**Electronics Important MCQ**

Q.1.Electron-hole pair are produced by:- (a) recombination**(b) thermal energy** (c) ionization (d) doping

Q.2.Recombination is when:- **(a) an electron falls into a hole,** (b) a positive and a negative ion bond together
(c)a valence electron becomes a conduction electron, (d)a crystal is formed

Q.3.Each atom in a silicon crystal has:- (a) four valence electrons, (b) four conduction electrons
**(c) eight valence electrons, four of its own and four shared,** (d)no valence electrons because all are shared with other atoms

Q.4.The current in a semiconductor is produced by:-(a) electrons only (b) holes only (c) negative ions **(d)both electrons and holes**

Q.5.The process of adding an impurity to an intrinsic semiconductor is called:- **(a) doping** (b) recombination (c)atomic modification (d)ionization

Q.6.A trivalent impurity is added to silicon to create:-(a) germanium**(b) a p-type semiconductor**
(c) an n-type semiconductor (d) a depletion region

Q.7.The purpose of penta-valent impurity is to :- (a) reduce the conductivity (b) increase the number of holes
**(c) increase the number of free electrons** (d)create minority carriers

Q.8(a).For a silicon diode, the value of the forward-bias voltage typically:-(a) must be greater than 0.3V **(b) must be greater than 0.7V,** (c) depends on the width of depletion region (d)depends on the concentration of majority carriers

Q.8(b) For a Germanium diode, the value of the forward-bias voltage typically:-**(a) must be greater than 0.3V** **(b) must be greater than 0.7V,** (c) depends on the width of depletion region (d)depends on the concentration of majority carriers

Q.9.When forward biased , a diode:-(a) blocks current **(b) conducts current,** c) has a high resistance (d) drops a large voltage

Q.10.When a voltmeter is placed across a forward-biased diode, it will read a voltage approximately equal to:-
(a) the bias battery voltage (b) 0V, **(c) the diode barrier potential** (d) the total circuit voltage

Q.11.The term bias means:- (a) the ration of majority carriers to minority carriers
(b) the amount of current across a diode, **(c) a dc voltage is applied to control the operation of a device**
(d) none of the above

Q.12.In a LED, the light is produced by a solid state process called as:-(a) light radiation **(b) electroluminescence** (c) light multiplication (d) phosphoresce

Q.13.Efficiency of LED is given by:- (a) light to light conversion (b) light to electrical conversion
**(c) electrical power to visible light conversion** (d) none of above

Q.14.The wavelength of the light emitted and its color depends on the:- (a) forward voltage (b) forward current
**(c) band gap energy of the material forming P-N junction** (d) none of the above

Q.15.The material used for red LED is:- (a) GaP (b) GaAsP (c) AlGaAs **(d) Above all**

Q.16.(a)A Silicon diode is in series with a 1.0 kΩ resistor and a 5V battery. If the anode is connected to the positive battery terminal, the cathode voltage with respect to the negative battery terminal is:- (a) 0.7V (b) 0.3V (c) 5.7V**(d) 4.3V**

**(Hint voltage or potential drop across barrier in case Silicon is 0.7 V)**

**(b)** A Germanium diode is in series with a 1.0 kΩ resistor and a 5V battery. If the anode is connected to the positive battery terminal, the cathode voltage with respect to the negative battery terminal is:- (a) 0.7V (b) 0.3V (c) 5.7V**(d) 4.7V**

**(Hint voltage or potential drop across barrier in case Germanium is 0.3 V)**

Q.17.Although current is blocked in reverse bias,:- (a) there is some current due to majority carrier
**(b) there is very small current due to minority carriers,** (c) there is an avalanche current, (d) none of the above

Q.18.The average value of a half wave rectified voltage with a peak value of 200V is:- **(a) 63.7V** (b) 127.3V (c) 141V (d) 0V.

**(Hint average value of a half wave rectified voltage with a peak value of Vm  is Vaverage=**$\frac{V\_{m}}{π}$**=200/3.1416)**

Q.19.When a 60Hz sinusoidal voltage is applied to the input of a half-wave rectifier, the output frequency is:-
(a) 120Hz (b) 30Hz**(c) 60Hz** (d) 0Hz ( hint if input frequency is $ω$thenoutput frequency will also be$ ω$ (remain same) for half wave rectifier)

Q.20.The peak value of the input to a half-wave rectifier is 10V.The approximate peak value of the output is:-
(a) 10V (b) 3.18V (c) 10.7V**(d) 9.3V**

**(Hint voltage or potential drop across barrier in case Silicon is 0.7 V)**

Q.21.The average value of full-wave rectified voltage with a peak value of 75V is:- **(a) 53V** **(b)** **47.8V** (c) 37.5V (d) 23.9V

**(Hint average value of a full wave rectified voltage with a peak value of Vm  is Vaverage=**$\frac{2 V\_{m}}{π}$**=150/3.1416)**

Q.22.When a 60Hz sinusoidal voltage is applied to the input of a full-wave rectifier, the output frequency is:-
**(a) 120Hz** (b) 60Hz (c) 240Hz (d) 0Hz ( hint if input frequency is $ω$thenoutput frequency will also be$ 2ω$ (double) for full wave rectifier)

Q.23.The total secondary voltage in a center-tapped full-wave rectifier is 125V rms. Neglecting the diode drop, the rms output voltage is:- (a) 125V (b) 177V (c) 100V **(d) 62.5V**

(Hint total voltage in center-tapped transformer is (**V1 +V2) with opposite phase if V1 = V2 then 2 V1=125V and V1=125/2)**

Q.24.When the peak output voltage is 100V,the PIV for each diode in a center-tapped full-wave rectifier is (neglecting the diode drop):-(a) 100V **(b) 200V** (c) 141V (d) 50V (Hint Peak Inverse Voltage(PIV) for Full wave Rectifier is double of peak out voltage(PIV=2Vm , Vm is peak voltage)and same for half wave rectifier, PIV= Vm)

Q.25.The ideal dc output voltage of a capacitor-input filter is equal to:- **(a) The peak value of the rectified voltage**
(b) The average value of the rectified voltage, (c) The rms value of the rectified voltage, (d) None of the above

Q.26.If the load resistance of a capacitor-filtered full-wave rectifier is reduced, the ripple voltage:- **(a) increases** (b) decreases (c) is not affected (d) has a different frequency (the ripple voltage is inversely proportional to load resistance and value of Capacitor)

Q.27.If one of the diodes in a bridge full-wave rectifier opens, the output is approximately
(a) 0V (b) one-fourth the amplitude of the input voltage, **(c) a half-wave rectified voltage** (d) a 120Hz voltage

Q.28.The cathode of zener diode in a voltage regulator is normally:- **(a) more positive than the anode** (b) more negative than the anode, (c) at +0.7 V (d) grounded

Q.29.If a certain zener diode has a zener voltage of 3.6V,it operates in:- (a) regulated breakdown **(b) Zener breakdown**
(c) forward conduction (d) avalanche breakdown

Q.30.The data sheet for a particular zener gives VZ=10V at IZT=500mA. RZ (Zener resistance) for these conditions is:-
(a) 50Ω **(b) 20Ω** (c) 10 Ω (d) unknown ( **Hint RZ = VZ/ IZT=10/0.5)**

Q.31.An LED:- (a) emits light when reverse biased (b) senses light when reverse biased**(c) emits light when forward biased** (d) acts as a variable resistance

**(\*\*\*N.B.:-Notes on Transistor will be given latter)**

Q.32.When operated in cutoff and saturation, the transistor acts like:- (a) a linear amplifier **(b) a switch** (c) a variable capacitor (d) a variable resistance

Q.33.In a voltage divider biased npn transistor, if the upper voltage-divider resistor(the one connected to VCC) opens,
**(a) the transistor goes into cutoff** (b) the transistor goes into saturation (c) the transistor burns out (d) the supply voltage is too high

Q.34.In a voltage divider biased npn transistor, if the lower voltage-divider resistor(the one connected to ground) opens,
**(a) the transistor goes into cutoff** (b) the transistor goes into saturation (c) the transistor burns out (d) the supply voltage is too high

Q.35.A certain common-emitter amplifier has a voltage gain of 100.If the emitter bypass capacitor is removed,
(a) The circuit will become unstable **(b) the voltage gain will decrease**(c) the voltage gain will increase (d) The Q-point will shift