Course/Branch : B.E/ ECE	**Year / Semester** : II/III	Format No.	NAC/TLP-07a.13
Subject Code :EC8351	**Subject Name** : Electronic Circuits - I	Rev. No.	02
Unit No 1	**Unit Name** : Biasing of Discrete BJT,JFET and MOSFET	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

S. No.	Objective Questions (MCQ /True or False / Fill up with Choices)	BTL
1	How many junction/s do a diode consist? A) 0 B) **1** C) 2 D) 3	L4
2	If the positive terminal of the battery is connected to the anode of the diode, then it is known as **A) Forward Biased** **B)** Reverse Biased **C)** Equilibrium **D)** Schottky Barrier	L4
3	During reverse bias, a small current develops known as A) Forward Current B) Reverse Current **C) Reverse Saturation Current** D) Active Current	L4
4	If the voltage of the potential barrier is V_0. A voltage V is applied to the input, at what moment will the barrier disappear? A) $V< V_0$ **B) $V= V_0$** C) $V> V_0$ D) $V<< V_0$	L4
5	During the reverse biased of the diode, the back resistance decrease with the increase of the temperature. Is it true or false? **A) True** **B)** False	L4
6	What is the maximum electric field when V_{bi}=2V , V_R=5V and width of the semiconductor is 7cm? A) -100V/M **B) -200V/M** C) 100V/M	L4

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	D) 200V/M	
7	When the diode is reverse biased with a voltage of 6V and V_{bi}=0.63V. Calculate the total potential. A) 6V **B) 6.63V** C) 5.27V D) 0.63V	L4
8	Which of the following isn't a type of rectifier? A) Precision Half-Wave Rectifier B) Bridge Rectifier C) Peak Rectifier **D) None Of The Mentioned**	L4
9	For a half-wave rectifier having diode voltage V_D and supply input of V_I, the diode conducts for $\pi - 2\Theta$, where Θ is given by A) $Tan^{-1} V_D/V_I$ B) $Tan^{-1} V_D/V_I - V_I$ **C) $Sin^{-1} V_D/V_I$** D) $Sin^{-1} V_D/V_I - V_I$	L4
10	Bridge rectifier is an alternative for **A) Full Wave Rectifier** **B)** Peak Rectifier **C)** Half Wave Rectifier **D)** None Of The Mentioned	L4
11	A simple diode rectifier has 'ripples' in the output wave which makes it unsuitable as a DC source. To overcome this one can use A) A Capacitor In Series With A The Load Resistance **B) A Capacitor In Parallel To The Load Resistance** C) Both Of The Mentioned Situations Will Work D) None Of The Mentioned Situations Will Work	L4
12	Which of the following is true about the resistance of a Zener diode? A) It Has An Incremental Resistance B) It Has Dynamic Resistance	L4

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	C) The Value Of The Resistance Is The Inverse Of The Slope Of The I-V Characteristics Of The Zener Diode **D) All Of The Mentioned**	
13	In Zener diode, for currents greater than the knee current, the v-i curve is almost A) Almost A Straight Line Parallel To Y-Axis **B) Almost A Straight Line Parallel To X-Axis** C) Equally Inclined To Both The Axes With A Positive Slope D) Equally Inclined To Both The Axes With A Negative Slope	L4
14	Zener diodes can be effectively used in voltage regulator. However, they are these days being replaced by more efficient A) Operational Amplifier B) MOSFET **C) Integrated Circuits** D) None Of The Mentioned	L4
15	A 9.1-V zener diode exhibits its nominal voltage at a test current of 28 mA. At this current the incremental resistance is specified as 5 Ω. Find VZ0 of the Zener model. A) 8.96V **B) 9.03V** C) 9.17V D) 9.24V	L4
16	A shunt regulator utilizing a zener diode with an incremental resistance of 5 Ω is fed through an 82-Ω resistor. If the raw supply changes by 1.0 V, what is the corresponding change in the regulated output voltage? A) 72.7 Mv B) 73.7 Mv **C) 74.7 Mv** D) 75.7 Mv	L4
17	Which of the following is method to model a diode's forward characteristics? A) Iteration Method B) Graphical Method C) Constant-Voltage Drop Model **D) All Of The Mentioned**	L4

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OBJECTIVE TYPE QUESTION BANK

18	A voltage regulator needs to provide a constant voltage in spite of the fact that there may be A) Change In The Load Current Drawn From The Terminals Of The Regulator B) Change Of The DC Power Supply That Feeds The Regulator Circuit C) None Of The Mentioned **D) All Of The Mentioned**	L4
19	Calculate the %age change in the regulated voltage caused by a change of ±10% in the input voltage. (R_L is not connected to the circuit) **A) ± 0.5%** B) ± 1% C) ± 5% D) ± 10%	L4
20	Calculate the change in the voltage when R_L is connected as shown A) -10 Ma B) -15 Ma **C) -20 Ma** D) -25 Ma	L4
21	The value of the diode small-signal resistance r_d at bias currents of 0.1 mA is **A) 250 Ω** **B)** 25 Ω **C)** 2.5 Ω D) 0.25 Ω	L4
22	The graphical method of modeling a diode characteristics is based on A) Iteration Method B) Constant Voltage Drop Method C) Small Signal Approximation **D) Exponential Method**	L4
23	The other name for bias point is **A) Quiescent Point** **B)** Node Point **C)** Terminal Point **D)** Static Point	L4

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OBJECTIVE TYPE QUESTION BANK

24	In iteration method for modelling a diode the answer obtained by each subsequent iteration is A) Is Close To The True Value B) Is Close To The Value Obtained By Exponential Method **C) All Of The Mentioned** D) None Of The Mentioned	L4
25	A light emitting diode is _____ **A) Heavily Doped** **B)** Lightly Doped **C)** Intrinsic Semiconductor **D)** Zener Diode	L4
26	Which of the following materials can be used to produce infrared LED? A) SI **B) GAAS** C) CDS D) PBS	L4
27	The reverse breakdown voltage of LED is very low. **A) True** **B)** False	L4
28	What should be the band gap of the semiconductors to be used as LED? A) 0.5 Ev B) 1 Ev C) 1.5 Ev **D) 1.8 Ev**	L4
29	What should be the biasing of the LED? **A) Forward Bias** **B)** Reverse Bias **C)** Forward Bias Than Reverse Bias **D)** No Biasing Required	L4
30	Which process of the Electron-hole pair is responsible for emitting of light? A) Generation B) Movement	L4

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	C) Recombination **D)** Diffusion	
31	Which of the following is not a characteristic of LED? A) Fast Action **B) High Warm-Up Time** C) Low Operational Voltage D) Long Life	L4
32	A device which converts electrical energy in the form of a current into optical energy is called as _____ **A) Optical Source** **B)** Optical Coupler **C)** Optical Isolator **D)** Circulator	L4
33	How many types of sources of optical light are available? A) One B) Two **C) Three** D) Four	L4
34	The radiation emission process (emission of a proton at frequency) can occur in _____ ways. **A) Two** **B)** Three **C)** Four **D)** One	L4
35	Which process gives the laser its special properties as an optical source? A) Dispersion B) Stimulated Absorption C) Spontaneous Emission **D) Stimulated Emission**	L4
36	An incandescent lamp is operating at a temperature of 1000K at an operating frequency of 5.2×10^{14} Hz. Calculate the ratio of stimulated emission rate to spontaneous emission rate. A) 3×10^{-13} **B) 1.47×10^{-11}** C) 2×10^{-12}	L4

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OBJECTIVE TYPE QUESTION BANK

	D) 1.5×10^{-13}	
37	The lower energy level contains more atoms than upper level under the conditions of _____ A) Isothermal Packaging B) Population Inversion **C) Thermal Equilibrium** D) Pumping	L4
38	_____in the laser occurs when photon colliding with an excited atom causes the stimulated emission of a second photon. **A) Light Amplification** **B)** Attenuation **C)** Dispersion **D)** Population Inversion	L4
39	A semiconductor laser crystal of length 5 cm, refractive index 1.8 is used as an optical source. Determine the frequency separation of the modes. A) 2.8 GHZ B) 1.2 GHZ **C) 1.6 GHZ** D) 2 GHZ	L4
40	Considering the values given below, calculate the mode separation in terms of free space wavelength for a laser. (Frequency separation = 2GHz, Wavelength = 0.5 μm) A) 1.4×10^{-11} **B) 1.6×10^{-12}** C) 1×10^{-12} D) 6×10^{-11}	L4