

## LESCO (Junior Engineer) Test 2019 By NTS

### General Portion

**Q No. 01:** The 1<sup>st</sup> constitution Assembly of Pakistan lasted for \_\_\_\_ years.

- A. 3
- B. 5
- C. 7**
- D. 9

**Q No. 02:** First General Election in Pakistan were held in \_\_\_\_.

- A. 1970**
- B. 1971
- C. 1972
- D. 1973

**Q No. 03:** Which of the following city is called “*City of Colleges*”?

- A. Multan
- B. Lahore**
- C. Cairo
- D. Dhaka

**Q No. 04:** Which city of Pakistan is known as “*City of Saints*”?

- A. Quetta
- B. Uch
- C. Multan**
- D. Bahawalpur

**Q No. 05:** Allah has created the earth and sky in how many days?

- A. 5
- B. 6**
- C. 7
- D. 10

**Q No. 06:** Ramazan is which month of the Islamic Calendar?

- A. 9<sup>th</sup>**
- B. 10<sup>th</sup>
- C. 11<sup>th</sup>
- D. 12<sup>th</sup>

**Q No. 07:** How many manzils are in Holy Quran?

- A. 15
- B. 10
- C. 7**
- D. 8

**Q No. 08: What is the literal meaning of word *Hajj*?**

- A. To go around world
- B. To go for Tauba
- C. The will to visit**
- D. The Holy Journey

**Q No. 09: An impeachment inquiry against President Donald Trump was initiated on September 24, 2019 for allegedly pressuring \_\_\_\_\_ for personal gains.**

- A. Mexican President
- B. Ukrainian President**
- C. Government of Greenland
- D. Government of Iceland

**Q No. 10: Pakistan and \_\_\_\_\_ signed an agreement on the exemption from visa requirement for diplomatic and official passport holders on 30<sup>th</sup> October 2019.**

- A. Uganda
- B. Cuba**
- C. El Salvador
- D. Panama

**Q No. 11: Financial Action Task Force (FATF) decided to retain Pakistan on its Gray List till \_\_\_\_\_**

- A. January 2020
- B. February 2020**
- C. March 2020
- D. April 2020

**Q No. 12: The Punjab government declared \_\_\_\_\_ a metropolitan city under the new local government Act 2019.**

- A. Bahawalpur
- B. Vehari
- C. Sargodha
- D. Multan**

**Q No. 13: In a microcomputer, CPU means:**

- A. Equipment within main case
- B. Motherboard
- C. Microprocessor**
- D. Main Case

**Q No. 14: What is Byte?**

- A. Combination of more than one characters
- B. Combination of more than one alphabets
- C. Combination of 8 bits forms a byte**
- D. Combination of 16 bits forms a byte

**Q No. 15: One of the most commonly used software programs for data compression is called:**

- A. Data Compression
- B. MS Office
- C. Anti-Virus
- D. WinZip**

**Q No. 16: Which file system is suggested for XP operating system?**

- A. FAT-16
- B. FAT-32
- C. NTFS**
- D. HPFS

**Q No. 17: Which of the following is NOT Application Software?**

- A. Word Processor
- B. Web Browser
- C. Windows XP**
- D. MS Excel

### **Subject Portion**

**Q No. 18: The average value of sine wave with 100V peak over half cycle is.**

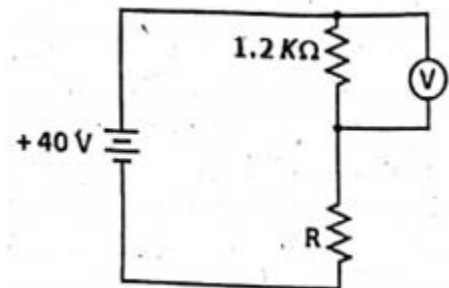
- A. 90V
- B. 50V
- C. 63.7V**
- D. 70.7V

**Q No. 19: To calculate the current in a circuit element using superposition theorem, the number of circuits required to solve is equal to the number of:**

- A. Meshes
- B. Nodes
- C. Nodes, meshes and sources
- D. Sources**

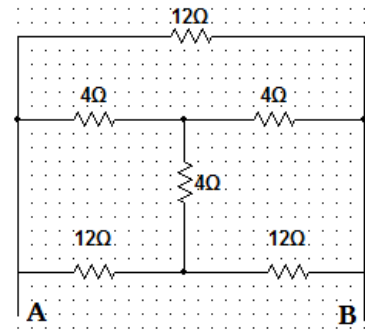
**Q No. 20: A 40V battery is connected to a series combination of 1200 ohms and a resistance R as shown. If a voltmeter having internal resistance of 1.2k $\Omega$  is connected across 1200-ohm resistor it reads 10V. The resistance R is:**

- A. 1.8 k ohms**
- B. 1.2 k ohms
- C. 1.0 k ohms
- D. 2.0 k ohms



**Q No. 21: What is the net resistance between points A and B?**

- A. 12.0 ohms
- B. 8.0 ohms
- C. 6.0 ohms
- D. 4.0 ohms**

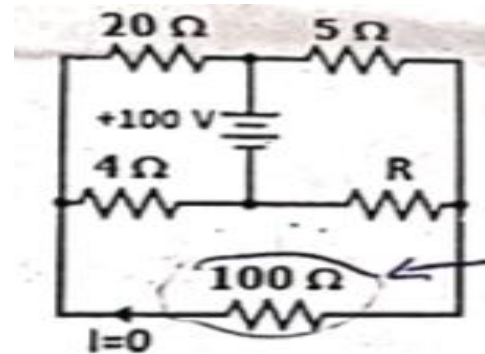


**Q No. 22: The form in reference to alternating current wave form represents the ratio of:**

- A. The Average value to the RMS value.
- B. The Peak value to the RMS value.
- C. The RMS value to the Average Value.**
- D. The RMS value to the Peak Value.

**Q No. 23: The current in the 100-ohm resistance is zero amperes. What is the value of R?**

- A. 1.0 ohm**
- B. 5.0 ohms
- C. 20.0 ohms
- D. 100 ohms



**Q No. 24: The hysteresis loss in the transformer occurs in:**

- A. Both Primary and Secondary Winding
- B. The core of the transformer**
- C. Secondary Copper Winding
- D. Primary Copper Winding.

**Q No. 25: The instantaneous value of sinusoidal AC current at 45 degree is called:**

- A. Peak to Peak Value
- B. RMS Value**
- C. Peak Value
- D. Average Value

**Q No. 26: An inductor supplies with 50V AC with a frequency of 10 kHz passes a current of 7.69 mA. The value of inductor is:**

- A. 1 mH.
- B. 10 mH.
- C. 100 mH.**
- D. 1 H.

**Q No. 27: Power in AC circuit is found by:**

- A.  $VI \sin\theta$ .
- B.  $VI \tan\theta$ .
- C.  $VI \cos\theta$ .**
- D.  $VI$ .

**Q No. 28: The process of conversion of AC into DC is called:**

- A. Magnification
- B. Amplification.
- C. Rectification**
- D. Purification

**Q No. 29: To carbon brushes in a DC generator when placed at neutral magnetic axis will cause:**

- A. Demagnetization only
- B. Cross magnetization only
- C. Demagnetization with extra flux leakage
- D. Cross Magnetization as well as Demagnetization.**

**Q No. 30: A damped sinusoid will be resulted if a sinusoid signal is:**

- A. Multiplied by a decaying exponential.**
- B. Multiplied by a growing exponential
- C. Dividing by a decaying exponential
- D. Adding with a growing exponential

**Q No. 31: A system is said to be shift invariant only if \_\_\_\_\_**

- A. a shifting at input does not affect the output
- B. a shift in the input signal does not exhibit the corresponding shift in the output
- C. a shifting level does not vary in an input as well as output
- D. a shift in the input signal also results in the corresponding shift in the output**

**Q No. 32: The minimum sampling frequency needed to retain all information for the following signal is:**

$$x(t) = 3 \cos(50\pi t) + 10 \sin(400\pi t) - \cos(200\pi t)$$

- A. 50 Hz
- B. 400 Hz.**
- C. 100 Hz
- D. 200 Hz

**Q No. 33: The Linear Time Invariant (LTI) System is said to be initially relaxed when:**

- A. Zero input produces a non-zero output.
- B. Zero input produces an output equal to infinity.
- C. Zero input produces zero output.**
- D. Zero input produces an output equal to unity.

**Q No. 34: What is the period of the signal  $x(t) = 100 \sin(12\pi t)$**

- A.  $1/\pi$
- B.  $1/12$
- C.  $1/6$**
- D.  $1/12\pi$

**Q No. 35: Determine how many significant figures the given measure has:  $V = 27050.0$  volts**

- A. 3
- B. 4
- C. 5
- D. 6**

**Q No. 36: The entire cross section of the line conductor is utilized in DC transmission system because there is:**

- A. No Environment Effect
- B. No Skin Effect**
- C. No hysteresis losses in the conductor
- D. No copper losses

**Q No. 37: The negative maximum of cosine wave occurs at**

- A.  $270^\circ$
- B.  $180^\circ$**
- C.  $90^\circ$
- D.  $0^\circ$

**Q No. 38: In AC circuit the power is consumed in:**

- A. Inductor
- B. Capacitor
- C. Resistor
- D. All of the above**

**Q No. 39: The output voltage of a DC power supply drops from 33V at no load to 30V at full load. Its load regulation is:**

- A. 9 %
- B. 20 %
- C. 15 %
- D. 10 %**

**Q No. 40: In transformer the short circuit test is performed to determine:**

- A. Only hysteresis losses
- B. Only eddy current losses
- C. Complete core losses
- D. Copper losses**

**Q No. 41: The rating of the transformer is generally expressed in:**

- A. KA
- B. KV
- C. KVA**
- D. KW

**Q No. 42: A circuit breaker is:**

- A. Power factor correcting device
- B. A device to neutralize the effect of transients
- C. A current interrupting device**
- D. A waveform correcting device

**Q No. 43: valance electrons that leave the outer most shell is called:**

- A. Free electron**
- B. Shell electron
- C. Orbit electron
- D. Neutral electron

**Q No. 44: \_\_\_\_\_ is applicable only for linear systems.**

- A. Principle of superposition**
- B. Thevenin's theorem
- C. Ohm's law
- D. Faraday's Principle

**Q No. 45: Thevenin's theorem is based on:**

- A. Circuit Resistance
- B. Current in Parallel
- C. Circuit Equivalence
- D. Series Current**

**Q No. 46: Which one of the following is NOT a type of capacitor?**

- A. Ceramic capacitor
- B. Film capacitor
- C. Polar capacitor**
- D. Electrolytic capacitor

**Q No. 47: Capacitor types are distinguished by the:**

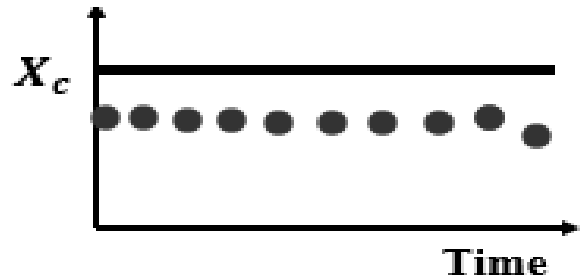
- A. Capacity of the storage
- B. Flow of the current
- C. Heating effect
- D. Material used as an insulator**

**Q No. 48:** The property of measuring instrument, whereby it gives different indications of the same quantity value depending on the whether that the value is approached by continuously increasing or decreasing change is termed as:

- A. Hysteresis**
- B. Sensitivity
- C. Drift
- D. Accuracy

**Q No. 49:** Repeated measurement of a quantity were taken by an instrument and are plotted against time; the actual value of a quantity was  $X_c$ . The plot shows that the instrument has:

- A. Good precision and good accuracy
- B. Bad precision and bad accuracy
- C. Bad precision but good accuracy
- D. Good precision but bad accuracy**



**Q No. 50:** A set four independent measurements were taken by four observers and average of their measurement is 117.06 volts, the maximum and minimum values observed were 117.11 & 117.02 volts respectively. The range of error is:

- A.  $\pm 0.045 V$**
- B.  $\pm 0.055 V$
- C.  $\pm 0.030 V$
- D.  $\pm 0.025 V$

**Q No. 51:** Measurement techniques depending on subtraction of experimental results are avoided because:

- A. It is difficult and time consuming
- B. The instrument may be damaged
- C. The instrument may need recalibration
- D. The range of doubt in the final result may be greatly increased**

**Q No. 52:** If we have voltage and current measurements  $10 \pm 0.5\% V$  and  $2 \pm 0.2\% A$  respectively. Calculate the power along with its percentage error?

- A.  $20 \pm 0.7\% W$**
- B.  $20 \pm 0.3\% W$
- C.  $20 \pm 1.0\% W$
- D.  $20 \pm 0.025\% W$

**Q No. 53:** The synchronous generator in the power plant is also used as a motor to:

- A. Balance the extra power generation
- B. Improve power factor**
- C. Cool the generator
- D. Test the generator efficiency



**Q No. 54: In AC generator the output frequency is controlled by:**

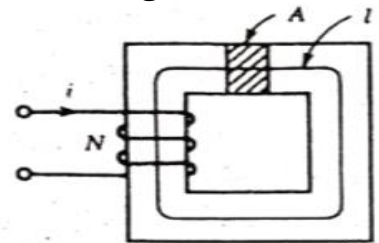
- A. The exciter voltage
- B. The system voltage
- C. The speed of prime mover**
- D. Increasing the number of turns of the stator

**Q No. 55: In a 4-pole DC generator the electrical degrees will be:**

- A. Half of the mechanical degrees
- B. Equal to mechanical degrees
- C. Double the mechanical degrees**
- D. Four times that of mechanical degrees

**Q No. 56: In the following magnetic circuits the reluctance of the core and the air gap is 200 and 200 A.T/Wb respectively and N is 100 turns. How much will be the magnetic flux in the core if current (i) is 4 amperes.**

- A. 4.0 Wb
- B. 1.0 Wb**
- C. 3.0 Wb
- D. 2.0 Wb



**Q No. 57: If the air gap length in a magnetic path is 0.02m and its cross-sectional area is 0.02m<sup>2</sup> then the reluctance of the air gap will be:**

- A.  $4\pi/10^7$  AT/Wb
- B.  $10^7/2\pi$  AT/Wb
- C.  $10^7/4\pi$  AT/Wb**
- D.  $2\pi/10^{-7}$  AT/Wb

**Q No. 58: A two wattmeter method was used to measure the power of 3 phase load, the two meters read 500W and 1000W respectively. What is the total power being consumed by 3-phase loads?**

- A. 1.5 kW**
- B. 1 kW
- C. 0.75 kW
- D. 2.2 kW

**Q No. 59: A 3 – φ 4-wire distributor is supplying power to a star connected load and the three-line currents are  $100\angle 90^\circ$  A, 0 A &  $10\angle 90^\circ$  A respectively. Determine the current from neutral wire.**

- A. 0 A
- B. 55 A
- C. 110j A**
- D. 90j A

**Q No. 60: If the load voltage is  $230\angle 10^\circ V$  and load impedance is  $23\angle 20^\circ \text{ ohms}$ . Determine the current in the load.**

- A.  $10\angle 10^\circ A$
- B.  $10\angle 0^\circ A$
- C.  $10\angle -30^\circ A$
- D.  $10\angle -10^\circ A$**

**Q No. 61: The purpose of protection of power system is to:**

- A. Protect power system equipment and restore normal operation only.
- B. Protect people only.
- C. Separate faulty section only
- D. Protect equipment, people & property, isolate faulty sections and restore normal operations.**

**Q No. 62: Unsymmetrical faults in the three phase power systems are those which have:**

- A. Equal fault current in the line but unequal phase displacements.
- B. Equal fault current in the line and equal phase displacements.
- C. Equal fault current in the line and zero phase displacements.
- D. Unequal fault currents in the lines and unequal phase displacements.**

**Q No. 63: If a three-phase current “I” having zero phase angle multiplied by operator  $a_2$  will result:**

- A.  $I(\cos 120^\circ + j \sin 120^\circ)$
- B.  $I(\cos 240^\circ + j \sin 120^\circ)$
- C.  $I(\cos 240^\circ + j \sin 240^\circ)$**
- D.  $I(\cos 120^\circ + j \sin 240^\circ)$

**Q No. 64: To measure power of RYB three phase system using two wattmeter  $W_1$  and  $W_2$ , if current coil of  $W_1$  is connected in series with R phase and current coil of  $W_2$  is connected in series with Y phase then potential coil of  $W_1$  is connected between \_\_\_\_\_ potential coil of  $W_2$  is connected between \_\_\_\_\_ .**

- A. Phases R and B, Phases Y and B**
- B. Phases R and Y, Phases Y and B
- C. Phases R and B, Phases Y and R
- D. Phases R and Y, Phases Y and R

**Q No. 65: Unsymmetrical faults that may occur in the three-phase system are \_\_\_\_\_.**

- A. L-G, L-L and L-L-G**
- B. L-G, L-L-G and L-L-L-G
- C. L-L, L-G and L-L-L
- D. L-G, L-L-G and L-L-L

**Q No. 66: In DC generator, the brushes on commutator are shifted from geometrical neutral position to.**

- A. Obtain highest generator voltage
- B. Avoid Sparking**
- C. Obtain highest generator efficiency
- D. Produce spark

**Q No. 67: In D.C. generators the pole shoes are fastened to the pole core by:**

- A. Welding
- B. Soldering
- C. Steel clamps
- D. Counter sunk screws.**

**Q No. 68: Which of the following loss of DC motor decreases with increase in load?**

- A. Friction and Windage loss
- B. Core loss
- C. Brush contact loss
- D. None of these**

**Q No. 69: Transformer oil must be free from:**

- A. Odour
- B. Gases
- C. Sulphur
- D. Moisture**

**Q No. 70: A constant current transformer should NOT have:**

- A. High value of resistance
- B. A movable secondary winding
- C. A high value of resistance**
- D. Primary and secondary winding surrounding the core

**Q No. 71: Which winding of the transformer have less cross-sectional area?**

- A. High voltage winding**
- B. Low voltage winding
- C. Secondary winding
- D. Primary winding

**Q No. 72: An ideal transformer is one which:**

- A. Has a common core its primary and secondary windings.
- B. Has no losses and magnetic leakage.**
- C. Has a core of stainless steel and winding of pure copper metal.
- D. Has interleaved primary and secondary winding.

**Q No. 73: Dual slop ADC is very accurate due to:**

- A. Capacitor used is very accurate and its value is stable.
- B. Dual Slop.**
- C. Resistor used is very accurate and its value is stable
- D. Clock used is very accurate and its value is stable.

**Q No. 74: The Huntron features variable range parameters resulting in hundred of voltages, source resistance and frequency combination. Which of the following is NOT true for its features?**

- A. It matches the circuit impedance of the board
- B. Can display both signatures at the same time.
- C. Can perform power on PCB Diagnostic and Troubleshooting**
- D. Used to make good vs bad combination.

**Q No. 75: An op-amp circuit is connected to a single source to amplify the signal. If noise contribution for the signal source and the input of the amplifier is  $20\mu$  volts and  $10\mu$  volts respectively. Then the total noise input voltage is**

- A.  $20\mu + 10\mu$
- B.  $20\mu - 10\mu$
- C.  $\sqrt{(20\mu)^2 + (10\mu)^2}$**
- D.  $\sqrt{(20\mu)^2 - (10\mu)^2}$

**Q No. 76: Subtract  $75 \pm 5$  from  $275 \pm 7$  the answer is:**

- A.  $200 \pm 12$**
- B.  $200 \pm 2$
- C.  $350 \pm 12$
- D.  $350 \pm 2$

**Q No. 77: A 5-digit ohm-meter has an accuracy of 3% of the reading, plus one count. The meter reads  $500.00 \Omega$ . Then the maximum error in the reading is:**

- A.  $5.1 \Omega$
- B.  $15.01 \Omega$ .**
- C.  $15.1 \Omega$
- D.  $5.01 \Omega$

**Q No. 78: To calculate the load Current and Voltage using Thevenin's Theorem, the points across the load resistor  $R_L$  are marked (as A & B) and the load  $R_L$  is removed. Then which of the following is not valid step for solving Thevenin's Theorem?**

- A. If sources are ideal, then short circuit the current source and open the voltage source**
- B. Replace all non-ideal sources by their internal resistance
- C. If sources are ideal, then short circuit the voltage source and open the current source
- D. The Thevenin Resistance  $R_{th}$  is calculated cross the points A and B.

**Q No. 79: Differential equation of an RLC circuit is second order with two roots and its response is called:**

- A. Over-damped if both roots are equal
- B. Under-damped if both roots are equal
- C. Critically damped if both roots are equal**
- D. Critically damped if both roots are not equal

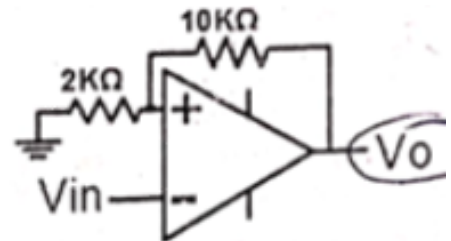
**Q No. 80: Voltage source V is connected to an RLC series circuit and its differential equation is given below. It is clear from the equation that**

$$V = L \frac{di}{dt} + iR + \frac{1}{C} \int_0^t i dt + 10$$

- A. Steady state current through the source will 10 A.
- B. Initial voltage across the resistor is 10 V.
- C. Initial current passing through the inductor is 10 A.
- D. Initial voltage across the capacitor is 10 V.**

**Q No. 81: Circuit shown below is a +ve feedback circuit.  $V_o$  is either +12 V or -12 V. Then its upper triggering level is \_\_\_\_\_ and lower triggering level is \_\_\_\_\_.**

- A. +2 V, -2 V**
- B. +2 V, 0 V
- C. 0 V, -2 V
- D. +10 V, -10 V



**Q No. 82: Class B push-pull transformer amplifier uses two transistors biased in such one conducts for positive cycle and other conducts for negative cycle of input waveform. Q point of the class B amplifier are,  $V_{CEQ} =$  \_\_\_\_\_ and  $I_{CQ} =$  \_\_\_\_\_.**

- A.  $2V_{CC}$  , 0
- B.  $\frac{V_{CC}}{2}$  , 0
- C.  $V_{CC}$  ,  $\frac{I_{Cpeak}}{2}$
- D.  $V_{CC}$  , 0**

**Q No. 83: DC Analysis is used to get required \_\_\_\_\_ and AC analysis is used to find out \_\_\_\_\_ of the amplifier.**

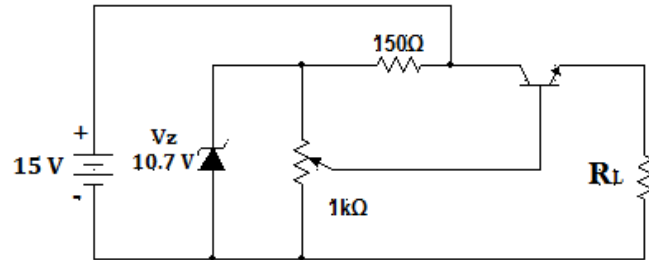
- A. Operating points, Impedances & Voltage gain**
- B. Operating points & Voltage gain, Impedances
- C. Operating points & Impedances, Voltage gain
- D. Impedances & Voltage gain, Operating points.

**Q No. 84:** Input Signal  $V_{in}$  and output signal from the  $V_{CO}$  are fed to detector of phase locked loop (PLL) circuit. If frequency of  $V_{in}$  is equal to the free running frequency of the  $V_{CO}$  then phase shift between both signals fed to detector is:

- A.  $90^\circ$
- B.  $0^\circ$
- C.  $45^\circ$
- D.  $180^\circ$

**Q No. 85:** The circuit of Variable Voltage Regulator is shown below, the voltage across  $R_L$  varies from:

- A. 0.7 V to 10.7 V
- B. **0 V to 10 V.**
- C. 0.7 V to 10 V
- D. 0 V to 10.7 V



**Q No. 86:** A sample and hold circuit is an analog device that samples the voltage of a continuously varying analog signal and holds its value at a constant level for a specified minimum period of time. A sample and hold circuit is not composed of:

- A. **Inductor**
- B. Switching device
- C. Capacitors
- D. Operational Amplifier

**Q No. 87:** In a positive feedback oscillator circuit, the closed loop gain is  $A\beta$ . If  $A\beta > 1$  then oscillation starts and output \_\_\_\_\_ and if  $A\beta < 1$  then oscillation starts and output \_\_\_\_\_.

- A. Converts to square wave, Remains sinusoidal wave.
- B. **Converts to square wave, reduces to 0.**
- C. Converts to sinusoidal wave, reduces to 0.
- D. Remains sinusoidal wave Converts to square wave.

**Q No. 88:** In common-base amplifier circuit, the output is taken from the:

- A. **Collector**
- B. Emitter
- C. Base
- D. Both A and C

**Q No. 89:** A semiconductor device is connected in a series circuit with a battery and a resistor. If the polarity of the battery is reversed the current drops almost to zero. The device may be:

- A. A p-type semiconductor
- B. An n-type semiconductor
- C. **A pn junction**
- D. An intrinsic semiconductor

**Q No. 90: The greatest possible amplification is obtained in:**

- A. A common-emitter circuit**
- B. A common-collector circuit
- C. A common-base circuit
- D. None of the above

**Q No. 91: If the firing angle in an SCR rectifier is decreased, then output will be \_\_\_\_\_.**

- A. Maximum
- B. Increased**
- C. Decreased
- D. Unaffected

**Q No. 92: A tunnel diode:**

- A. Is a highly P-N junction device.**
- B. Is a gallium-arsenide device.
- C. Is a point contact diode with a high reverse resistance
- D. Has a small tunnel in its junction.

**Q No. 93: The \_\_\_\_\_ is the maximum available vertical fall in the water, from the upstream level to the downstream level.**

- A. Vertical head
- B. Net head
- C. Flow head
- D. Gross head**

**Q No. 94: Which are radial flow reaction turbines, with fixed runner blades and adjustable guide vanes, used for medium heads?**

- A. Pelton turbines
- B. Francis turbines**
- C. Cross-flow turbine
- D. Turbo turbine

**Q No. 95: Which system involves sizing and drying of the feedstock, followed by thermomechanical gasification to produce a combustible gas, cooling and cleaning of the gas, and combustion in a gas turbine?**

- A. Feedstock drying and sizing cycle
- B. Thermochemical combined cycle
- C. A gasification combined cycle**
- D. Cooling and cleaning combined cycle

**Q No. 96: Which region are usually on tectonic plate boundaries?**

- A. Semi thermal
- B. Normal
- C. Geothermal
- D. Repo thermal**

**Q No. 97: Which one of the following is NOT a form of energy?**

- A. Heat
- B. Biological**
- C. Electromagnetic
- D. Chemical

### **Quantitative Portion**

**Q No. 98: What is the ratio of  $37/5$  to the product of  $6(37/5)$ ?**

- A.  $1/6$**
- B.  $1/5$
- C.  $5/6$
- D.  $6/5$

**Q No. 99: If  $[(x - 4) - (3 - 2x)] = 3 - (5x + 6)$ , what is the value of  $x$ ?**

- A.  $-0.6$
- B.  $-0.5$**
- C.  $-0.4$
- D.  $-0.3$

**Q No. 100: Sara had Rs. 500,000 as her saving, what would be her payable zakat at the end of the year?**

- A. Rs. 11000
- B. Rs. 11500
- C. Rs. 12000
- D. Rs. 12500**