to saturation.

Q470. Simplify the Boolean identify
AC + ABC = AC

Q471. Simplify
$Y = A \cdot \overline{B} + AB + BC + CA$

Q472. Show in diagram, the skip distance and the skip zone.

Q473. Write a short note of the operating point of a transistor.

Q474. What are two different types of signals used in electronics and explain them.

Q475. What are main advantages of IC% over ordinary circuits?

Q476. What do you mean by Internet of Things?

Q477. Draw the wave forms during amplitude modulation.

Q478. Give the waveforms during frequency modulation?

Q479. Explain the parts and functions of a transmitter.

Q480. Briefly explain the function of a receiver.

Q481. What is output transducer? Give Examples.

Q482. What is attenuation and how it can be reduced?

Q483. In sky wave propagation why EM waves are transmitted at a critical angle?

Q484. What is range?

Q485.What is satellite communication?

Q486.Calculate the range of the communication if the height of the transmitting antenna is 7.2 m. Radius of the carth is 6.4 x10^6 m.

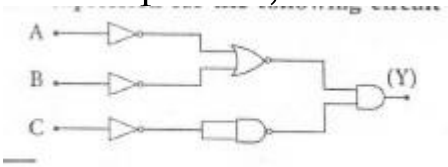
Q487.How mobile communication is different from other communications?

Q488.Briefly explain about internet.

Q489.Simplify the Boolean identity : AC+ABC = AC

Q490.A transmitting antenna has a height of 100 m. Find its range of propagation. The radius or the earth is 6.4 x 10^6 m.

Q491.Write the output (Y) Boolean expression for the following circuit with inputs A, B and C.



Q492.Sketch the static characteristics of a common emitter transistor and bring out the essential features of input characteristics.

Q493.Sketch the static characteristics of a common emitter transistor and bring out the essential features of output characteristics.

Q494.state and prove demorgan first theorem with diagram

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5 Marks 40 x 5 = 200

Q495.Explain the ampitude modulation with necessary diagrams.

Q496.Explain the basic elements of communication system with the necessary block diagram.

Q497.Explain the ground wave propagation and space wave propagation of electromagnetic waves through space.

Q498.What do you know about GPS? Write a few applications of GPS.

Q499.Give the applications of lCT in mining and agriculture sectors.

Q500. Modulation helps to reduce the antenna size in wireless communication - Explain

Q501. Fiber optic communication is gaining popularity among the various transmission media -justify.

Q502. Give circuit symbol, logical operation, truth table, and Boolean expression of
i) AND gate
ii) OR gate
iii) NOT gate
iv) NAND gate
v) NOR gate and
vi) EX-OR gate.

Q503. Elucidate the formation of a N -type and P-type semiconductors.

Q504. Explain the formation of depletion region and barrier potential in PN junction diode.

Q505. Draw the circuit diagram of a half-wave rectifier and explain its working.

Q506. Explain the construction and working of a full wave rectifier

Q507. What is an LED? Give the principle of its operation with a diagram.

Q508. Sketch the static characteristics of a common emitter transistor and bring out the essential features of input and output characteristics.

Q509. Describe the function of a transistor as an amplifier with the neat circuit diagram. Sketch the input and output wave forms.

Q510. Transistor functions as a switch. Explain.

Q511. State Boolean laws. Elucidate how they are used to simplify Boolean expressions with suitable example.

Q512. State and prove De Morgan's first and second theorem.

Q513. Explain the working principle of a solar cell. Mention its applications.

Q514. How does the change in temperature and application of electric field affect the behavior of materials and write the range of resistivity for each materials.

Q515. Explain and classify transistor as an oscillator.

Q516. Explain current transfer characteristics.

Q517. Write any two distinguishing features between Insulators, Metals and semiconductors and insulators an the basis of energy band diagrams.

Q518. For a BJT, the common - base current gain $\alpha = 0.98$ and the collector base junction reverse bias saturation $I_{CU} = 0.6\mu A$. This BJT is connected in the common emitter mode and operated in the active region with a base drive current $I_D = 20\ \mu A$. The collector current I_C for this mode of operating is

Q519. For a BJT circuit shown, assume that the 'β' of the transistor is very large and $V_{BE} = 0.7$ V. The mode of operation.

Q520. What is RADAR? Explain its function. State its applications

Q521. Write the applications of mobile communication.

Q522. What is meant by satellite communication? Give its applications.

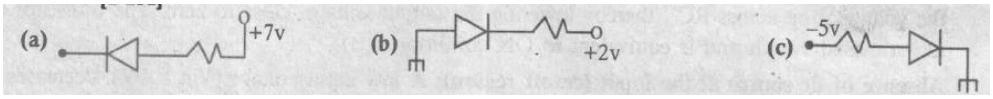
Q523. Elucidate the formation of n-type extrinsic semiconductors.

Q524. Draw the block diagram of transistor oscillators and explain it. (or) Explain the working of the transistor as on oscillator.

Q525. Calculate the voltage of resistors R_B in the circuit shown to put V_{CE} at 3.0 V.

Q526. What is a solar cell? Draw the cross-sectional view of a solar cell and explain its consumption and working. Write a note on solar arrays.

Q527. In the following diagrams, indicate which of the diodes are forward biased and which reverse biased?



Q528. What is zener diode? Explain the V - I characteristic of zener diode.

Q529. Explain how zener diode act as a voltage regulator.

Q530. Explain the formation of PN junction diode. Discuss its V-I characteristics.

Q531. What is meant of oscillator? Explain its types.

Q532. What is modulation? Explain the types of modulation with necessary diagrams.

Q533. What is RADAR? Explain its function. State its applications.

Q534. Explain the three modes of propagation of electromagnetic waves through space.

Match the following 16 x 1 = 16

Q535. Oscillators

Q536. LED

Q537. Internal field emissin

Q538. Dopants

Q539. Hole

Q540. n-type semiconductor

Q541. Valence orbitals

Q542. Reverse saturation current

Q543. Carrier signal

Q544. Baseband signal

Q545. Centre frequency

Q546. Wireline communication

Q547. Weather satellites

Q548. Communication satellites

Q549. Navigation satellites

Q550. Fibre optic communication

Assertion and reason 4 x 2 = 8

Q551. **Assertion:** Television signals are received through sky-wave propagation.
Reason: The ionosphere reflects electromagnetic waves of frequencies greater then a certain critical frequency.
Codes:
(a) Assertion and Reason are correct and Reason is the correct explanation of Assertion.
(b) Assertion and Reason are true but Reason is the false explanation of the Assertion.
(c) Assertion is true but Reason is false.
(d) Assertion is false but Reason is false

Q552. **Assertion:** Short wave bands are used for the transmission of radio waves to a large distance
Reason: Short waves are reflected by the ionosphere.
Codes:
(a) Assertion and Reason are correct and Reason is the correct explanation of Assertion.
(b) Assertion and Reason are true but Reason is the false explanation of the Assertion.
(c) Assertion is true but Reason is false.
(d) Assertion is false but Reason is false

Q553. **Assertion**: A dish antenna is highly directional.
Reason: This is because a dipole antenna is omni directional.
Codes:
(a) Assertion and Reason are correct and Reason is the correct explanation of Assertion.
(b) Assertion and Reason are true but Reason is the false explanation of the Assertion.
(c) Assertion is true but Reason is false.
(d) Assertion is false but Reason is false

Q554. **Assertion:** Base current (I_B) decreases and in turn increases the collector current.
Reason: Input signal (V_S) decreases the forward voltage across the emitter-base.

Codes:
(a) Assertion and Reason are correct and Reason is the correct explanation of Assertion.
(b) Assertion and Reason are true but Reason is the false explanation of the Assertion.
(c) Assertion is true but Reason is false.
(d) Assertion is false but Reason is true.

Find out the wrong pair 4 x 2 = 8

Q555. (a) Ground wave propagation - Surface waves
(b) Sky wave propagation - Antenna
(c) Space wave propagation - 50 MHz
(d) Skip distance - No reception

Q556. (a) Fibre optic cables - Date speed of 1 Gbps
(b) Satellite communication - Radio repeater in sky
(c) Oscillator- Sinusoidal wave
(d) Transmitting antenna - 5 x 108 ms^{-1}

Q557.

(a)	ENIAC	World's first computer
(b)	Energy levels	Electron volts
(c)	Bipolar junction	Bardeen
(d)	Reverse saturation current	I_R

Q558.

(a)	Blue	SiC
(b)	Green	AlGap
(c)	Red	GiP
(d)	White light	GaInN

Choose the Correct or Incorrect Statement 8 x 1 = 8

Q559. Choose the correct statements
I) Carrier signal does not have information.
II) Carrier wave usually have a much higher frequency.
III) Carrier signal is used ot carry the baseband signal.
IV) Carrier signal cannot be transmuted to long distance with less attenuation.
(a) I, II and III only
(b) I and II only
(c) I and III only
(d) I, II, III and IV

Q560. Choose the correct statements
(I) Amplitude modulation is used in radio and TV brad casting.
(II) Phase of the carrier signal remain constant in amptitude modulation.
(III) Noise level is low in AM.

(IV) Baseband signal carries information.
(a) I, II and III only
(b) I, II and IV only
(c) I and II only
(d) I, II, III and IV

Q561. Choose the Incorrect statements
(a) PM wave is similar to AM wave.
(b) PM generally uses a smaller bandwidth than FM.
(c) FM signal produced from PM signal is very stable.
(d) FM and PM waves are completely different for square wave modulating signal.

Q562. Choose the Incorrect statements
(a) Input transducer converts variations in physical quantity.
(b) The electrical equivalent of the original information is called the baseband signal
(c) Transducer converts electrical energy into sound energy
(d) Microphone is an example of transducer.

Q563. **Correct Statement**
(I) Transistor can be operated efficiently in an operating point
(II) Variations of Ic and VCE takes place in this point.
(III) Q - points determine the working point of a transistor.
(IV) Transistor is a semiconductor device used to amplify or switch electronic signals.
(a) I and II only
(b) II and III only
(c) I, II and III only
(d) I, II, III and IV only

Q564. **Correct Statement**
(I) Germanium atom has 32 orbiting electrons.
(II) Diode has 2 terminals.
(III) mA is the unit used to represent the level of a diode forward current I_F
(IV) The diffused impurities with 3 valence electrons are called donor atoms.
(a) I, II and III only
(b) III and IV only
(c) I, II and IV only
(d) I, III and IV only

Q565. **Incorrect statements**
(a) Amplification is the process of increasing the signal strength.
(b) A logic gate is an electronic circuit.
(c) Logic gate functions based on digital signals.
(d) Logic gates having one or more than and one or more than outputs inputs.

Q566.**Incorrect statements**

(a) A and B are inputs and Y is the output for OR gate.
(b) A is the input and Y is the output for NOT gate.
(c) A and B are outputs and Y is the input for NOR gate.
(d) A and B are inputs and Y is the output for Ex-OR gate.
