Question: What is the shape of mandatory signs?

Answer: Circular

Question: Which type of toe caps is used to avoid crushing of feet while shifting equipments?

Answer: Steel toe caps

Question: What is the treatement provided for a person suffering from electric shock?

Answer: Move the victim to a ventilated place

Question: Which fire extinguisher is used for Class 'C' fire?

Answer: Dry powdered

Question: Which fire extinguisher is used for Class 'A' fire?

Answer: Jet of water

Question: Which method is used for blanketing with foam to extinguish fire?

Answer: Smothering

Question: What is the purpose of screw driver?

Answer: Tightens or loosens the screws

Question: What is the purpose of wood rasp file?

Answer: For Preliminary rough work

Question: Which material is used for making instrument cabinets?

Answer: Sheet metal

Question: Which tool is used for seaming the funnel like taper?

Answer: Blow horn stake

Question: Which angle can be checked using try square?

Answer: 90∘

Question: What is the maximum size of drill bit used in electrical hand drilling machine?

Answer: 6.5 mm

Question: What is indicated by the arrow marked as 'x' in the sawing operation shown in the figure?

Answer: Direction of pressure

Question: What is the name of the PPE used for high noise level?

Answer: Ear muff

Question: Identify the name of the tool shown in the figure?

Answer: Centre punch

Question: What is the shape of prohibition sign?

Answer: Circular

Question: What is the purpose of scriber in metal sheet?

Answer: For marking

Question: Which protective equipment stands for PPE 1 as per the BIS?

Answer: Helmet

Question: What is the Electrical conductivity of gold?

Answer: 67%

Question: What is the unit of electric charge?

Answer: Coulomb

Question: What is stationary electric charges?

Answer: Static charges

Question: What is the movement of electrons through a conductor in a particular direction is called as?

Answer: Electric current

Question: Which material conducts electricity?

Answer: Copper

Question: What is the name of the motion of charged particles in any medium?

Answer: Current

Question: Which energy is converted into electrical energy in hydropower stations?

Answer: Mechanical energy

Question: What is the percentage of conductivity of electric current in copper?

Answer: 94%

Question: What are the fundamental properties of insulation materials?

Answer: Insulation resistance and dielectric strength

Question: Which materials are used for semiconductor?

Answer: Silicon and Germanium

Question: How does the insulation coating stay undamaged, even if the wire is bent?

Answer: Due to the elastic property of insulation

Question: What is the effect on current flow if the diameter of a conductor is increased?

Answer: Allows high current flow

Question: What is the conductivity percentage of electric current in Aluminium?

Answer: 56%

Question: Which tool is used to measure the size of a wire?

Answer: Standard wire gauge

Question: Which metal has very good conductivity of electric current?

Answer: Silver

Question: What is the name of the instrument used to measure electrical quantities?

Answer: Meter

 Question: Which terminal of the meter is connected for measuring electrical quantity?

Answer: Input terminal

Question: How electrical quantity is measured by the meter marked on it?

Answer: Using parameter symbols

Question: Which electrical parameter is measured by megger?

Answer: Insulation resistance

Question: What are insulators called?

Answer: Dielectric

Question: What is the value of each division marked by numbers on the voltmeter shown in the figure?

Answer: 2V

Question: What is the ideal AC voltage in domestic electricity?

Answer: 240V

Question: What symbol on the meter indicates the measurement of voltage for both AC and DC?

Answer: The symbol with a straight line above a sine wave (V~)

Question: What is the degree for AC signal to complete one cycle?**Answer:** 360°

Question: What is the purpose of test lamp?**Answer:** To identity phase and current

Question: What is the name of the voltage measured between any two lines in a three phase AC circuit?**Answer:** Line voltage

Question: Which electric measuring instrument is used for measuring potential difference?

Answer: Volt meter

Question: Which electrical measuring instrument is used to measure current?

Answer: Ammeter

Question: How ammeter is connected for the measurement of current in an electrical circuit?

Answer: In series with load

Question: What is the symbol for moving iron type measuring instrument?

Answer: The symbol at position A4, which is an arc with a line through its center.

Question: What is the other name for tong tester?

Answer: Clamp meter

Question: Which is a contact less meter?

Answer: Clamp meter

Question: Which current is used in clamp meter?

Answer: Large alternating current

Question: What is the name of the pair of metal strips used in battery cell?

Answer: Electrodes

Question: Which electrolyte is used in lead-acid battery?

Answer: Sulphuric acid

Question: How batteries are classified?

Answer: Primary cells and secondary cells

Question: What is the colour of positive electrode in a fully charged lead-acid battery?

Answer: Reddish brown (The option provided is "Reddish")

Question: Which method is adopted to charge a car battery with voltage rating of 2.3 V per cell?

Answer: Constant voltage charging method

Question: What is the specific gravity of concentrated sulphuric acid?

Answer: 1.835

Question: Which electrolyte is used in the maintenance of free lead acid batteries?

Answer: Gelled electrolyte

Question: What is the rated voltage of a single cell in lead-acid battery?

Answer: 2.2 V

Question: What is the effect on a secondary cell supplying current to the load?

Answer: Discharging

Question: What is the total voltage of six 1.5 V cells, connected in a series?

Answer: 9 VDC

Question: Which type of connection increases the capacity rating of two or more batteries?

Answer: Parallel

Question: What is the full form of PMMC meter?

Answer: Permanent Magnet Moving Coil Meter

Question: Which bearing supports the shaft of a moving coil assembly in a PMMC instrument?

Answer: Jeweled bearings

Question: Which characteristic enable the deflection of pointer in the attraction type moving iron meter?

Answer: Deflection is independent of current direction

Question: Which parameter is measured by a multimeter?

Answer: Voltage

Question: What is the value of shunt resistance required for 1 mA meter to extend the range and measure 10 mA (RM=27 Ohm)?

Answer: 3 Ohms

Question: What is the advantage of using digital multimeter?

Answer: Accuracy

Question: What is the name of the symbol marked as 'X' in the panel meter shown in the figure?

Answer: Moving iron meter

Question: What control is used in repulsion type moving iron instruments to maintain the pointer at the zero position?

Answer: Spring control

Question: Which torque is used in PMMC meter movement?

Answer: Moderate torque

Question: Which meter uses a moving coil for measurement?

Answer: PMMC meter

Q1: Which electrode controls the brightness of the image on the screen of oscilloscope?

A: Control grid

Q2: Which instrument is used to measure resistance, capacitance and inductance?

A: LCR bridge

Q3: Which band is used for UHF in International Telecommunication System?

A: Band 9

Q4: Which band of frequency is used for RADAR in frequency spectrum allotted by the International Telecommunication Union (ITU)?

A: ITU band-10

Q5: Which type of wave is generated in Schmitt trigger circuit?

A: Square wave

Q7: Which arrangement has the high value of resistor connected to extend the range of voltmeter?

A: Series

Q8: Which analog meter has a battery is provided?

A: Ohm meter

Q9: Which meter movement is not affected by stray magnetic fields?

A: PMMC meter

Q10: Which measuring instrument has the movement shown in the figure?

A: Moving coil instrument

Q11: Which position is the moving coil meter kept for measurements shown in the figure?

A: Vertical

Q12: What is the full form of CRT?

A: Cathode Ray Tube

Q13: Which function control in CRO adjusts the trace sharper?

A: Focus

Q14: Which meter is used for the measurement of Voltage, Current and Resistance?

A: Multimeter

Q15: What is the maximum current measurement possible with digital multimeter?

A: 10 A

Q16: Which control knob changes the vertical shape of the waveform?

A: Volt/Div

Q17: Which control knob changes the horizontal shape of the waveform?

A: Time/Div

Q18: Which electrode changes the fluorescent screen brightness of CRO?

A: Control grid

Q19: What is used to measure the values of resistance, inductance and capacitance?

A: LCR meter

Q20: What is the function of signal generator?

A: To generate various shape waveform signals

Q21: Which is the main part of signal generator?

A: Oscillator

Q22: What is the range of audio frequency in human beings?

A: 20Hz to 20kHz

Q23: Which button is used to change the shape of waveform in signal generator?

A: Function

Q24: What is the basic difference between a square wave and pulse wave?

A: Duty cycles

Q25: What is the frequency range of VHF?

A: $3x10^7$ to $3x10^8$ (300MHz)

Q26: (Question text missing, inferred as 'What is the full form of DSO?')

A: Digital Storage Oscilloscope

Q27: Which acquisition mode is used by the DSO to sample the highest and lowest values of the input signal?

A: Peak detect mode

Q28: How the overall operation of DSO is controlled?

A: Using microprocessors

Q29: What is the advantage of Digital Storage Oscilloscope?

A: Stores digital data for later viewing

Q30: What is the name of the circuit shown in the figure?

A: Astable multivibrator

Q31: What type of wave form is available at pin number 2 of function generator IC 8038?

A: Sine wave

Q32: What is the name of the circuit built with IC 8038 shown in the figure?

A: Function generator

Q33: Which type of waveform is available in pin number 3 of IC 8038 function generator?

A: Triangle wave

Q34: Which function is performed by the sample / Hold circuit along with the ADC in Digital Storage Oscilloscope?

A: Data acquisition

Q35: What is the name of the waveform displayed on the DSO screen shown in the figure?

A: Ringing waveform

Q36: How digital equipment works with the input voltage samples?

A: Converts it to Binary numbers

Q37: What is the name of the factory setup done to the Digital Storage Oscilloscope?

A: Default setup

Q38: Which part of the DSO stores the processed data of input signal voltage?

A: Memory

Q1: What is the size of thinnet type coaxial cable used in network installations?

A: 0.25 inch

Q2: What is the data transmission speed of USB 3.0 for interfacing computers?

A: 625 Mbps

Q3: What is the full form of DVI?

A: Digital Visual Interface

Q4: What is the audible frequency range in communication?

A: 20 Hz to 20 KHz

Q5: What is the data transmission speed of category 4 twisted pair Network cables?

A: 16 Mbps

Q6: What is the purpose of screen wire used in audio cables?

A: To reject unwanted signal

Q8: Which part of the signal cable is crimped to the outer conductor of F-connector?

A: Shield of the cable

Q9: What is the maximum data signal speed carried by the CAT-6 twisted pair network cable?

A: 550 MHz

Q10: What is the full form of HDMI?

A: High Definition Multimedia Interface

Q11: Which signal is sent by the SMPS to computer motherboard?

A: Power good signal

Q12: What is the full form of ISA?

A: Industry Standard Architecture

Q13: Which device is used to produce a hard copy of a document in a computer?

A: Printer

Q14: What is the function of schottky diode BA 157 in SMPS circuit?

A: Fast recovery diode

Q15: What is the advantage of SMPS in a computer?

A: High efficiency

Q16: What is the full form of electronic component MOV?

A: Metal Oxide Varistor

Q17: What is the full form of CD-ROM in a computer?

A: Compact Disk Read Only Memory

Q18: What is the name of the block marked as 'x' in the microprocessor shown in the figure?

A: Accumulator

Q19: Which section is used by the processor to save instructions?

A: Memory

Q20: Which is active first in a PC during the booting process?

A: ROM BIOS

Q21: What is the valid address for configuring a new network interface card for installation?

A: 360

Q22: Which device should not be plugged into a standard UPS?

A: Laser Printer

Q23: What is the main communication method from one PDA to another PDA?

A: IR

Q24: What allows the printer to print on both sides of the paper?

A: Duplexer

Q25: What type of Field Replaceable Unit is a SCSI host adapter?

A: I/O card

Q26: How many DMA channels are there in an AT-machine?

A: 4

Q27: Which provides the fastest data access time?

A: RAM

Q28: Which component is easiest to environmentally recycle?

A: Toner cartridge

Q29: How much information can be stored in a CD (Compact Disk)?

A: 650Mb

Q30: Which software allows the user to browse through the web pages?

A: Browser

Q31: How many bytes does an IP address have?

A: Four

Q32: How many logical drives can fit onto a physical disk?

A: Twenty four

Q33: How many bytes make one megabyte?

A: One Million

Q34: What is the name of a computer system that is on the network?

A: Node

Q35: Which device understands the difference between data and programs?

A: Microprocessor

Q36: What is the address given to a Computer connected to a network?

A: IP Address

Q37: Which storage device can store maximum amount of data?

A: Hard Disk

Q38: Where does the actual execution of instructions take place during the processing operations in a computer?

A: Arithmetic Logic Unit

Q1: What is the brain of a computer system?

A: Central Processing Unit

Q2: How do you clear a CMOS password?

A: By changing the jumper setting in the motherboard

Q3: What is the name of the first page of a website?

A: Home page

Q4: Which shows all the websites and pages that the user has visited before?

A: History

Q5: What is an internet?

A: Network connecting computers all over the world

Q6: What is an Email?

A: *The text for the correct answer is missing in the source document.*

Q7: What is an URL of a website?

A: Location of websites on internet

Q8: Which process involves putting files onto the server from a computer?

A: Uploading

Q9: What does FTP stand for?

A: File Transfer Protocol

Q10: What does 'S' refer to in HTTPS?

A: Secure

Q11: Which folder contains junk Emails?

A: Spam

Q12: What does IP stand for?

A: Internet Protocol

Q13: What is the full form of ALU?

A: Arithmetic Logic Unit

Q14: Which is the input device in a computer?

A: Mouse

Q15: What is the output device in a computer?

A: Monitor

Q16: Which chip acts as a clock to keep the correct Date and Time?

A: CMOS

Q17: What is the full form of BIOS?

A: Basic Input Output System

Q18: What is the average life span of a CMOS battery?

A: 3 years

Q19: What is the full form of CMOS?

A: Complementary Metal Oxide Semiconductor

Q20: What is the full form of OS?

A: Operating System

Q21: Which is an operating system?

A: Windows

Q22: Where is operating system installed?

A: HDD

Q23: Which software interfaces the major hardware components of the computer with OS?

A: BIOS

Q24: Which chip is used to store information that describes a specific device parameter?

A: CMOS

Q25: Which component is Read Only Memory?

A: ROM

Q26: Which chip can be reprogrammed to update its content?

A: Flash ROM

Q27: Where does a computer permanently stores Program and Data when it is turned off?

A: Hard Disk drive

Q28: Which is the type of SMD IC package is shown in the figure?

A: PGA pack

Q29: What is the acceptable resistance value limit for the ESD wrist strap?

A: 1MΩ

Q30: Which is the type of SMD IC package is shown in the figure?

A: LCC

Q31: What is the power rating of soldering iron that is used in electrical and electronics work?

A: 15 to 35 watts

Q32: What is the full form of PGA used in SMD IC package?

A: Pin Grid Array

Q33: Which type of hot air pencil tip is used in SMD soldering as shown in the figure?

A: Angled type

Q34: What is the range of temperature setting on soldering work station for soldering SMD ICs?

A: 250◦C to 280◦C

Q35: How desoldering braid removes the molten solder from the joint on the PCB?

A: By capillary action

Q36: Which is an effective method that controls ESD during the manufacturing of devices?

A: Using ESD wrist strap

Q37: Which technology is used to place the components directly on the printed circuit boards?

A: Surface Mount Technology

Q38: What is the name of the device shown in the figure?

A: SMD work station

Q1. What is the name of SMD tool shown in the figure?

A: Heated tweezers

Q2. Which type of leads are constructed in SOIC package?

A: Gull wing leads

Q3. Which SMD IC needs lead forming equipment to cut and bent into a gull wing type?

A: FLAT Package

Q4. Which is an alternative to ceramic SMD IC packages?

A: Plastic packages

Q5. What is the purpose of bumpered corners of Bumper Quad Flat Pack?

A: Protects the IC leads

Q6. What is the full form of SOIC?

A: Small Outline Integrated Circuits

Q7. What is the name of the IC package shown in the figure?

A: BQFP

Q8. What is the full form of SMT?

A: Surface Mount Technology

Q9. What is the purpose of Bench top Ionisers?

A: To control ESD in work environment

Q10. What is called 'tinning' in soldering?

A: Melt a little solder on the tip of the iron

Q11. What causes electrostatics charge to go into the ground?

A: ESD floor mat

Q12. What is the advantage of SMD over the general purpose through hole components?

A: Automatic assembling is very easy

Q13. Which solder paste was specifically developed for the electronic bench top and also for rework?

A: Zero lead solder paste

Q14. Which type of surface mount package ICs are used for permanent mounting?

A: BGA package

Q15. What is the composition of solder paste used for reflow soldering process?

A: Powdered solder and flux

Q16. Which conformal coating material is used as a two-part-thermosetting mixture?

A: Epoxy resin

Q18. Which colour of solder mask is used on PCBs?

A: Green

Q19. What is the shape of the pad used to solder Dual In Line (DIL) components on PCB?

A: Oval

Q20. Which method of conformal coating is used for epoxy coated on PCBs?

A: Microblasting

Q21. Which conformal coating is easy to apply and remove with low moisture absorption?

A: Acrylic resin

Q22. Which is the last zone on the reflow soldering?

A: Cooling zone

Q23. Which is the second stage in the reflow soldering process?

A: Thermal soak zone

Q26. What is the purpose of providing solder mask on the PCBs?

A: Prevents solder bridges

Q27. How the fine grain structure of soldered joint is achieved by using reflow soldering process?

A: Fast cooling rate

Q28. Which fabrication technology is used for the assembly of the circuit board?

A: Microchip fabrication

Q29. What is the name of technology used to mount components on multilayer PCB as shown in the figure?

A: Plated through hole

Q30. Which type of coating process is used to applying para-xylylene as conformal coating on PCB?

A: Chemical vapour deposition

Q31. What is the fusing factor of rewirable HRC fuse?

A: 1.1

Q32. What is the current rating of cartridge fuse used for domestic wiring?

A: 1250 Ampere

Q33. What is the current rating of rewirable fuse used for domestic wiring?

A: 200 A

Q34. What is the name of the part marked as 'X' in the MCB shown in the figure?

A: Solenoid

Q35. What is the full form of ELCB used in Electrical circuit?

A: Earth Leakage Circuit Breakers

Q36. What is the name of the current interrupted by the circuit breaker?

A: Prospective fault current

Q37. Which relay functions whenever the current in the coil reaches an upper limit?

A: Current sensing relay

$$$

Module 1: Basic Workshop Practice

Question: Which type of toe caps are used to avoid crushing of feet at the time of shifting equipments?

Answer: Steel toe caps

Question: How the gas and liquified gases are classified?

Answer: Class 'C' fire

Question: Which fire extinguisher is used to put off class 'C' type of fire?

Answer: Dry powdered

Question: Which fire extinguisher is used to put off class 'A' type of fire?

Answer: Jet of water

Question: What is the shape of mandatory signs?

Answer: Circular

Question: Which method is used for blanketing with foam to extinguish the fire?

Answer: Smothering

Question: Which material is used for making instrument cabinets?

Answer: Sheet metal

Question: What is the shape of warning sign board?

Answer: Triangular shape

Question: Which class of fire is classified involving metals?

Answer: Class D

Question: Which step is followed for treating a person from electric shock?

Answer: Move the victim to a ventilated place

Question: What is the shape of prohibition sign?

Answer: Circular

Question: What is the name of safety group sign?

Answer: Mandatory signs

Question: Which factor influences the severity of electrical shock?

Answer: Duration of current passing

Question: Which angle is checked by the try square?

Answer: 90°

Question: What is the use of screw driver?

Answer: Tighten or loosen screws

Question: Which is the maximum size of drill bit used in electrical hand drilling machine?

Answer: 6.5 mm

Question: Which tool is used for seaming the funnel like taper?

Answer: Blow horn stake

Question: What is indicated by the arrow marked 'x' in the sawing operation?

Answer: Direction of pressure

Question: What is the purpose of wood rasp file?

Answer: Preliminary rough work

Question: What is the first step to rescue the person in electrical contact?

Answer: Switch OFF power supply

Question: What is the reason for electric fire?

Answer: Overloading

Question: What is the meaning of the information sign?

Answer: First aid point

Question: Which artificial respiration method to be avoided to a person with abdomen injury?

Answer: Schafer's method

Question: What is the cause of injuring at the time of lifting a load?

Answer: Wrong lifting technique

Question: How the overlapping of excess sheet metal causing bulge at seam and edge is prevented?

Answer: Notches

Question: What is the effect of electric shock at very low voltage levels (Less than 40v)?

Answer: Unpleasant tingling sensation

Module 2: Basics of AC and Electrical

Question: Electrical conductivity of gold is...

Answer: 67%

Question: What is stationary electric charges?

Answer: Static charges

Question: What is the unit of electric charge?

Answer: Coulomb

Question: Which material contains eight electrons in valency layer?

Answer: Insulators

Question: Which material is used as electrical insulator?

Answer: Porcelain

Question: Which electrical parameter opposes the flow of electrons?

Answer: Resistance

Question: How the single strand wire is called?

Answer: Hook up wire

Question: What is the purpose of covering provided over the electrical conductor?

Answer: Protection against weather

Question: Which cores are used in intermediate frequency transformers?

Answer: Ferrite

Question: Which material conducts electricity?

Answer: Copper

Question: How many electrons are contained in coulomb of electric charge?

Answer: 6.25×10^{18} electrons

Question: What is the percentage of conductivity of electric current in silver?

Answer: 100%

Question: What is the percentage of conductivity of electric current in aluminium?

Answer: 56%

Question: How the movement of electrons through a conductor in a particular direction is called?

Answer: Electric current

Question: Which metal has very good conductivity to the electric current?

Answer: Silver

Question: Which electrical property opposes the flow of electrons?

Answer: Resistance

Question: How the single strand wire is called?

Answer: Hook-up wire

Question: What is the percentage of conductivity of electric current in copper?

Answer: 94%

Question: How many gauge numbers in SWG. changed to double the cross section area of the conductor?

Answer: Three gauge sizes decreased

Question: What are the fundamental properties of insulation materials?

Answer: Insulation resistance and dielectric strength

Question: What is the shape of standard wire gauge?

Answer: Circular metal disk

Question: Which electrical quantity is directly proportional to the current carrying capacity of the conductor?

Answer: Conductor's diameter

Question: Which formula is used to find the conductance?

Answer: I/V

Question: Which materials are used for semiconductor?

Answer: Silicon and germanium

Question: Which metal has very good conductivity of electric current?

Answer: Silver

Question: How the insulation coating stays without damage, even on bending the wire?

Answer: Due to elastic property of insulation

Question: What is the name of the motion of charged particles in any medium?

Answer: Current

Question: What is the specified Vcc voltage of 4 bit digital switch with 4 independent lines?

Answer: 4.5 V to 5.5 V

Question: What is the purpose of standard wire gauge (SWG)?

Answer: Measure diameter of wire

Question: Which electrical parameter is measured by the megger?

Answer: Insulation resistance

Question: How the insulators are called?

Answer: Dielectrics

Question: Which tool is used for the simplest method of skinning wires?

Answer: Electrician's knife

Question: Which energy is converted into electrical energy in hydropower stations?

Answer: Mechanical energy

Question: Which tool is used to measure the size of wire?

Answer: Standard wire gauge

Question: Which parameter of the wire is directly proportional to the current carrying capacity?

Answer: Conductor's diameter

Question: What is the effect on the current flow with increased diameter of conductor?

Answer: Allows high current flow

Question: What is the relation of wire diameter with current carrying capacity of conductor?

Answer: Directly proportional

Question: How the stationary electric charges are called?

Answer: Static charges

Module 3: Single Range Meters

Question: What is the name of instrument used to measure electrical quantities?

Answer: Meter

Question: Which terminal of the meter is connected for measuring electrical quantity?

Answer: Input terminal

Question: How the electrical quantity measured by the meter is marked in it?

Answer: Using parameter symbols

Question: What is the meaning of the symbol marked 'x' on the ammeter dial?

Answer: Position indicator

Question: What is the value of each division marked by numbers on the voltmeter?

Answer: 2V

Question: How the mechanical zero error of panel meter is corrected?

Answer: By adjusting the screw

Question: Which condition the mechanical zero error occur in panel meters?

Answer: At normal condition

Module 4: Cells and Batteries

Question: What is the name of the pair of metal strips used in battery cell?

Answer: Electrodes

Question: Which electrolyte is used in lead-acid battery?

Answer: Sulphuric acid

Question: How batteries are classified?

Answer: Primary cells and secondary cells

Question: What is the rated output voltage of a silver oxide cell?

Answer: 1.5 VDC

Question: Which battery is used for cellular phones?

Answer: Lithium ion

Question: Which material is used for negative terminal of alkaline manganese dioxide batteries?

Answer: Zinc

Question: What is the unit of electric charge?

Answer: Coulomb

Question: How batteries are classified based on their working?

Answer: Primary cells and secondary cells

Question: What is the size of a silver oxide cell?

Answer: Button size

Question: What is the rated voltage of a single cell in lead acid battery?

Answer: 2.2 V

Question: What is the range of current rating of lead acid batteries used in automobiles?

Answer: 100 to 400 Amp

Question: What is the colour of positive electrode in fully charged lead acid battery?

Answer: Reddish brown

Question: What is the specific gravity of concentrated sulphuric acid?

Answer: 1.835

Question: Which energy is converted by the battery to produce electricity?

Answer: Chemical energy into electrical energy

Question: What is the total voltage of six 1.5 V cells, connected in series?

Answer: 9 VDC

Question: Which electrolyte is used in maintenance free lead acid batteries?

Answer: Gelled electrolyte

Question: What is the effect on a secondary cell supplying current to the load?

Answer: Discharging

Question: What is the percentage of sulphuric acid in electrolyte used for lead-acid batteries?

Answer: 27%

Question: What is the name of the process to maintain the recommended level of electrolyte in lead-acid battery cell?

Answer: Topping up

Question: What is the electrolyte level maintained above the top of the plates in lead acid battery cells?

Answer: 10 mm to 15 mm

Question: What is the lowest voltage level of discharging the lead-acid battery?

Answer: 1.7 V

Question: Which is the additional percentage of power delivered by the lithium ion compared to NiMH battery?

Answer: 40%

Question: Which battery is made from non-toxic materials?

Answer: Nickel metal hydride (NiMH)

Question: Which rechargeable cell is designed with conductive polymer?

Answer: Plastic cell

Question: Which method is adopted to charge a car battery with voltage rating of 2.3 V per cell?

Answer: Constant voltage charging method

Question: What is the use of battery analyzers with rapid-test program?

Answer: Indicate the health condition of battery

Question: Which device is used to test the fully charged condition of a lead acid battery cell?

Answer: High rate discharge tester

Question: Why the load testing is done on the lead-acid battery?

Answer: Measure the rated output voltage

Module 5: AC & DC Measuring Instruments

Question: Which bearing is supporting the shaft of moving coil assembly in a PMMC instrument?

Answer: Jeweled bearings

Question: What is the full form of the abbreviation PMMC meter?

Answer: Permanent Magnet Moving Coil meter

Question: Which type of wave is generated in schmitt trigger circuit?

Answer: Square wave

Question: Which electrode controls brightness of the image on the screen of oscilloscope?

Answer: Control grid

Question: Which band is used for UHF in International Telecommunication System?

Answer: Band 9

Question: Which parameter is measured by a multimeter?

Answer: Voltage

Question: What is the name of the symbol marked "X" in the panel meter?

Answer: Moving iron meter

Question: Which torque is used in PMMC meter movement?

Answer: Moderate torque

Question: Which instrument used to measure resistance, capacitance and inductance?

Answer: LCR bridge

Question: Find the value of shunt resistance required for 1 mA meter to extend the range and measure 10 mA (RM = 27 Ohm)?

Answer: 3 Ohms

Question: In which arrangement the high value of resistor is connected to extend the range of voltmeter?

Answer: Series

Question: In which analog meter the battery is provided?

Answer: Ohm meter

Question: Which function control in CRO, adjust the trace sharper?

Answer: Focus

Question: Which meter uses a moving coil for measurement?

Answer: PMMC meter

Question: Which parameter is used in the working of moving coil meter?

Answer: Permanent magnetic fields

Question: What is the advantage of using digital multimeter?

Answer: Accuracy

Question: Which meter movement is not affected by stray magnetic fields?

Answer: PMMC meter

Question: In which measuring instrument this movement is used?

Answer: Moving coil instrument

Question: In which position, the moving coil meter is kept for measurements?

Answer: Vertical

Question: Which characteristics enable the deflection of pointer in the attraction type moving iron meter?

Answer: Deflection is independent of current direction

Question: Which band of frequency is used for RADAR in frequency spectrum allotted by the International Telecommunication Union (ITU)?

Answer: ITU band-10

Question: Which control is used in repulsion type moving iron instrument to keep the pointer at zero position?

Answer: Spring control

Question: Which frame is used for winding the coil of PMMC meter?

Answer: Aluminium frame

Question: What is the purpose of damping torque in PMMC meter?

Answer: Control the swinging of the coil

Question: Why the soft iron pieces in the moving iron meter is tongue shaped?

Answer: To achieve uniformity of scale

Question: How the sensitivity of voltmeter is determined?

Answer: Ohms per volt rating

Question: What is the maximum test voltage of the moving iron volt meter?

Answer: 2000 V

Question: What is the name of the procedure carried out to ensure the trustworthy standards of the measuring instrument?

Answer: Calibration

Question: How the accuracy of amplitude and frequency measured by CRO is checked?

Answer: By built-in calibration signal

Module 6: Soldering / Desoldering and Various Switches

Question: Which bonding material is used for soldering a joint?

Answer: Flux

Question: At which temperature the 60:40 solder start melting?

Answer: 200°C

Question: Which step is important for soldering a joint?

Answer: Heating the joint

Question: What is the range of temperature used in soldering station?

Answer: 150°C to 450°C

Question: What is the name of the tool?

Answer: Plunger de-soldering tool

Question: What is the name of the soldering iron tip?

Answer: Conical

Question: What is the name of flux used for soldering electronic components?

Answer: Rosin

Question: How many types of soldering is used for joining metal surfaces?

Answer: Two

Question: What is the full form of the abbreviation SPDT used in switches?

Answer: Single Pole Double Throw

Question: Which ratio of tin-lead combination is used for electronic component soldering work?

Answer: 60:40

Question: When does the rosin flux melts in a soldering process?

Answer: When the solder is heated

Question: What is the additional advantage of rosin flux used for soldering electronic components?

Answer: It is non-conductive

Question: What is the full form of the abbreviation DPDT used in switches?

Answer: Double Pole Double Throw

Question: How is the soldering method used for joining large metal called?

Answer: Brazing

Question: How much time is required to make a quality soldered joint using soldering iron?

Answer: 3-7 seconds

Question: Which type of soldering is used for electronic circuit?

Answer: Soft soldering

Question: Which tool works on the principle of air suction?

Answer: Desoldering pump

Question: Which soldering instrument has hot air blowing facility?

Answer: Soldering station

Question: What is produced by the power supply connected soldering iron?

Answer: Heat

Question: What is the purpose of flux in soldering electronic circuit components?

Answer: Dissolve the oxide layer on the metal surface

Question: Which gauge number of rosin-cored solder is suitable for soldering medium sized joints?

Answer: 18 gauge rosin cored

Question: How the flux residue is removed after soldering a joint?

Answer: Isopropyl alcohol

Question: What is the effect of over heating on soldering a joint?

Answer: Dull grainy surface

Question: What is the name of defect if the flux is unable to remove the tarnish from the soldered joint?

Answer: Cold joint

Question: What is the result of forced air is blown to cool the joint while soldering?

Answer: Results in dry brittle joint

Question: What is the effect of shaking the soldered joint while cooling?

Answer: It disturbs the chemical bonding take place

Question: Why the solvent Iso Propyl Alcohol (IPA) is used on the solder joint?

Answer: Remove residual flux and prevent corrosion

Question: What is the defect on the soldered joint, if it is cooled by blowing air?

Answer: Dry solder joint

Question: How the thick layers of oxide is removed before doing the soldering activity?

Answer: Use abrasive method

Question: Which method is used for soldering electronic components?

Answer: Clinched lead method

Question: Why the plunger desoldering tool needs periodical cleaning?

Answer: To prevent clogging of the nozzle

Module 7: Active and Passive Components

Question: What is the type of transformer?

Answer: High frequency transformer

Question: How power rating is specified for transformers?

Answer: Volt ampere (VA)

Question: Which component opposes any change in current?

Answer: Inductor

Question: What is the unit of inductance?

Answer: Henry

Question: Which value is equal to one picofarad?

Answer: 10^{-12} Farad

Question: Which factor determines the inductance value?

Answer: Diameter of the coil

Question: What is the name of the type of resistor?

Answer: Carbon type variable

Question: What is the colour code for 100 OHM resistor?

Answer: Brown, black, brown

Question: How many ohms is equal to one Mega ohm?

Answer: 1000 kΩ

Question: Determine the current flows through 2kΩ resistor (R2).

Answer: 6 mA

Question: Which property of the capacitor stores electrical energy in electrostatic field?

Answer: Capacitive reactance

Question: Which unit is used to measure capacitance value?

Answer: Farad

Question: What is the name of the coil?

Answer: High frequency inductors

Question: What is the name of Multi-turn potentiometers?

Answer: Multi turn trim pots

Question: What is the purpose of the electronic component used in radio receiver?

Answer: Tuning circuit

Question: What is the name of the triangle used in resistor, inductor in AC circuit?

Answer: Current triangle

Question: Which meter is used to find the exact resistance value of resistors?

Answer: Ohm meter

Question: How much is the impedance of the circuit?

Answer: 50 Ω

Question: What is the cause of burnt relay contacts?

Answer: Excessive contact current

Question: At which condition the cold resistance of the low voltage lamp is measured using ohmmeter?

Answer: Lamp is OFF at room temperature

Question: What is the result of hysteresis loss in magnetic material?

Answer: Energy loss takes place

Question: What is the phase relationship between the applied voltage and current in the primary of a transformer with open secondary winding?

Answer: Current lags voltage by 90°

Question: What is the value of carbon composition resistor?

Answer: 3300 Ω

Question: What is the voltage (V2) drop across the resistor R2?

Answer: V2 = 60V

Question: What is the purpose of trimmer capacitor?

Answer: Fine tuning

Question: Find the total resistance value of 10 ohms and 20 ohms connected in parallel.

Answer: 6.666 Ohms

Question: Find the total inductance value of two inductors 10H and 15H of connected in series.

Answer: 25 H

Question: What is the power dissipated if 10mA current flows through a 10KΩ resistor?

Answer: 1000 milli watts

Question: Find the current (I3) using Kirchhoff's current law.

Answer: 5A

Question: What is the name of effect of changing current in one coil, induces EMF in nearby coil?

Answer: Mutual induction

Question: What is the main problem caused for severe pitting in relays?

Answer: Excessive contact current

Question: What is the effect on the transformer operated below the rated voltage?

Answer: Delivers reduced secondary voltage

Question: What is the purpose of vacuum contactors in electrical panel?

Answer: Fast switching

Question: What is the reason for the use of contactors in control circuits?

Answer: Supply power to loads

Question: Why the transformer core is made as thin laminations?

Answer: To minimize eddy current losses

Question: Which part of the relay causes most trouble?

Answer: Relay contacts

Module 8: Power Supply Circuits

Question: What type of ripple filter circuit is used for large load current requirements?

Answer: Capacitor Input filter

Question: What is the current through the zener diode with full load condition?

Answer: Maximum

Question: Which circuit produces the ripple waveform?

Answer: Filter circuit

Question: Which component filter the ripples in the rectifier circuit?

Answer: Capacitor

Question: Which parameter is maintained constant in zener diode?

Answer: Voltage

Question: What is the meaning of maximum safe reverse voltage across a diode?

Answer: PIV voltage

Question: What is the name of the circuit diagram?

Answer: Bridge rectifier

Question: When does the zener diode begins to conduct in the reverse biased condition?

Answer: Voltage across it reached the zener voltage

Question: What is the current through the zener diode under no load condition?

Answer: Maximum

Question: What is the output pulse frequency of the full wave rectifier with input frequency of 50 Hz?

Answer: 100 Hz

Question: What is the maximum safe reverse voltage rating of a diode?

Answer: PIV voltage

Question: Which is the first step followed in troubleshooting of electronic circuit?

Answer: Physical and sensory test

Question: Which diode is used in low power communication circuits?

Answer: Signal diodes

Question: What is the disadvantage of the two diode full wave rectifier compared with a bridge rectifier?

Answer: The need of bulky transformer

Question: What is the process of adding impurities to a pure semi conductor material?

Answer: Doping

Question: How much is the regulated output voltage?

Answer: 12 Volts

Question: Which impurity is added to form P-type semiconductor material?

Answer: Gallium

Question: Which impurity is added to pure semiconductor to form N-type material?

Answer: Arsenic

Question: What is the output frequency of the pulsating DC in a two diode fullwave rectifier?

Answer: Double the input A/C frequency

Question: What is the name of the process of converting AC into DC voltage?

Answer: Rectifying

Question: What is the effect on the output voltage in a bridge rectifier circuits, with one diode open?

Answer: Half of the rated output voltage

Question: What is the peak to peak voltage in a bridge rectifier circuit with load current of 10 mA, capacitance of 470 µF and 50 Hz supply frequency?

Answer: 0.213 v

Question: What is the minimum current rating of four diode bridge rectifier to supply load current of 1.8 Amp?

Answer: 1.8 Amp

Module 9: Computer Hardware, OS, MS Office and Networking

Question: Which signal is sent by the SMPS to computer mother board?

Answer: Power good signal

Question: What is the full form of the abbreviation ISA?

Answer: Industry Standard Architecture

Question: Which device is used to produce hard copy of a document in a computer?

Answer: Printer

Question: Which port is used to connect a plug and play peripheral device to CPU?

Answer: USB port

Question: What is the function of schottky diode BA 157 in SMPS circuit?

Answer: Fast recovery diode

Question: What is the advantage of SMPS in computer?

Answer: High efficiency

Question: What is the full form of electronic component MOV?

Answer: Metal Oxide Varistor

Question: Which port is used to connect the HDD on the mother board?

Answer: IDE port

Question: What is the full form of the abbreviation LBA in computer system?

Answer: Logical block accessing

Question: What is the full form of the abbreviation CD-ROM in computer?

Answer: Compact Disk Read Only Memory

Question: What is the name of the block marked 'x' in the microprocessor?

Answer: Accumulator

Question: Which component, which reads the command from memory and executes?

Answer: Random Access Memory

Question: Which codes are stored in computer ROM BIOS chip?

Answer: Permanent codes

Question: Which mouse action is used to move an object from one location to another?

Answer: Drag and drop

Question: Which memory device looses data on power failure?

Answer: RAM

Question: Which section is used by the processor to save instructions?

Answer: Memory

Question: Which option opens a list of programs, currently installed in the computer?

Answer: All program

Question: In computer processing data, which table maintain the size of the partition?

Answer: Partition table

Question: The speed of spindle motor rotates inside the hard disk.

Answer: 3600 to 7200 r.p.m

Question: Which metal coating is used on compact disk?

Answer: Aluminium

Question: Where the programs and datas are stored after execution in computer?

Answer: Memory

Question: Which shortcut key function is used to close the working window on the computer?

Answer: Alt + F4

Question: Which device converts digital data from computer into analog data and transmit through telephone line?

Answer: MODEM

Question: Which component is used to prevent over voltage of AC supply in SMPS?

Answer: Metal oxide varistor

Question: Which component is used to remove the heat generated inside the SMPS?

Answer: Cooler fan

Module 10: IC Regulators

Question: How many transistors are built inside the Very Large Scale Integration (VLSI) IC package?

Answer: 1000 and above

Question: Which IC package consist of 100 to 1000 transistors?

Answer: Large scale integration (LSI)

Question: Which is the 3 terminal, negative voltage regulator IC?

Answer: IC 7905

Question: Which three terminal voltage regulator IC has adjustable output?

Answer: LM 317

Question: How much is the maximum load current of the negative voltage regulator IC 7912?

Answer: 1.5 A

Question: What is the current rating of voltage regulator IC LM338K?

Answer: 5A

Question: What is the function of the transistor 2N 3055 in the circuit?

Answer: To handle higher load current

Question: Which method is followed to troubleshoot the problem causing section by the symptom?

Answer: Logical approach method

Question: What is the current rating of voltage regulator IC LM317L?

Answer: 0.1 A

Question: What is the function of capacitor C2 in the voltage regulator?

Answer: Improve the transient response of output voltage

Question: What is the range of output voltage of regulator IC LM 317?

Answer: 1.2 V to 32 V

Question: Which type of voltage regulator is IC 723?

Answer: Multipin variable voltage regulator

Question: What is the purpose of diode (D1) in the variable output voltage regulator?

Answer: To protect the IC against short due to C3

Question: Which component protects the regulator IC from short circuit due to capacitor C3?

Answer: Diode D1

Question: What is the purpose of diodes in the circuit?

Answer: Avoid the common load problem

2nd Semester - Module 1: Transistor Amplifier

Question: Which coding system for transistor type numbering system is followed by American standard?

Answer: JEDEC standard

Question: What is the electrode marked 'X' in the TO-5 transistor pack diagram?

Answer: Emitter

Question: What is the electrode marked 'X' in the TO-12 transistor pack diagram shown?

Answer: Collector

Question: What is the current gain of common collector amplifier?

Answer: Very high

Question: What is the type of amplifier configuration?

Answer: Common collector

Question: What in the current gain of a common-base amplifier?

Answer: Less than 1

Question: What is the meaning of first letter indicated in the transistor code number BC 107?

Answer: Silicon material used

Question: What is the formula used to calculate the current gain (α) of common base amplifier?

Answer: Ic/Ie

Question: What is the name of multi-stage amplifiers?

Answer: Cascaded amplifier

Question: What is the maximum emitter to base voltage VEB (max) for the transistor BC 147?

Answer: 6V

Question: How the negative feedback is called?

Answer: Degenerative feedback

Question: How the maximum permissible voltage that can be applied across the collector-Emitter junction of a transistor is indicated?

Answer: VCE (max) in volts

Question: Which configuration of transistor amplifier is most commonly used in electronic circuits?

Answer: Common emitter configuration

Question: Which transistor characteristics gives the curve plotted against VBE versus IB as shown?

Answer: Input characteristics of silicon transistor

Question: Why transistors made of silicon is preferred over the germanium semiconductor material?

Answer: Higher thermal stability

Question: Why NPN type of transistors are preferred over the PNP type transistors?

Answer: NPN has higher switching speed

Question: Which type of transistors are required to amplify signals from the microphone/transducer?

Answer: Low power transistors

Question: What type of packaging is generally used to transistors utilized for low power amplification?

Answer: Plastic packaging

Question: Which type of packaging is used to transistors utilized for medium power amplification?

Answer: Plastic packaging with metal heatsinks

Question: Which methods of coupling used in the transistored amplifier circuit shown?

Answer: Direct and Rc coupled amplifier

Question: Which type of amplifier is used to operate the loud speaker?

Answer: Power amplifier

Question: What is the value of Re if the voltage across it is 1.2 V and current flowing through it is 10mA?

Answer: 120Ω

Question: What is the voltage gain in a transistor if the input voltage in 40mv and the output voltage in 3.6V?

Answer: 90

Question: What is the frequency of operation of the amplifier circuit using inductance and capacitance (L-C) coupling?

Answer: High frequency signals

Question: What is the input impedence of darlington pair transistors?

Answer: Very high input impedance

Question: What is the advantage of using bias in transistor circuits?

Answer: Never reach saturation

Question: Which class of amplifier uses fixed bias because of its imperent advantage of transistor will never go to saturation?

Answer: Class-A

Question: How does the values of bias resistors selected for collector current in class-B amplifiers?

Answer: Quiscent current over the cut-off value

Question: Which parameter of passive component can be calculated using the formula $1/(2\pi fc)$?

Answer: Capacitive reactance

Question: Which type of amplifier is used to operate the loud speaker?

Answer: Power Amplifier

Question: What is the advantage of silicon over germanium for transistor fabrication?

Answer: Higher thermal stability

Question: Which type of amplifier has the frequency response curve as shown?

Answer: Direct coupled amplifier

Question: How much is the voltage drop across the load resistor R2 in the circuit?

Answer: 8.6V

Question: What is the effeciency transformer coupled class A amplifier?

Answer: About 50%

Question: What is the purpose of using positive feed back in amplifiers?

Answer: To produce oscillation

Question: What will happen when the forward bias voltage across the PN junction is increased excessively?

Answer: Junction ruptured and short circuited

Question: Which test is conducted to check the basic operation of a transistor?

Answer: B-E forward resistance test

Question: What is the overall base emitter voltage required to turn the darlington pair?

Answer: 1.4 V

Question: What is the status of the transistor in the circuit?

Answer: Acting on an open switch

Question: Why the complementary symmetry amplifier is preferred over the other types of amplifier configurations?

Answer: To eleminate the transformer

Question: What is the voltage drop across the collector and emitter of transistor Q1?

Answer: 6V

Question: How can you confirm a transistor as defective?

Answer: By ohm meter testing

Question: What is the status of the transistor in the circuit?

Answer: Acting as a closed switch

Question: Where does the depletion region exists in a bipolar transistor?

Answer: Between E-B and B-C -electrodes

Question: What causes the drop in gain at high frequencies of an RC coupled amplifier frequency response curve?

Answer: Parasitic capacitance and transistor frequency dependence gain

Question: How does the transistor behaves above the knee voltage and below the breakdown voltage in the characteristics curve?

Answer: Controlled constant current source

Question: In which quantity affects the Q point of a transistor amplifier?

Answer: Increased temperature

2nd Semester - Module 2: Oscillators

Question: Which type of circuit is used in the oscillator?

Answer: SHUNT fed colpitts oscillator

Question: Which type of circuit is used?

Answer: R.C phase shift oscillator

Question: What is the natural shape of a quartz crystal?

Answer: Hexagonal prism with pyramid at ends

Question: What is the resonant frequency range of a crystal?

Answer: Between 0.5 and 30 MHz

Question: What is the difference of colpitts oscillator compare to hartley oscillator?

Answer: Uses split capacitor

Question: What is the name of capacitors C1 and C2 in the circuit?

Answer: Commutating capacitors

Question: Which circuit is determined by the frequency of LC tank circuit?

Answer: Oscillator

Question: What is the name of the circuit diagram?

Answer: Astable multivibrator

Question: What is the percentage of charge accumulated by the capacitor at the end of 2 time constant limit?

Answer: 86.40%

Question: How many time constants required to change a capacitor to 63.2% of its full charge voltage?

Answer: One time constant

Question: Which circuits commonly use parallel-fed hartley oscillators?

Answer: Radio receivers

Question: What type of arrangement is required to sustain the oscillations of the oscillator circuit?

Answer: Provide regenerative feedback

Question: How the frequency of oscillations varied in the parallel-fed hartley oscillator?

Answer: By varying capacitor C

Question: What type of waveform is produced by the series fed hartley oscillator?

Answer: Sinusoidal wave

Question: Name the circuit diagram?

Answer: Mornostable multivibrator

Question: What type of feed back is used by the wein-bridge oscillator to oscillate the signal?

Answer: Both positive and negative feedback

Question: How to improve the frequency stablity in oscillator circuits?

Answer: By using quarty crystal

Question: Which is the transistor used to operate the colpitts oscillator?

Answer: BF 194B

Question: How many time constant period is required to fully charge a capacitor?

Answer: 5 time constants

Question: What is the purpose of capacitor C4 in the RC phase shift oscillator?

Answer: Bypasses unwanted HF oscillations to ground

Question: Which types of amplifier configuration used in the circuit?

Answer: Common emitter configuration

Question: How to overcome the problem of frequency drift in LC oscillators?

Answer: Using high Q coils and good quality capacitors

Question: Why LC tuned circuits are not used in audio frequency oscillators?

Answer: LC values required is too large

2nd Semester - Module 3: Wave Shaping Circuits

Question: What are the basic components required for a clipping circuit?

Answer: Diode and resistor

Question: What is the name of circuit?

Answer: Combination clipper

Question: Which circuit gives the output waveform?

Answer: Biased positive clipper

Question: Which circuit is used to clip portion of both positive and negative half cycle of input signal voltage?

Answer: Combination clipper circuit

Question: Which application the clamper circuit is used in electronics?

Answer: Power supplies

Question: What is the use of clamper in electronic circuits?

Answer: For DC component restoration

Question: What is the name of the circuit that shifts the original signal in a vertical downward direction?

Answer: Negative clamping circuit

Question: What is the function of the circuit diagram?

Answer: Positive shunt clipper

Question: What is the function of the circuit diagram?

Answer: Series diode clipper

Question: Which circuit gives the output waveform?

Answer: Negative clipper

Question: Which type of clipper is that a small portion of the negative half cycle of signal is removed?

Answer: Biased negative clipper

Question: What is the name of the circuit that shifts the waveform upward or downward without disturbing its shape?

Answer: Clamper circuit

Question: Which circuit gives the output waveform?

Answer: Biased Negative clipper

Question: What is the function performed by the circuit?

Answer: Combination clipper

Question: What is the function of clipper circuit?

Answer: Wave shaping

Question: What is the name of the circuit that shifts the original signal in a vertical upward direction?

Answer: Positive clamping circuit

Question: Which circuit shapes the input signal and gives the output waveform?

Answer: Positive clamper

Question: What should be the time constant t = RC for a good clamper circuit with reference to time period of the input signal?

Answer: RC valves should be at least ten times

Question: What is the value of output voltage during the negative half cycle across the diode in the negative clamper circuit shown? (R value is very high)

Answer: Double the input voltage

Question: When does the biased negative clipper removes the portion of input signal?

Answer: Signal voltage becomes greater than bias battery voltage

Question: When does the biased positive clipper removes the portion of input signal?

Answer: Signal voltage becomes greater than bias battery voltage

Question: Which circuit shapes the input signal and gives the output waveform?

Answer: Negative clamper

Question: What is the value of output voltage during the positive half cycle across the diode in positive clamper circuit shown? (R- value is very high)

Answer: Double the input voltage

2nd Semester - Module 4: Power Electronic Components

Question: What is the name of the region marked 'X' on the UJT characteristics curve?

Answer: Negative resistance region

Question: What is the name of electronic device symbol?

Answer: U.J.T

Question: What is the common and popular application of U.J.T?

Answer: Relaxation oscillator

Question: What is the maximum forward gate current (Ig) for BFW10 JFET?

Answer: 10 mA

Question: What is the package type for BF 245B?

Answer: TO-92

Question: How gate is biased in JFET?

Answer: Reverse biased

Question: What is the gate current (Ig) of the JFET, when reverse biased?

Answer: Practically zero

Question: Which is the N-channel FET?

Answer: Main current flows through N-doped-material

Question: What is the name of electronic symbol?

Answer: FET N-channel

Question: Which device is a unipolar transistor?

Answer: FET

Question: Which is the package type for the JFET BFW10?

Answer: TO-72

Question: What is the maximum drain- source voltage, VDS for the JFET BF 245B?

Answer: 30 V

Question: What is the term stands for TRIAC?

Answer: TRlode AC semiconductor

Question: What is the maximum specified voltage for the TRIAC TIC 201D?

Answer: 2.5 V

Question: What is the code number of TRIAC?

Answer: BT136

Question: Which current flows in TRIAC between MT1 and MT2?

Answer: Principal current

Question: What is the switching speed of solid state relays?

Answer: 1 to 100 nano seconds

Question: What is the minimum current ratings of solid state relays available in low power packages?

Answer: Few micro Amperes

Question: What is the maximum current ratings of solid state relays available in high power packages?

Answer: 100 Amp

Question: Which is the drain current (Id) in JFET?

Answer: Electron from source to drain

Question: What is the maximum drain source voltage, VDS for BFW10?

Answer: 30 V

Question: What is the maximum power dissipation Pmax for BF 245B?

Answer: 300 mw

Question: Which is the device made and interconnected by two transistors?

Answer: SCR

Question: What will happen in SCR with forward biased condition and gate current is applied?

Answer: Forward current conduction commences

Question: How many layers of PN junctions are used in SCR fabrication?

Answer: Four layer three junctions

Question: Which semiconductor devices are composed inside the solid state relays?

Answer: Thyristor and transistors

Question: What is the function of solid state relay(SSR)?

Answer: High frequency oscillator

Question: What is the function of DIAC in the TRIAC phase control?

Answer: Used as trigger device

Question: What is the name of the component marked 'x' in the TRIAC triggering circuit?

Answer: DIAC

Question: How the lamp failures caused by the high inrush currents in lamp dimmer circuits using TRIAC is eliminated?

Answer: By soft start circuit

Question: What is the purpose of TRIAC circuit?

Answer: Phase-control for universal motors

Question: Which voltage level is reached to increase the current through DIAC rapidly?

Answer: Break over voltage

Question: What is the construction of electronic component?

Answer: TRIAC

Question: Which measuring instrument is used to make quick test on a TRIAC?

Answer: Ohmmeter

Question: What is the maximum drain current ID for BFW10?

Answer: 20 mA

Question: What is the maximum drain current, ID for BF 245B?

Answer: 25mA

Question: What type of control is used for FET?

Answer: Voltage controlled device

Question: Which parameter controls the current flow in a Bi-polar transistor?

Answer: Current

Question: Which device generates high frequency radio frequency interferences by the extremely rapid turn-ON time?

Answer: TRIAC

Question: Which characteristics exhibits the current conduction increases while the voltage across the devices decreases in a DIAC?

Answer: Negative resistance characteristics

Question: How the power control is achieved in the electronic circuit?

Answer: Phase control circuit

Question: What is the load current handled by the solid state relay that must be mounted to some heatsink to protect the device?

Answer: Greater than 4 Amp

Question: How the solid state relays are working for increased lifetime?

Answer: No moving parts to wear and tear

Question: Which type of defects are occuring in solid state relays?

Answer: Tendency to fail shorted

2nd Semester - Module 5: MOSFET & IGBT

Question: What is the full form of the abbreviation MOSFET?

Answer: Metal oxide semiconductor FET

Question: Which type of MOSFET construction is indicated?

Answer: Enhancement type MOSFET

Question: What is the name of the electronic component symbol?

Answer: P-channel enhancement type MOSFET

Question: What is the name of the electronic component symbol?

Answer: N channel MOSFET depletion type

Question: What is the name of electronic component symbol?

Answer: P channel MOSFET depletion type

Question: What is the type of MOSFET?

Answer: Enhancement type N-channel MOSFET

Question: What is the type of opto coupler?

Answer: Photo Transistor

Question: What is the name of the electronic component symbol?

Answer: P-channel depletion type MOSFET

Question: What is the type of MOSFET symbol?

Answer: N-channel depletion type MOSFET

Question: What is the name of this special type electronic device with four connections?

Answer: MOSFET TETRODE

Question: What is the maximum blocking voltage of very high current handling IGBT modules?

Answer: 6000 V

Question: What is the input impedance of IGBT?

Answer: High input impedance

Question: What is the use of the test circuit?

Answer: To test the working condition of IGBT

Question: What is the advantage of MOSFET?

Answer: Fast switching speed

Question: What is the advantage of MOSFET?

Answer: Low gate signal power requirements

Question: What is the advantage of IGBT?

Answer: High efficiency and fast switching

Question: What is the disadvantage of IGBT?

Answer: Low driving power

Question: What is the input impedance of IGBT?

Answer: High

Question: Which is the property of IGBT?

Answer: High efficiency and fast switching

Question: What is the main advantages of IGBT over BJT?

Answer: Superior current conduction capability

Question: How many alternating layers are there in IGBT?

Answer: 4 layers

Question: Which insulation layer is used in MOSFET?

Answer: Silicon-di-oxide

Question: Which electrical quantity controls the operation of the bipolar transistor device?

Answer: Current

Question: How the two series connected channel regions of the depletion type dual gate MOSFET is controlled?

Answer: Independently controlled

Question: What is the name of the layer marked 'X' in the MOSFET construction?

Answer: Inversion layer

Question: What is the drawback of IGBT compared to the power MOSFET?

Answer: Poor switching speed

Question: How the drive circuits for the power MOSFETs are coupled?

Answer: Using pulse transformer

Question: Which circuit uses the enhancement type MOSFET?

Answer: Integrated MOS switching circuits

Question: When does the complementary metal oxide type MOSFET configuration consumes power?

Answer: During switching

Question: Why the electronic device IGBT is preferred over the power MOSFET?

Answer: Higher switching repetition rates

2nd Semester - Module 6: Opto-Electronics

Question: What is the minimum forward current If for single colour LEDs?

Answer: 20 MA

Question: What is the forward voltage drop of single colour Red LED?

Answer: 1.8 V

Question: What is the typical forward voltage drop of the RED colour LED?

Answer: 1.8 V

Question: What is the maximum reverse voltage that can be applied across the general purpose LED?

Answer: 8V

Question: What is the typical forward voltage drop of the yellow colour LED?

Answer: 2.1 V

Question: Which material is used to make LDR for higher end requirements?

Answer: Lead selenide

Question: What is the range of photo current for photo transistor BPX 38?

Answer: 0.2MA to 1.6MA

Question: What is the type of transistor BPX81?

Answer: NPN-Photo transistor

Question: What is the function of opto-coupler in the switching operation of digital input signal?

Answer: Defects the operation of switching signal

Question: What is the forward voltage for the single colour orange LEDs?

Answer: 2V

Question: Which material is used to make LDR for lower end requirements?

Answer: Cadmium sulfide

Question: Which circuit photo SCR opto couplers are used?

Answer: AC powered circuits

Question: Which circuit uses photo-darlington devices?

Answer: Counter circuits

Question: What is the advantage of PIN photo diodes?

Answer: High sensitivity in the infrared range

Question: Which of the device is opto-coupled TRIACS?

Answer: B3202

Question: Which is the combination of photo transistor?

Answer: Photo diode and transistor

Question: What is the advantage of photo transistors over photo diodes?

Answer: Considerable greater sensitivity

Question: What is the use of photo transistor?

Answer: Used as light controlled switch

Question: What is the drawbacks of LDR?

Answer: Cannot be used to determine precise light levels

Question: Which material is used to make photo resistors (LDR)?

Answer: Cadmium sulfide

Question: What is the main application of photo resistor?

Answer: Controls of street lighting systems

Question: Which purpose the cadmium sulfide cells (CDS cells) are used?

Answer: Light dependent resistor

Question: How the light sensitive photo transistor enclosed inside a tight package is activated?

Answer: By IR light produced inside the package

Question: Which measuring instrument is used to check the working condition of a photo resistor (LDR)?

Answer: Ohmmeter

Question: Which electronic device inversely changes its resistance with the amount of light falling on it?

Answer: Photo resistors

Question: What will happen if the photo resistor (LDR) is exposed to low level light condition?

Answer: Resistance will increase to around 1MΩ

2nd Semester - Module 7: Basic Gates, Combinational Circuits, Flip-flops

Question: How many inputs are available in the 7447 BCD-to-seven segment decoder used to drive the LED display?

Answer: Four

Question: What is the type of flip-flop circuit?

Answer: R-s flip-flop

Question: What is the power supply required to operate the most standard TTL ICs properly?

Answer: +4.75v to + 5.25V

Question: What is the propagation delay of the standard TTL chip?

Answer: 10 ns

Question: What is the power dissipation of the standard TTL chip?

Answer: 10 mW/gate

Question: What is the decimal conversion number for the octal number $(2374)_8$?

Answer: $(1276)_{10}$

Question: What is the digital signal value for the analog signal value 6V?

Answer: 0101

Question: What is the decimal number for the binary number 0101_2?

Answer: 5

Question: Which IC is used for (DEMUX) function in data transmission?

Answer: 74 LS 138

Question: Which logic gate IC is marked as 'X' in the circuit?

Answer: IC7408

Question: Which circuits requires the flip-flops for their operation?

Answer: Memory circuits

Question: Which logic gate has the following truth table?

Answer: NOR

Question: What is the use of flip flop?

Answer: It stores binary information

2nd Semester - Module 8: Electronic Circuit Simulator

Question: What are the uses of simulation softwares?

Answer: Design and test a circuit

Question: How the active and passive components are added in the circuit using simulation software?

Answer: Clicking on the component group

Question: Which space is used to design circuit in schematic editor of the Tina software?

Answer: Circuit work space

Question: Which is electronic simulation software?

Answer: Macspice

Question: How the performance of the amplifier designed using the simulation software is tested?

Answer: Using virtual instrumentation testing

Question: Which software is used to simulate electronic circuits?

Answer: Multi sim

Question: How the circuit schematic drawn using the simulation software is tested?

Answer: Using analysis menu

2nd Semester - Module 9: Counters and Shift Registers

Question: What is the type of counter circuit?

Answer: Decade counter

Question: What is the maximum possible number of flip-flops in a decade counter?

Answer: 2

Question: What is the purpose of using IC74LS190?

Answer: Up/down counter

Question: Which IC is used for the function of 4 bit shift register?

Answer: IC 7495

Question: What is the type of counter circuit?

Answer: 4 bit ripple counter

Question: What is the information stored in digital registers?

Answer: Binary values

2nd Semester - Module 10: Op-Amp and Timer 555 Applications

Question: What is the maximum power dissipation for a 555 IC?

Answer: Around 600 mW

Question: What is the meaning of slew rate referred to in operational amplifiers?

Answer: Rate of change of output voltage

Question: What is the limitation of integrated circuits?

Answer: Large value capacitors, resistors cannot be fabricated

Question: Which mode is used in differential amplifier?

Answer: Common-mode operation

Question: Which is the major factor to determine the quality performance of A/D converter?

Answer: Number of bits used

Question: What is the name of amplifier circuit?

Answer: Single supply inverting amplifier

Question: What is the expansion of PRF related to frequency?

Answer: Pulse repetition frequency

Question: What is the name of the ratio of ON-time pulse to the OFF-time pulse of multivibrator?

Answer: Duty cycle

Question: What is the function of pin number 4 of the IC 555?

Answer: Reset

Question: Which is the output pin number IC 555 timer?

Answer: Pin number 3

Question: What is the function of pin number 2 of IC 555 timer circuit?

Answer: Trigger

Question: What is the method used in the Op-Amps?

Answer: Double ended input with double ended output

Question: Which process the ICS are made?

Answer: Micro photo lithographic process

Question: What is the name of IC used in the astable multivibrator marked 'X'?

Answer: IC555

Question: What is the use of schmitt trigger circuit?

Answer: Signal processor

Question: What is the function of astable multivibrator in timer IC 555?

Answer: Serving as an oscillator

Question: Which circuit uses the F to V converter section?

Answer: Digital frequency meter circuit

Question: How many Op-Amps are fabricated inside the LM 324 IC pack?

Answer: Four Op-Amps

Question: How many operational amplifiers are fabricated in the LM741 IC?

Answer: One Op-Amp

Question: What is the output produced in the ADC circuit?

Answer: Binary output

Question: What is successive approximation (SAR)?

Answer: Method of A/D conversion

Question: Which is the fastest A/D convertion techniques?

Answer: Medium to high speed data acquisition applies

Question: What is the characteristics of instrumentation amplifier?

Answer: High input impedance

Question: How the pass band gain of the circuit is expressed?

Answer: In decibels

Question: What is the important feature of instrumentation amplifier?

Answer: High gain accuracy

Question: Which is the major factor determines the quality performance of A/D converter?

Answer: Resolutions

Question: Which is the major factor determines the quality performance of A/D converter?

Answer: Sampling rate

Question: What is the effect on the analog input given to the successive approximation circuit output marked 'x'?

Answer: Parallel Binary output

Unit 1: Digital Storage Oscilloscope

Q1: What is the full form of the abbreviation D.S.O?

Answer: Digital Storage Oscilloscope

Q3: What is the name of the circuit?

Answer: Astable multivibrator

Q4: Which function makes a stable waveform displayed on the DSO screen?

Answer: Triggering function

Q5: Which acquisition mode is used by the DSO to sample the highest and lowest values of the input signal?

Answer: Peak detect mode

Q6: What is the purpose of sampling in DSO operation?

Answer: Convert analog signal to digital

Q7: How the overall operation of DSO is controlled?

Answer: Using microprocessors

Q8: Which function is performed by the sample / Hold circuit along with the ADC in Digital Storage Oscilloscope?

Answer: Data acquisition

Q9: What is the name of the circuit built with IC 8038?

Answer: Function generator

Q10: What is the name of the factory setup done to the Digital Storage Oscilloscope?

Answer: Default setup

Q11: Which IC is used in the Astable multivibrator circuit?

Answer: IC 555

Q12: Which type of waveform is available in pin number 3 of IC 8038 function generator?

Answer: Triangle wave

Q14: Which part of the DSO stores the processed data of input signal voltage?

Answer: Memory

Q15: What is the name of waveform displayed on the DSO screen?

Answer: Ringing waveform

Q16: How the digital equipment works with the input voltage samples?

Answer: Convert it to Binary numbers

Q17: Which circuit is used in Digital Storage Oscilloscope (DSO) to convert the input sample voltage into digital information?

Answer: Analog to Digital converter circuit

Q18: Which type of waveform is available at pin number 9 of function generator IC 8038?

Answer: Square wave

Unit 2: Basic SMD

Q1: What is the type of SMD IC package?

Answer: PGA pack

Q2: What is the acceptable resistance value limit for the ESD wrist strap?

Answer: 1MΩ

Q3: What is the type of SMD IC package?

Answer: LCC

Q4: What is the power rating of soldering iron used in electrical and electronics work?

Answer: 15 to 35 watts

Q5: What is the full form of the abbreviation PGA used in SMD IC package?

Answer: Pin Grid Array

Q6: Which type of hot air pencil tip is used in SMD soldering?

Answer: Angled type

Q7: What is the range of temperature setting on soldering work station for soldering SMD ICs?

Answer: 250°C to 280°C

Q8: How does the desoldering braid removes the molten solder from the joint on the PCB?

Answer: By capillary action

Q9: Which method is effective to control ESD, during manufacturing the devices?

Answer: Use ESD wrist strap

Q10: Which technology is used to place the components directly on the printed circuit boards?

Answer: Surface Mount Technology

Q11: What is the name of the device?

Answer: SMD workstation

Q12: What is the name of SMD tool?

Answer: Heated tweezers

Q13: Which type of leads constructed in SOIC package?

Answer: Gull wing leads

Q14: Which SMD IC needs lead forming equipment to cut and bent into gull wing type?

Answer: FLAT Package

Q15: Which is alternative to ceramic SMD IC packages?

Answer: Plastic packages

Q16: What is the purpose of bumpered corners of the Bumpered Quad Flat Pack?

Answer: Protects the IC leads

Q17: What is the full form of the abbreviation SOIC?

Answer: Small Outline Integrated Circuits

Q18: What is the name of the IC package?

Answer: BQFP

Q19: What is the full form of the abbreviation SMT?

Answer: Surface Mount Technology

Q20: What is the use of Bench top Ionisers?

Answer: To control ESD in work environment

Q21: What is called 'tinning' in soldering?

Answer: Melt a little solder on the tip of the iron

Q22: What is the name of the defect caused due to ESD event?

Answer: Latent defect

Q23: How to minimize the cause of ESD during the manufacturing of devices?

Answer: Used ESD controlled footwear

Q24: What is the percentage of defect caused to devices due to ESD?

Answer: 60 to 90

Q25: Which material is used to make conductive shoe covers to protect from static charges?

Answer: Polypropylene

Q26: What is the cause of 'Voiding' in SMT?

Answer: Damaged joint strength

Q27: What is the composition of solder paste used for reflow soldering process?

Answer: Powdered solder and flux

Q28: Which conformal coating material is used as two part thermosetting mixture?

Answer: Epoxy resin

Q29: Which material is used to make the drill bits for drilling PCB holes?

Answer: Solid coated Tungsten carbide

Q30: What is the size of pad width for soldering resistors, capacitors and diodes on the PCB?

Answer: 70 Thou

Q31: Which colour of solder mask is used on PCBs?

Answer: Green

Q32: What is the shape of pad used to solder Dual In Line (DIL) components on PCB?

Answer: Oval

Q33: Which method of conformal coating is used for epoxy coated on PCBs?

Answer: Microblasting

Q34: Which conformal coating is easy to apply and remove with low moisture absorption?

Answer: Acrylic resin

Q35: Which protective chemical coating is applied on the PCB?

Answer: Polymer film coating

Q36: Which is the last zone on the reflow soldering?

Answer: Cooling zone

Q37: Which is the second stage in the reflow soldering process?

Answer: Thermal soak zone

Q38: Which zone is the lengthiest in the reflow soldering process?

Answer: Preheat zone

Q39: What is the ramp-up rate of temperature in the preheat zone of reflow soldering process?

Answer: 1°C to 3°C/sec

Q40: Which is the common method of attaching surface mount components to a printed circuit board?

Answer: Reflow soldering

Q41: What is the purpose of providing solder mask on the PCBs?

Answer: Prevent solder bridges

Q42: How the solder mask is removed on the PCB for replacement of components?

Answer: Photolithography

Q43: What is the range of peak temperature reached at reflow zone of reflow soldering process?

Answer: 20°C to 40°C

Q44: How the fine grain structure of soldered joint is achieved by using reflow soldering process?

Answer: Fast cooling rate

Q45: What is the typical temperature range of cooling zone in flow soldering process?

Answer: 30 to 100°C

Q46: Which fabrication technology is used for the assembly of the circuit board?

Answer: Microchip fabrication

Q47: What is the name of technology used to mount components on multilayer PCBs?

Answer: Plated through hole

Q48: Which type of coating process is used to apply para-xylylene as conformal coating on PCB?

Answer: Chemical vapour deposition

Q49: What is the effect on the solder paste, when the ramp-up rate exceeds the maximum slope in reflow soldering process?

Answer: Spattering effect

Q50: What is the effect on components, after the ramp-up rate exceeds the maximum slope in the heat zone of reflow soldering process?

Answer: Cracking

Q51: At which zone the maximum allowable temperature of the reflow soldering process is reached?

Answer: Reflow

Q52: What is the purpose of apply polymer coating on the PCB?

Answer: To prevent corrosion

Q53: What is the cooling rate suggested for reflow soldering process?

Answer: 4°C/second

Q54: What is the effect on excessive intermetallic growth caused by wetting time above liquidus (TAL) in reflow soldering process?

Answer: Joint brittleness

Q55: What causes a decrease in flux cleaning action leads to poor wetting and defective solder joint in reflow soldering process?

Answer: Insufficient time/temperature

Q56: How the damaged Vias in PTH circuit boards are repaired?

Answer: Use eyelets

Unit 3: Protection Devices

Q1: What is the fusing factor of rewireable HRC fuse?

Answer: 1.2

Q2: What is the current rating of cartridge fuse used for domestic wiring?

Answer: 1250 Ampere

Q3: What is the current rating of rewireable fuse used for domestic wiring?

Answer: 200 A

Q4: What is the name of the part marked as 'X' in the MCB?

Answer: Solenoid

Q5: What is the name of the relay used in electrical circuit?

Answer: Dry reed relay

Q6: What is the current rating of tinned copper wire 40 SWG used for rewireable fuse?

Answer: 1.5 A

Q7: What is the name of the fuse cartridge part marked as "X'?

Answer: Break indicator

Q8: What is the full form of the abbreviation ELCB used in Electrical circuit?

Answer: Earth Leakage Circuit Breakers

Q9: What is the type of relay?

Answer: Impulse relay

Q10: Which series MCB is used for protection of motor?

Answer: 'G' series MCBs

Q11: What is the breaking capacitor of a DC series MCB?

Answer: 6 kA

Q12: What is the maximum voltage rating for 'DC' series MCBS?

Answer: 220 VDC

Q13: What is the maximum current rating for 4 pole MCB?

Answer: 60 A

Q14: What is the fusing factor of a rewireable fuse selected for over current protection in a circuit?

Answer: 1.4

Q15: What is the name of the current interrupted by the circuit breaker?

Answer: Prospective fault current

Q16: Which relay has contact arrangement to break make or transfer contact combination?

Answer: Clapper type armature relay

Q17: Which relay functions whenever the current in the coil reaches on upper limit?

Answer: Current sensing relay

Q18: Which device is used in electrical installations to protect from electric shock?

Answer: ELCB

Q19: Which type of relay is used in voltage stabilizer?

Answer: Voltage sensing relay

Q20: What is the name of device?

Answer: Contactor

Q21: What is the maximum earth fault loop impedance if an ELCB with a rated tripping current of 30 mA?

Answer: 1666 Ω

Q22: What is the fusing current for a rewireable fuse?

Answer: 1.4 to 1.7

Q23: Which parameter opens the fuse element under fault, without damaging the load?

Answer: Rupturing capacity

Q24: Which relay is used for the time delay purpose?

Answer: Thermal relay

Q25: Which relay is operating with very low power?

Answer: Reed relay

Q26: What is the current rating of cartridge fuse with brown colour code?

Answer: 4A

Q27: How much time is taken by overload relay to open motor contact at 500 percentage of full load current?

Answer: 10 sec

Q28: What is the type of miniature circuit breaker (MCB)?

Answer: 3 pole MCB

Q29: Which device opens and closes an auxiliary circuit?

Answer: Relay

Q30: What is the current rating of copper colour fuse cartridge?

Answer: 63 ampere

Q31: Which function is performed by the isolator in an electrical circuit?

Answer: As a switch

Q32: Which condition the MCB is breaking open of the electrical circuit?

Answer: Short circuit

Q33: What is the trip for clearing short circuits in MCB combination circuit breaker?

Answer: 3 milli second

Q34: What is the cause of motor starts with chattering noise?

Answer: Dust between the contacts in electromagnet

Q35: Which formula is used to find the fusing factor?

Answer: Fusing factor = Minimum fusing current - Rated current

Q36: What is the cause of humming noise from the starter?

Answer: Low voltage

Q37: What is the factor for time taken a fuse to interrupt the circuit in the event of fault?

Answer: Cut off factor

Q38: What is the cause of failure of contactor due to too much heating of the no-volt coil?

Answer: Higher incoming supply

Q39: Why the AC relay connected to DC supply draw more current?

Answer: Absence of inductive reactance

Unit 4: Electrical Control Circuits

Q1: Which single phase induction motor is rated for less then 1HP?

Answer: Fractional horse power motor

Q2: What is the name of the centrifugal switch part marked 'X'?

Answer: Governor

Q3: What is the name of the torque speed characteristics curve of the motor?

Answer: Split phase motor

Q4: How many watts is equal to 1 Horse power (HP)?

Answer: 746 watts

Q5: Which type of switch is used in the capacitor start, induction run motor?

Answer: Centrifugal switch

Q6: Which motor is characterised by low rotor circuit resistance and reactance?

Answer: Class - A

Q7: What is the class of squirrel cage induction motor according to the starting characteristics?

Answer: Class - B

Q8: How much starting torque is achieved by the Class-D type squirrel cage motor?

Answer: 300%

Q9: How the centrifugal switch is connected in a capacitor start, induction-run motor?

Answer: Series with the starting winding

Q10: What is the starting torque of Class-C type squirrel cage motor in the rated speed?

Answer: 200%

Q11: What is the purpose of capacitor used in the single phase motor?

Answer: To split phase

Q12: Which induction motor is preferred for constant speed with high efficiency performance?

Answer: Squirrel cage Im motor

Q13: What is the name of the permanent capacitor motor part marked 'X'?

Answer: Auxiliary winding

Q14: Which test is conducted through the circuit?

Answer: Charge test on Capacitor

Q15: What is determined by the way of connecting main winding and auxiliary winding in a split-phase motor?

Answer: Direction of rotation

Q16: Why the main and starting windings of split-phase motor connected across the supply only at the time of starting?

Answer: Produce rotating magnetic field

Q17: Which synchronous speed of the motor, the starting winding is opened by the centrifugal switch?

Answer: 75 to 80%

Q18: How the overload relay in a manual D.O.L starter is activated during heavy load current?

Answer: Bimetallic strip get heated up

Q19: Which force is used capacitor-start, induction-run motor to disconnect the starting winding?

Answer: Centrifugal force

Q20: What is the full load current of a 10 HP, three phase, 415 V squirrel-cage motor?

Answer: 15A

Q21: Which test is conducted through the circuit?

Answer: Capacity test on capacitor

Q22: Which class of squirrel case induction motor is taking normal starting torque and used for general purpose?

Answer: Class - B

Q23: What is the synchronous speed (Ns) of a 3phase induction motor with 8 poles working at 50 Hz?

Answer: 750 rpm

Q24: What is the result on the split-phase motor by changing the main winding terminals?

Answer: Direction of rotation reversed

Q25: Why squirrel cage induction motor is preferred for efficient performance?

Answer: Constant speed

Q26: Which motors are used on loads having high inertia and long acceleration period?

Answer: Star-delta motor

Unit 5: Electronic Cables and Connectors

Q1: What is the size of thinnet type coaxial cable used in network installations?

Answer: 0.25 inch

Q2: What is the distributed capacitance value between the core and screen of coaxial cable per meter?

Answer: 320 pF

Q3: What is the data transmission speed of USB 3.0 for interfacing computers?

Answer: 625 Mbps

Q4: What is the full form of the abbreviation DVI?

Answer: Digital Visual Interface

Q5: What is the maximum data transfer speed of coaxial cable?

Answer: 10 Mbps

Q6: What is the audible frequency range in communication?

Answer: 20 Hz to 20 kHz

Q7: What is the full form of the abbreviation PTZ cable used in security camera?

Answer: Pan Tilt Zoom

Q8: What is the name of cable?

Answer: PTZ combo cable

Q9: Which purpose BNC connector with 75 Ohms is used?

Answer: Roof top to TV receivers

Q10: What is the data transmission speed of category 4 twisted pair Network cables?

Answer: 16 mbps

Q11: Which types of cables are used for balanced signal circuits?

Answer: Double core screened cables

Q12: What is the purpose of heavy-duty audio cable four core individually screened 7x0.2mm?

Answer: For data transmission

Q13: Which cable supports the data, power and video signals in security camera application?

Answer: PTZ combo cable

Q14: Which type of RF cable is used for higher power applications?

Answer: RG 8

Q15: Which cable is used for lower power application?

Answer: RG 58

Q16: What is the purpose of screen wire used in audio cables?

Answer: Reject unwanted signal

Q17: What is the use of F-connector?

Answer: Cable TV circuits

Q18: What is the advantage of twisted copper wire in single transmission?

Answer: Reduces cross talk

Q19: What is the purpose of shielded wire used in audio signal cable?

Answer: Grounds interference signal.

Q20: Which connector is used specifically to provide DC power connection to devices?

Answer: Barrel connector

Q21: Which part of the signal cable is crimped to the outer conductor of F-connector?

Answer: Shield of the cable

Q22: How many channels of uncompressed PCM audio signals are carried by the S/PDIF cable?

Answer: Two

Q23: Which cable is used in S/PDIF interconnecting home theatre and digital audio systems?

Answer: Fiber optic cable

Q24: Which purpose the two core individually screened heavy duty cables are used?

Answer: Data transmission

Q25: What is the characteristics impedance of RG 6U cable used for long line cable TV transmission?

Answer: 75Ω

Q26: What is the maximum length of UTP cable used from node to Hub connection?

Answer: 100 meters

Q27: Which speed of maximum data signal is carried by the CAT-6 twisted pair network cable?

Answer: 550 MHz

Q28: What is the full form of the abbreviation HDMI?

Answer: High Definition Multimedia Interface

Q29: Which tool is used to connect the cable ends to lug terminals for firm contact and avoid breaking of leads?

Answer: Crimping tool

Q30: Which type of cable is used in satellite receiver?

Answer: RG 59

Q31: What is the characteristics impedance (Zo) of BNC connector?

Answer: 75Ω

Q32: Which connector is used on unbalanced audio cables?

Answer: RCA plug

Q33: What is the effect of mismatch in characteristic impedance (Zo) with 50Ω to 75Ω coaxial cable?

Answer: Heating of components

Q34: Why the cotton braid is provided in between the leads and shield of audio cables?

Answer: Flexibility to the cable

Q35: Why more number of strands and thicker gauge wire is used for high power amplifier to connect another location?

Answer: To avoid line loss

Q36: What is the effect of using bare coaxial cables without end connectors?

Answer: Mismatch the loads

Unit 6: Communication Electronics

Q1: What is the range of frequency for short wave (SW) band?

Answer: 3 MHz to 30 MHz

Q2: What is the name of block diagram?

Answer: TRF receiver

Q3: What is fidelity of receiver circuits?

Answer: Accuracy of reproduction

Q4: What is the name of the section marked 'X' in the digital communication system?

Answer: Modulator

Q5: What is the name of the signal used in digital modulation?

Answer: PSK signal

Q6: What is the range of frequency for Medium Wave (MW) in AM broadcasting?

Answer: 530 Hz to 1650 kHz

Q7: What is the speed of light?

Answer: 3×10^8 meters per second

Q8: What is the function of analog multiplier IC AD 633?

Answer: Generate AM signal

Q9: Which antenna is used for Medium Wave band in AM receiver?

Answer: Ferrite rod antenna

Q10: Which types of modulation techniques is used to produce the wave form?

Answer: FSK

Q11: What is the name of radio receiver?

Answer: Reflectional receiver

Q12: What is the modulation index of the Amplitude modulated waveform?

Answer: 0.5

Q13: What is the function of capacitor (C) in the envelope detector circuit?

Answer: Stores the signal

Q14: Which circuit is used to process the demodulation of Amplitude modulated signal?

Answer: Envelope detector

Q15: Which type of FM detector concept produces the frequency response characteristics curve?

Answer: FM slope detector

Q16: Which instrument is necessary to align the FM detector in receiver circuit?

Answer: Distortion Analyser

Q17: Which type of modulation uses the signal superimposed over the carrier waves?

Answer: Amplitude modulation

Q18: Which modulation method is used in binary phase shift keying applications?

Answer: Phase Modulation

Q19: What is the expansion of AFC?

Answer: Automatic Frequency Control

Q20: What is the range of frequency for FM broadcasting?

Answer: 88 MHz to 108 MHz

Q21: Which amplifier is first matches the output impedance of the carrier oscillator with the input impedance?

Answer: Buffer amplifier

Q22: Which type of antenna is used for point-to-point communication of radio waves?

Answer: Parabolic antenna

Q23: Why the modulation index is kept within limits in amplitude modulated signal transmission?

Answer: Reduce distortion

Q24: What is the effect of increasing the modulation depth to 100% in Amplitude modulation process?

Answer: Over modulation

Q25: How the image frequency is prevented in radio receiver circuits?

Answer: Highly selective RF amplifier

Q26: How the over modulation of carrier signal is prevented by the broadcast station?

Answer: Limiter circuits provided

Q27: What is the effect on the AM transmitter output if the modulation index value exceeds unity?

Answer: Produces erroneous distortion

Unit 7: Microcontroller (8051)

Q1: Which pin is marked as the master reset (RST) function in microcontroller IC 8051?

Answer: Pin No 9

Q2: What is the name of device marked 'X'?

Answer: Microcontroller

Q3: Which circuits uses microcontroller?

Answer: Embedded systems

Q4: Which is developed to overcome the drawback of the microprocessor?

Answer: Microcontroller

Q5: Expand the abbreviation CISC used in microcontroller?

Answer: Complex Instruction Set Computer

Q6: Which electronic component is connected in pin number 18 and 19 of the IC 8051 microcontroller?

Answer: Crystal

Q7: How many bits are numbered from 00H to 7FH for general-purpose addressable locations in 8051 microcontroller?

Answer: 128 bits

Q8: Which instruction set, the accumulator specific instructions are grouped?

Answer: Data transfer

Q9: How many instructions available in the microcontroller family instruction set?

Answer: 111

Q10: How the logic operations performed by the MCS 51 family microcontroller?

Answer: Bits and Byte operands

Q11: What is the Vcc supply pin number for the microcontroller IC 8051?

Answer: 40

Q12: What is the use of microcontroller?

Answer: Automatically controlled devices

Q13: What is produced by the DC motor, interfaced with 8051 microcontroller?

Answer: Torque

Q14: What is the bit length of upcounting timers in 8051 microcontroller?

Answer: 16 Bits

Q15: What is the name of the section that counts a predefined number of processor clock pulses, to generate a programmable delay?

Answer: Timer

Q16: Which section in IC 8051 is running on external clock source?

Answer: Counter

Q17: What is the maximum delay possible using a single 8051-microcontroller timer running at 12 MHz frequency?

Answer: 65536 μs

Q18: Which is the timer input frequency for the 8051 microcontroller running at 12 MHz?

Answer: 1 MHz

Q19: What is the purpose of using divide by 12 network in 8051 microcontroller oscillator output to feed the timer?

Answer: Clock signal

Q20: How the longer delays in basic program using timer in 8051 microcontroller is implemented?

Answer: Looping number of times

Q21: What is the minimum delay possible using a single 8051 microcontroller timer running at 12 MHz frequency?

Answer: 1 μS

Q22: Which chip is versatile to use from simple consumer electronics to high-end applications?

Answer: Microcontrollers

Q23: What is the full form of the abbreviation SFR used in microcontroller?

Answer: Special Function Register

Q24: Which lens is fitted on the yellow light to produce green light in the traffic light control interfaced with the 8051 microcontroller?

Answer: Blue lens

Q25: Which device protects the microcontroller from high current drawn by DC motor circuit interfaced with it?

Answer: Opto isolator

Unit 8: Sensors and Transducers

Q1: What is the name of the device?

Answer: Strain gauge

Q2: What is the name of device used to convert a physical quantity into its corresponding electrical signal?

Answer: Transducer

Q3: What is the full form of the abbreviation RTD used as a sensor?

Answer: Resistance Temperature Detector

Q4: What is the maximum temperature of platinum RTD device?

Answer: 650°C

Q5: What is the range of temperature measurement using thermocouples?

Answer: 270° to 3000°C

Q6: Which sensor detect the presence of objects without any physical contact?

Answer: Proximity sensor

Q7: Which device is used to convert force into electrical signal?

Answer: Load cell

Q8: Which sensor is suitable for process temperature measurement of steel?

Answer: Thermocouple

Q9: Which test is conducted through the circuit diagram?

Answer: Temperature control test

Q10: What is the use of resistance hygrometer?

Answer: To measure humidity

Q11: What is the application of strain gauge?

Answer: Compression and tension measurement

Q12: What is the application of LVDT?

Answer: To measure displacement

Q13: Which is functioning as the active type transducer?

Answer: Thermocouple

Q14: Which working principle is used in the proximity sensor?

Answer: Electromagnetic field

Q15: What is the application of thermistor in sensing circuit?

Answer: To measure temperature

Q16: Which signal is used by the passive transducer to produce output signal?

Answer: Excitation signal

Q17: Which type of sensor gives quick and precise measurements?

Answer: Loadcell

Q18: Which type of strain gauge is the most sensitive and reliable?

Answer: Piezoelectric

Q19: Which measurement is carried out by this test?

Answer: Strain measurement

Q20: What is the function of resistance strain gauge?

Answer: Measurement of torque

Q21: Which component is used as the transducer in the measurement of displacement?

Answer: Inductor

Q22: What is the use of load cell?

Answer: Converts force into electrical signal

Q23: How the increase in temperature affects the resistance value of the positive temperature coefficient (PTC) component?

Answer: Resistance value increases

Unit 9: Fiber Optical Communication

Q1: What is the standard range of optical fiber cable diameter in mm?

Answer: 0.25 mm to 0.5 mm

Q2: What is the full form of the abbreviation PPM?

Answer: Pulse Position Modulation

Q3: What is the wavelength of visible light spectrum?

Answer: 380 to 750 nano meter

Q4: What is the core diameter size of single mode optical fiber?

Answer: 3.5 X 10^{-4} inches

Q5: What is the name of part marked 'X' in the multi mode optical fiber cable?

Answer: Core

Q6: What is the full form of the abbreviation OTDR?

Answer: Optical Time Domain Reflectometer

Q7: Which colour is coated on the outer jacket of fiber optic cable to identify the single mode application?

Answer: Yellow

Q8: What is the frequency of sine wave signal taken from function generator to use OFC trainer kit?

Answer: 1 kHz

Q9: What is the name of the bouncing back effect of light rays from a shiny surface?

Answer: Reflection

Q10: Which parameter makes the fiber optic communication is the perfect choice for transmitting broad band signals?

Answer: Wider bandwidth

Q11: What is the refractive index of vacuum?

Answer: 1

Q12: What is the basis for the selection of LED or LASER diode as the light source in optical fiber communication?

Answer: Application

Q13: Which electronic device is used to convert the signal at receiving terminal of fiber optic communication channel?

Answer: Photo detector

Q14: Which light source is used to convert the electrical signal in the fiber optic communication?

Answer: Light emitting diode

Q15: Which method is used to transmit information by means of light pulses?

Answer: Fiber optic communication

Q16: What is the name of optical fiber cable part marked X?

Answer: Buffer jacket

Q17: Which type of optical fiber is used to carry telephone and television signals?

Answer: Single mode fiber

Q18: Which equipment is necessary for the optical fiber cable servicing?

Answer: Fusion splicer

Q19: Which mode the signal wave travels through the optical fiber?

Answer: Transverse mode

Q20: Which optical fibre is best suited for local area network applications?

Answer: Graded index fiber

Q21: What type of joining technique is used for fiber optic cables?

Answer: Fusion techniques

Q22: Which circuit is used for the wave guide dispersion?

Answer: Optical fiber circuit

Q23: Which device is used as the light source for long distance and high data rate applications in fiber optic communication?

Answer: Laser diode

Q24: Which device is used as the light source for short distance and low data rate applications in fiber optic communication?

Answer: Light emitting diode

Q25: Which technology has replaced the copper wire in the core communication networks?

Answer: Optical fiber communication

Q26: What is the effect on the angle of incidence of light is made greater than the critical angle?

Answer: Reflection occurs

Q27: What is the name of the loss occurring due to the bend of finite radius in the optical fiber cable?

Answer: Radiative loss

Q28: Which loss is related to the fiber material used for optical communication?

Answer: Absorption

Unit 10: Digital Panel Meter

Q1: What is the count range of 3 digit DPM?

Answer: 0-999

Q2: What is the name of the digital electronic device marked 'x'?

Answer: Multiplexer

Q3: How many input lines are available in BCD to 7 segment decoder IC?

Answer: Four

Q4: Which type of seven segment display all the 8 anodes are left free?

Answer: Common cathode type

Q5: How the scaling down of the input is arranged in the Digital Panel Meter?

Answer: Voltage divider used

Q6: What is the function of the block marked 'X' in data selector circuit?

Answer: Demultiplexer

Q7: Which signal format is used in Digital Panel Meter to display the input information?

Answer: Alphanumeric format

Q8: What is the function of the 7 segment LED display system part marked 'X'?

Answer: Driver

Q9: Which IC is used on the BCD to 7 segment decoder in the display circuit?

Answer: IC 7448

Q10: What is the function of transistor in the seven segment display circuit?

Answer: Amplify input current

Q11: Which circuit is used in Digital Panel Meters to accomplish scaling down the input?

Answer: Voltage divider

Q12: Which device converts one type of digital format into another digital format?

Answer: Display decoder

Q13: How the sliding of the text is moved vertically on the desktop computer monitor display?

Answer: Scrolling wheel in the mouse

Q14: Which stage provides the required current to display the LED type seven segment display device?

Answer: Driver

Q15: How the pin number of seven segment display device is marked?

Answer: Alphabets

Q16: Which combination of segments are switched ON to display the digit 6 by the seven segment display?

Answer: a, c, d, e, f and g

Q17: How the seven segment display glows to display the decimal numbers 0 to 9?

Answer: Forward biasing of segments

Q18: What is the function of the resistor connected in the Digital Panel Meter circuit?

Answer: Voltage divider resistor

Q19: What is the battery voltage rating of Digital Panel Meter marked 'X'?

Answer: 9 VDC

Q20: Which IC is used in the LCD digital panel meter?

Answer: ICL 7106

Q21: Which type of seven segment display anodes of all the segments are connected together?

Answer: Common Anode type

Q22: What is the voltage drop across the shunt resistor for full scale range in 0 to -1A Digital Panel Meter?

Answer: 200 millivolt

Q23: What is the required current to glow the LED in each segment of seven segement display device?

Answer: 20 mA

Q24: Which IC is used to convert 4 bit binary coded decimal into 8 bit seven segment data?

Answer: IC 7448

Q25: Which mode is selected for operation to enable the read/write/ pin of LCD module kept at high level?

Answer: Read mode

Q26: Which connection makes the individual segment in a common anode type 7 segment display illuminated?

Answer: Connect to logic zero

Q27: Which meter measures all input voltages scaled down in descrete steps to match the full count range?

Answer: Digital panel meter

Q28: How many output lines are available in BCD to 7 segment decoder IC?

Answer: Eight

Q29: What causes the change in light angle passing through the molecules of liquid crystal display?

Answer: Electric current

Unit 11: SMPS and Inverter

Q1: What is the working principle of constant voltage transformer (CVT)?

Answer: Ferro resonance

Q2: Which type of circuit function is used in the SMPS?

Answer: AC to DC converter

Q3: Which mode of operation, the transformer is connected?

Answer: Boost operation mode

Q4: Which part of the computer is connected by the 20/24 ATX connector from the SMPS unit?

Answer: Mother board

Q5: Which type of voltage stabilizer is in the block diagram?

Answer: Automatic control type

Q6: What is the name of the forward converter type SMPS?

Answer: DC to DC buck converter

Q7: Which electric component maintains constant output voltage in the power supply section marked "X'?

Answer: Zener diode

Q8: What is the name of the static device that converts fixed DC input voltage into variable DC output?

Answer: DC chopper

Q9: What is the output pin number of switching regulator IC LM 2576?

Answer: Pin No.2

Q10: What is the operating frequency of linear power supply?

Answer: 50 Hz to 60 Hz

Q11: What is the working voltage range of input AC supply specified for SMPS?

Answer: 90 VAC to 270 VAC

Q12: What is the full form of the abbreviation CVT?

Answer: Constant Voltage Transformer

Q13: Which type of transformer is used in the DC to AC converter?

Answer: Step down transformer

Q14: What is the type of converter?

Answer: Fly back converter

Q15: What is the frequency range of switching circuit in SMPS?

Answer: 15 kHz to 1 MHz

Q16: Which IC is used in the Pulse Width Modulation circuit of computer SMPS?

Answer: TL 494

Q17: What is the efficiency of linear power supply?

Answer: 30%-40%

Q18: Which power device is used for switching purpose in computer SMPS?

Answer: MOSFET

Q19: What is the name of servo voltage stabilizer part marked X?

Answer: Toroidal auto transformer

Q20: Which type of operation is performed by the circuit?

Answer: Fly wheel operation

Q21: Which mode of operation the transformer is connected?

Answer: Buck operation

Q22: What is the function of the transistor marked 'X' in the buck converter circuit?

Answer: Switching

Q23: What is the function of electronic circuit part marked 'X'?

Answer: Buck boost transformer

Q24: What type of transformer is used in automatic voltage stabilizer?

Answer: Auto transformer

Q25: What is the function of series regulator IC 2576 pin No4?

Answer: Feed back

Q26: What is the function of the circuit?

Answer: Servo voltage stabilizer

Q27: Which type of connector is used to supply power from SMPS to the computer mother board?

Answer: 20/24 Molex connector

Q28: Which circuit is used in SMPS for voltage regulation?

Answer: Switching

Q29: What is the switching frequency of SMPS used in computer?

Answer: 20 kHz

Q30: What is the resultant output voltage of the circuit?

Answer: Regulated output

Q31: Which circuit is provided in control section of SMPS to drive the power switching transistor?

Answer: Pulse width modulator circuit

Q32: Which type of core is used in the SMPS transformer?

Answer: Ferrite ceramic core

Q33: What is the function of opto-coupler in SMPS circuit?

Answer: Isolate the output section

Q34: Which transformer has common winding for both primary and secondary?

Answer: Auto transformer

Q35: What is the continuous speed adjustment of output voltage correction in servo voltage stabilizers?

Answer: 20 to 40V per second

Q36: Which section in SMPS adjust the duty cycle of switching to keep the output voltage constant?

Answer: Pulse width modulator controller

Q37: What is the purpose of the Metal Oxide Varistor connected across the AC supply terminals of SMPS?

Answer: Prevent surge voltage

Unit 12: UPS

Q1: What is the full form of the abbreviation UPS?

Answer: Uninterrupted Power Supply

Q2: What is the name of the OFF line UPS section marked 'X'?

Answer: Battery Charger

Q3: Which type of mounting method is used in battery installation?

Answer: Tier mounting

Q4: What is the type of UPS?

Answer: Line interactive UPS

Q5: What is the name of the electronic circuit?

Answer: Battery charger

Q6: What is the range of specific gravity of lead acid battery, under discharged condition?

Answer: 1.11 to 1.14

Q7: What is the full form of the abbreviation CVT?

Answer: Constant Voltage Transformer

Q8: What is the name of the instrument used for electrical insulation measurements?

Answer: Megger

Q9: Which IC is used in the battery charging circuit of ON-Line UPS?

Answer: LM 317

Q10: Which method of earth resistance measurement is experimented?

Answer: Three point method

Q11: What is the ambient temperature maintained to extend the life of UPS?

Answer: 15° C to 25 Celsius

Q12: How batteries are rated?

Answer: Ampere hour

Q13: Which technique is achieved by switching of the choppers in battery charging circuit?

Answer: Constant current

Q14: What is the function of the circuit?

Answer: Overload protection

Q15: Which is equal to the ratio of the real power to the apparent power?

Answer: Power factor

Q16: Which type of battery mounting method is used for battery installation?

Answer: Shelf mounting

Q17: What is the specific gravity of electrolyte in the lead-acid battery with full charge?

Answer: 1.26 to 1.28

Q18: Which type of operation is done by the battery charger circuit?

Answer: Trickle charging

Q19: What is the function of preset R5 in the circuit?

Answer: Provides correct charging voltage for battery

Q20: Which test is conducted through the experiment?

Answer: Measure earth resistance

Q21: Which action causes damage to the battery?

Answer: Over charging

Unit 13: Solar Power

Q1: Which type of conversion process takes place through the circuit?

Answer: Solar energy into electrical energy

Q2: Which material converts the light energy into electricity?

Answer: Solar cells

Q3: Which type of energy generation produces air pollution?

Answer: Conventional energy

Q4: What is the full form of the abbreviation TFSC?

Answer: Thin Film Solar Cell

Q5: Which PV cells are the most common in use for solar electric system?

Answer: Crystalline silicon PV cells

Q6: What is the name of the block marked 'X' in the grid tied system?

Answer: Utility supply

Q7: What is the name of the SPV system?

Answer: Grid connected system

Q8: Which formula is used to find the size of PV module in Watt-peak (Wp)?

Answer: Daily energy Consumption / (Insulation * Efficiency)

Q9: What is the name of the device marked 'X'?

Answer: Charge controller

Q10: What is the full form of the abbreviation MPPT?

Answer: Maximum Power Point Tracking

Q11: What is the type of Solar Photo Voltaic (SPV) electric system?

Answer: Standalone system

Q12: What is the name of the solar electric system block marked 'X'?

Answer: Array

Q13: Which energy is converted from sunlight by the photovoltaic material?

Answer: Electrical energy

Q14: What is the advantage of solar electric system?

Answer: Renewable energy source

Q15: What is the purpose of making hybrid solar panels from a mix of amorphous and mono crystalline cells?

Answer: Generate maximum efficiency

Q16: Which material is coated as a thin layer on the PV cells to reduce surface reflection?

Answer: Silicon monoxide

Q17: What is the standard test conditions for the sizing of PV module?

Answer: 1000 watts per square meter

Q18: Which type of voltage is available across the output terminals of the circuit?

Answer: Regulated output

Q19: What is the drawback of off-grid system in solar electric power?

Answer: Lack of storage unit

Q20: Which system is designed to operate in parallel and interconnected with the electric utility grid?

Answer: Grid tied system

Q21: Which device limits the voltage and charging of battery in solar electric system?

Answer: Charge controller

Q22: What is the function of the block marked 'X' in the grid connected system?

Answer: MPPT

Q23: What is the type of solar photovoltaic (SPV) electric system?

Answer: Hybrid system

Q24: What is the purpose of photovoltaic cell?

Answer: Generate voltage from sunlight

Q25: What is the function of the part marked X' in the electric system?

Answer: Solar panels

Q26: What is the efficiency of monocrystalline?

Answer: High

Unit 14: Cell Phones

Q1: What is the full form of the abbreviation IMEI?

Answer: International Mobile Equipment Identity

Q2: What is the full form of the abbreviation FDD?

Answer: Frequency Division Duplexing

Q3: What is the full form of the abbreviation EMS?

Answer: Enhanced Message Service

Q4: What is the full form of the abbreviation NSS used in GSM architecture?

Answer: Network Switching Subsystem

Q5: Which video format is used in Multimedia?

Answer: MPEG-1

Q6: What is the advantage of CDMA communication system?

Answer: Improved call quality

Q7: Which section converts the narrowband signal into wideband signal in CDMA mobile communication?

Answer: Spreader

Q8: Which method is used to reduce the effects of burst error in CDMA system?

Answer: Interleaving method

Q9: Which feature supports audio messages from callers in cell phone communication?

Answer: Voice mail

Q10: Which circuit uses frequency hopping technique?

Answer: Military

Q11: What is the purpose of encoder in CDMA system?

Answer: To build redundancy into the signal

Q12: Which system supports the maintenance of GSM network?

Answer: Operational support system

Q13: How the geographical area under one base station with a single transmitter and receiver is referred?

Answer: Cell

Q14: What is represented by the third group of codes in the IMEI number GG-000033-792410-8 used in cell phones?

Answer: Serial number

Q15: What is the full form of the abbreviation LTE used in mobile communication?

Answer: Long Term Evolution

Q16: What is the temperature setting in soldering station to service the water damaged mobile phone?

Answer: 250° C

Q17: Which lock prevents the operation of mobile phone by the user?

Answer: Keypad lock

Q18: Which code is marked by the first two digit in the IMEI number of cellphone?

Answer: Country code

Q19: Which device is used to correct the corrupted software in cell phone?

Answer: Universal flash storage

Q20: What is the purpose of IMEI number in cell phone?

Answer: Identify the specific device

Q21: Which technology allows compatible devices to access data from the computer network?

Answer: Wireless fidelity

Q22: Which frequency band is licence free for bluetooth and Wi-Fi users?

Answer: 2.4 GHz

Q23: What is the name of one or more solar panels put together on a rack facing the sun in solar electric system?

Answer: Arrays

Q24: Which device is used to reload the mobile phone with the correct software for servicing?

Answer: Universal flash storage

Q25: Which wireless technology link is used for mobile phone data transfer?

Answer: Bluetooth

Q26: Which device safeguards from electrical shock in the event of short circuit?

Answer: Surge protector

Unit 15: LED Lights

Q1: Which bulb changes the colour due to age and ambient temperature?

Answer: LED Bulb

Q2: What is the range of power density of LED?

Answer: 300 W/cm^2

Q3: What is the rate of light transmission of acrylic diffuser plate?

Answer: 92%

Q4: Which IC is marked 'x' in LED driver circuit?

Answer: IC 555

Q5: Which factor increase the performance of LED light?

Answer: Thermal management

Q6: What is the full form of the abbreviation COB?

Answer: Chip on Board

Q7: What is the name of the component marked 'x' in the LED circuit?

Answer: Non polar capacitor

Q8: What is the range of current rating for LED?

Answer: 2mA to 20mA

Q9: What is the range of rated voltage for LED?

Answer: 1.6 to 4.2 VDC

Q10: Which semiconductor material is used to produce the blue colour LED?

Answer: Silicon carbide

Q11: What is the specification of LED light?

Answer: Power rating

Q12: Which function is performed by the transistor in the LED light circuit?

Answer: Driver

Q13: What is the function of the non-polar capacitor in the LED circuit?

Answer: Couples AC supply

Q14: Which circuit is used to supply rated low voltage DC and protect the LED light from fluctuations?

Answer: Driver circuit

Q15: What is the advantage of LED?

Answer: Low power consumption

Q16: What is the purpose of 82 Ω resistors in the circuit?

Answer: Limiting the load current

Q17: How to improve the lifespan of high power LEDs?

Answer: Remove excess heat from light

Q18: What is the meaning of group of LEDs connected in the circuit?

Answer: Stacking

Q19: Which component operates at low temperature?

Answer: LED Light

Q20: What is the meaning of directional light source?

Answer: Emit light in a specific direction

Q21: Which colour light is emitted by the LED using gallium indium nitride with wavelength of 450 nanometer?

Answer: Blue

Q22: Which colour is produced by the semiconductor material Aluminium Gallium Phosphide (AIGaP) in LED?

Answer: Green

Q23: What is the value of series resistor (Rs) connected to limit the load current to 10mA?

Answer: 140 Ω

Q24: What is the switching speed of LED light to reach full brightness, compared to other light sources?

Answer: 100 times faster

Q25: What is the condition for glowing LED?

Answer: Forward biased

Q26: What is the efficiency level of incandescent lamp?

Answer: 9%

Q27: What is the function of the NTC component used in the LED light control?

Answer: Limits surge current

Q28: How much power is consumed by a high power LED?

Answer: 350 milliwatt

Q29: Which electronic component is used to convert current into light, with forward biased condition?

Answer: LED

Q30: What is the name of the diode used in emergency light to prevent the reverse flow of battery charge?

Answer: Free wheeling diode

Unit 16: LCD & LED TV

Q1: What is the characteristic of transmitting antenna in TV broadcasting?

Answer: Radiates electromagnetic waves

Q2: What is the full form of the abbreviation PAL?

Answer: Phase Alternating Line

Q3: Which parameter is related to power loss in electronic circuit?

Answer: Attenuation

Q4: What is the full form of the abbreviation NTSC?

Answer: National Television System Committee

Q5: What is the name of LED monitor part marked 'X'?

Answer: Crystal molecule

Q6: What is the full form of the abbreviation HPT?

Answer: High Power Transmitter

Q7: Which term is related to the information about hue and saturation of a colour?

Answer: Chrominance

Q8: What is the function of the block diagram?

Answer: B/W TV broadcasting system

Q9: What is the disadvantage of TN display?

Answer: Low quality colour reproduction

Q10: What is the bandwidth used for TV transmission in India?

Answer: 7 MHz

Q11: What is the range of frequencies covered under S-Band used for TV signal transmission?

Answer: 104 MHz to 174 MHz

Q12: Which signal is processed from R-Y and B-Y signals in colour TV receiver?

Answer: Chrominance signal

Q13: Which function is performed by the section marked 'X' in the TV receiver?

Answer: Sync and scanning

Q14: What is the inter carrier signal in PAL system for TV transmission?

Answer: 5.5 MHz

Q15: What is the function of tuner in TV receiver?

Answer: Select the desired channel signal

Q16: What is the name of the dismantled LCD monitor display part marked 'X'?

Answer: Polarised glass plates

Q17: What is the sub carrier frequency used in PAL standard for modulating colour difference signals?

Answer: 4.43 MHz

Q18: Which is represented by saturation in colour TV signal characteristics?

Answer: Purity of a colour

Q19: What is the function of the block marked 'X' in the TV receiver?

Answer: Sound section

Q20: How many odd fields are scanned in one second by the vertical sweep circuit in TV receiver?

Answer: 25

Q21: Which transmission technique produces the waveform with lower side band suppressed for the carrier of TV signal?

Answer: Vestigial side band transmission

Q22: Which scanning method is used in TV receiver with 625 lines?

Answer: Interlaced scanning

Q23: What is included in chrominance signal?

Answer: Colour information

Q24: Which In- plane switching technology is used in LCD panels for improved contrast ratio?

Answer: Horizontal IPS

Q25: What is the ratio of primary colours mixing to produce luminance (Y) signal?

Answer: 30% Red + 59% Green + 11% Blue

Q26: What is the bandwidth for SECAM system based on 625 lines?

Answer: 9 MHz

Q27: What is the full form of the abbreviation LPT?

Answer: Low Power Transmission

Q28: What is the bandwidth of PAL-D system of TV transmission?

Answer: 7 MHz

Q29: Which colour is produced by the additive mixing process of Red with Green in colour TV?

Answer: Yellow

Q30: How much service area is covered by a low power TV signal transmitter?

Answer: 20 KM radius

Q31: What is the input frequency range of the set-top box used for cable TV application?

Answer: 110 MHz to 862 MHz

Q32: Which material is used as cathode in OLED?

Answer: Calcium

Q33: What is the limitation of OLED used in TV display?

Answer: Short life span

Q34: Which material is used as anode in OLED TV display?

Answer: Indium tin oxide

Q35: Which layer is negatively charged in OLED TV display?

Answer: Emissive layer

Q36: Which layer is positively charged in OLED TV display?

Answer: Conductive layer

Q37: What is the full form of the abbreviation HDMI?

Answer: High Definition Multimedia Interface

Q38: Which cable is used to connect LED TV and media device?

Answer: HDMI Cable

Q39: What is the name of the connector part marked 'X'?

Answer: 15 pin VGA male connector

Q40: What is the name of the adapter used to interconnect a computer system?

Answer: DVI to HDMI adapter

Q41: How many bits are used for coding to generate 64 functions in the IR remote control system?

Answer: 6 bits

Q42: Why aluminium is used as lamp body?

Answer: Dissipate heat

Q43: Which microwave repeater station consists of large number of transponders and repeaters?

Answer: Satellite

Q44: What is the wavelength of infra Red light rays produced by the IR LED?

Answer: 850 to 940 nanometer

Q45: What is the full form of the abbreviation OLED?

Answer: Organic Light Emitting Diode

Q46: What is the function of the circuit?

Answer: Infrared transmitter

Q47: What is the name of the block marked 'X' in the infrared remote control receiver?

Answer: Regulator

Q48: Which principle is used in IR remote control?

Answer: Photoelectric effect

Q49: What is the name of the block diagram?

Answer: Set top box

Q50: Which type of flip flop is used in the Infrared remote control receiver circuit block marked 'X'?

Answer: Bistable flip flop

Q51: Which type of connector is used for PCI express audio-video card in the computer?

Answer: 6 pin connector

Q52: What is the function of the block marked 'X' in the remote control transmitter?

Answer: Oscillator

Q53: Which fault frequently occurs in the IR type remote control unit?

Answer: Corroded battery contact

Q54: Which section receives the signal from the dish antenna?

Answer: Low Noise Block

Q1: What is the other name called for single strand wire?

A: Hook-up wire

Q2: In central part of an atom is called... **A:** Nucleus

Q3: What is the basic unit of measuring resistance value? **A:** Ohm

Q4: Which colour represents the number 5 in colour coding of carbon resistors?

A: Green

Q5: A device to store electrical charges is.....

A: Capacitor

Q6: Dielectric is also called as .....

A: Insulator

Q7: In which values AC current and voltages usually specified?

A: RMS values

Q8: A battery cell is a source that converts **A:** Chemical energy in to electrical energy

Q9: What is the AC mains supply frequency in India? **A:** 50 Hz

Q10: What is the name of the semiconductor in its pureform? **A:** Intrinsic Semiconductor

Q11: Which is the minority charge carriers in N-type semiconductor? **A:** Holes

Q12: Which of the following diode is used for voltage regulation? **A:** Zener diode

Q13: The connection of a zener diode in a circuit is always **A:** Reverse biased

Q15: SWG stands for.....

A: Standard Wire Gauge

Q16: Which circuit is called emitter follower? **A:** Common collector Amplifier

Q17: Which type of package is used for power transistors? **A:** Metal

Q18: The degenerative feedback is also called as **A:** Negative feedback

Q19: How many stable states are in astable Multivibrator?

A: No stable state

Q20: Relaxation oscillator is known as.....

A: Non sinusoidal

Q21: Which is a trigger device?

A: DIAC

Q22: Which material is used to make a SCR?

A: Silicon

Q23: Induction motors are used in....

A: Fans

Q24: How many PN junctions are in a SCR?

A: Three

Q25: What are the terminals in UJT?

A: Emitter, Base 1 and Base 2

Q26: What is the expansion of MOSFET?

A: Metal Oxide Semiconductor Field Effect Transistor

Q27: Diac is a

A: Bidirectional switch

Q28: What is an other name of photo Resistor?

A: Light Dependant Resistors

Q29: The term PCB stands for.....

A: Printed circuit board

Q30: What is the base of octal number?

A: 8

Q31: What is the 1s complement of 0110?

A: 1001

Q32: What are the inputs of EX-OR gate when output is high?

A: Different

Q33: Identify the TTL NAND gate IC.

A: 7400

Q35: What is used in counters to measure time?

A: Clock pulse

Q36: What is the name called for the time required to complete one cycle?

A: Period

Q37: What is the specification of current rating of a battery?

A: Ampere-hour (Ah)

Q38: Which of the following capacitors is polarized?

A: Electrolytic

Q39: Which material is used in between commutator segment?

A: Mica

Q40: LED is basically a.....

A: Diode

Q41: The digits used in binary number system are.....

A: 1, 0

Q42: Which of the following is an NAND gate?

A: The correct symbol for a NAND gate.

Q43: Which of the following is a unipolar device? **A:** MOSFET

Q44: The output of a Schmitt trigger is a... **A:** Pulse wave form

Q45: BCD of decimal 28 is..... **A:** 0010 1000

Q46: Colour codes used in 22 ohms 10% resistor will be

A: Red, Red, Black, Silver

Q47: FET is a.....

A: Voltage controlled device

Q48: Transformer works on.....

A: AC

Q49: Which of the following sensors?

A: LDR

Q50: Which IC number contains NOT gate?

A: 7404

Q51: What type of flip flops are used to construct registers?

A: Clocked flip flops

Q52: Which diodes are used in seven segment display?

A: LED

Q53: Which device does not have the gate terminal?

A: DIAC

Q54: The terminals of a power MOSFET are called

A: Source, gate, drain

Q55: A permanent magnet moving coil instrument will read...

A: Only DC Parameters

Q56: What is the expansion of PMMC?

A: Permanent Magnet Moving Coil

Q57: The colour bands of a resistor are yellow-violet-orange-gold. The value of resistor should be.....

A: 47 kilo ohms ± 5%

Q58: How many terminals are available in DIAC?

A: 2

Q59: What is the unit of measurement of frequency?

A: Hertz

Q60: What is the name of the material with four valence electrons?

A: Semiconductor

Q61: What is the other name of inverter gate?

A: NOT gate

Q62: In a PNP transistor. N region is called

A: Base

Q63: Regenerative feedback is also called as

A: Positive feedback

Q64: What is the name of removing solder from a joint?

A: De-soldering

Q65: Which one is not an insulator?

A: Silicon

Q66: Which process is used to add impurity to a pure semiconductor? **A:** Doping

Q67: Which standard digits used in octal system? **A:** 0 to 7

Q68: The number of depletion regions in a bipolar transistor are..... **A:** Two

Q69: A Diode can also act as a **A:** Switch

Q70: What is the unit of measurement of current? **A:** Ampere

Q71: What is the expansion of T.T.L? **A:** Transistor - Transistor Logic

Q72: What is the full form of the LCD? **A:** Liquid Crystal Display

Q73: Which is used to construct a counter?

A: Flip flop

Q74: What is the unit of inductance?

A: Henry

Q75: The number of valence electrons of a semiconductor element is ..... **A:** 4

Unit 1: Basic Workshop Practice

- **1. Which type of toe caps are used to avoid crushing of feet at the time of shifting equipments?**
  - **Answer:** Steel toe caps
- **2. How the gas and liquified gases are classified?**
  - **Answer:** Class C fire
- **3. Which fire extinguisher is used to put off class C type of fire?**
  - **Answer:** Dry powdered
- **4. Which fire extinguisher is used to put off class A type of fire?**
  - **Answer:** Jet of water
- **5. Which step is followed for treating a person from electric shock?**
  - **Answer:** Move the victim to a ventilated place
- **6. Which method is used for blanketing with foam to extinguish the fire?**
  - **Answer:** Smothering
- **7. Which material is used for making instrument cabinets?**
  - **Answer:** Sheet metal
- **8. What is the shape of warning sign board?**
  - **Answer:** Triangular shape
- **9. Which class of fire is classified involving metals?**
  - **Answer:** Class D
- **10. What is the shape of mandatory signs?**
  - **Answer:** Circular
- **11. What is the shape of prohibition sign?**
  - **Answer:** Circular
- **12. What is the name of safety group sign?**
  - **Answer:** Information signs
- **13. Which factor influences the severity of electrical shock?**
  - **Answer:** Duration of current passing
- **14. Which angle is checked by the try square?**
  - **Answer:** 90∘
- **15. What is the use of screw driver?**
  - **Answer:** Tighten or loosen screws
- **16. Which is the maximum size of drill bit used in electrical hand drilling machine?**
  - **Answer:** 6.5 mm
- **17. Which tool is used for seaming the funnel like taper?**
  - **Answer:** Blow horn stake
- **18. What is indicated by the arrow marked x in the sawing operation?**
  - **Answer:** Direction of pressure

- **19. What is the purpose of wood rasp file?**
  - **Answer:** Preliminary rough work
- **20. What is the first step to rescue the person in electrical contact?**
  - **Answer:** Switch OFF power supply
- **21. What is the reason for electric fire?**
  - **Answer:** Overloading
- **22. What is the meaning of the information sign?**
  - **Answer:** First aid point
- **23. Which artificial respiration method to be avoided to a person with abdomen injury?**
  - **Answer:** Schafer's method
- **24. What is the cause of injuring at the time of lifting a load?**
  - **Answer:** Wrong lifting technique
- **25. How the overlapping of excess sheet metal causing bulge at seam and edge is prevented?**
  - **Answer:** Notches
- **26. What is the effect of electric shock at very low voltage levels (Less than 40v)?**
  - **Answer:** Unpleasant tingling sensation

Unit 2: Basics of AC and Electrical

- **27. Electrical conductivity of gold is...**
  - **Answer:** 94%
- **28. What is stationary electric charges?**
  - **Answer:** Static charges
- **29. What is the unit of electric charge?**
  - **Answer:** Coulomb
- **30. Which material contains eight electrons in valency layer?**
  - **Answer:** Insulators
- **31. Which material is used as electrical insulator?**
  - **Answer:** Porcelain
- **32. Which electrical parameter opposes the flow of electrons?**
  - **Answer:** Resistance
- **33. How the single strand wire is called?**
  - **Answer:** Hook up wire
- **34. What is the purpose of covering provided over the electrical conductor?**
  - **Answer:** Protection against weather
- **35. Which cores are used in intermediate frequency transformers?**
  - **Answer:** Ferrite
- **36. Which material conducts electricity?**
  - **Answer:** Copper
- **37. How many electrons are contained in coulomb of electric charge?**
  - **Answer:** 6.25×1018 electrons
- **38. What is the percentage of conductivity of electric current in silver?**
  - **Answer:** 100%
- **39. What is the percentage of conductivity of electric current in aluminium?**
  - **Answer:** 56%

- **40. How the movement of electrons through a conductor in a particular direction is called?**
  - **Answer:** Electric current
- **41. Which metal has very good conductivity to the electric current?**
  - **Answer:** Silver
- **42. Which electrical property opposes the flow of electrons?**
  - **Answer:** Resistance
- **43. How the single strand wire is called?**
  - **Answer:** Hook - up wire
- **44. What is the percentage of conductivity of electric current in copper?**
  - **Answer:** 94%
- **45. How many gauge numbers in SWG, changed to double the cross section area of the conductor?**
  - **Answer:** Three gauge sizes decreased
- **46. What are the fundamental properties of insulation materials?**
  - **Answer:** Insulation resistance and dielectric strength
- **47. What is the shape of standard wire gauge?**
  - **Answer:** Circular metal disk
- **48. Which electrical quantity is directly proportional to the current carrying capacity of the conductor?**
  - **Answer:** Conductor s diameter
- **49. Which formula is used to find the conductance?**
  - **Answer:** /V
- **50. Which materials are used for semiconductor?**
  - **Answer:** Silicon and germanium
- **51. Which metal has very good conductivity of electric current?**
  - **Answer:** Copper
- **52. How the insulation coating stays without damage, even on bending the wire?**
  - **Answer:** Due to elastic property of insulation
- **53. What is the name of the motion of charged particles in any medium?**
  - **Answer:** Current
- **54. What is the specified Vcc voltage of 4 bit digital switch with 4 independent lines?**
  - **Answer:** 4.5 V to 5.5 V
- **55. What is the purpose of standard wire gauge (SWG)?**
  - **Answer:** Measure diameter of wire
- **56. Which electrical parameter is measured by the megger?**
  - **Answer:** Insulation resistance
- **57. How the insulators are called?**
  - **Answer:** Dielectrics
- **58. Which tool is used for the simplest method of skinning wires?**
  - **Answer:** Electrician's knife
- **59. Which energy is converted into electrical energy in hydropower stations?**
  - **Answer:** Mechanical energy
- **60. Which tool is used to measure the size of wire?**
  - **Answer:** Standard wire gauge
- **61. Which parameter of the wire is directly proportional to the current carrying capacity?**
  - **Answer:** Conductor s diameter
- **62. What is the effect on the current flow with increased diameter of conductor?**

    - **Answer:** Allows high current flow
- **63. What is the relation of wire diameter with current carrying capacity of conductor?**
    - **Answer:** Directly proportional
- **64. How the stationary electric charges are called?**
    - **Answer:** Static charges
- **65. What is the name of instrument used to measure electrical quantities?**
    - **Answer:** Meter
- **66. Which terminal of the meter is connected for measuring electrical quantity?**
    - **Answer:** Input terminal
- **67. How the electrical quantity measured by the meter is marked in it?**
    - **Answer:** Directly printing the specifications
- **68. What is the meaning of the symbol marked x on the ammeter dial?**
    - **Answer:** Position indicator
- **69. What is the value of each division marked by numbers on the voltmeter?**
    - **Answer:** 2V

Unit 3: Single Range Meters

- **70. How the mechanical zero error of panel meter is corrected?**
    - **Answer:** By replacing pointer
- **71. Which condition the mechanical zero error occur in panel meters?**
    - **Answer:** At normal condition

Unit 4: Cells and Batteries

- **72. What is the name of the pair of metal strips used in battery cell?**
    - **Answer:** Electrodes
- **73. Which electrolyte is used in lead-acid battery?**
    - **Answer:** Sulphuric acid
- **74. How batteries are classified?**
    - **Answer:** Primary cells and secondary cells
- **75. What is the rated output voltage of a silver oxide cell?**
    - **Answer:** 1.5 VDC
- **76. Which battery is used for cellular phones?**
    - **Answer:** Lithium ion
- **77. Which material is used for negative terminal of alkaline manganese dioxide batteries?**
    - **Answer:** Zinc
- **78. What is the unit of electric charge?**
    - **Answer:** Coulomb
- **79. How batteries are classified based on their working?**
    - **Answer:** Primary cells and secondary cells
- **80. What is the rated voltage of a single cell in lead acid battery?**
    - **Answer:** 2.2 V

- **81. What is the range of current rating of lead acid batteries used in automobiles?**
  - **Answer:** 100 to 400 Amp
- **82. What is the colour of positive electrode in fully charged lead acid battery?**
  - **Answer:** Reddish brown
- **83. What is the specific gravity of concentrated sulphuric acid?**
  - **Answer:** 1.835
- **84. Which energy is converted by the battery to produce electricity?**
  - **Answer:** Chemical energy into electrical energy
- **85. What is the total voltage of six 1.5 V cells, connected in series?**
  - **Answer:** 9 VDC
- **86. Which electrolyte is used in maintenance free lead acid batteries?**
  - **Answer:** Gelled electrolyte
- **87. What is the effect on a secondary cell supplying current to the load?**
  - **Answer:** Discharging
- **88. What is the percentage of sulphuric acid in electrolyte used for lead-acid batteries?**
  - **Answer:** 27%
- **89. What is the name of the process to maintain the recommended level of electrolyte in lead-acid battery cell?**
  - **Answer:** Topping up
- **90. What is the electrolyte level maintained above the top of the plates in lead acid battery cells?**
  - **Answer:** 10 mm to 15 mm
- **91. What is the lowest voltage level of discharging the lead-acid battery?**
  - **Answer:** 1.7 V
- **92. Which is the additional percentage of power delivered by the lithium lon compared to NiMH battery?**
  - **Answer:** 40%
- **93. Which battery is made from non-toxic materials?**
  - **Answer:** Nickel metal hydride (NiMH)
- **94. Which rechargeable cell is designed with conductive polymer?**
  - **Answer:** Plastic cell
- **95. Which method is adopted to charge a car battery with voltage rating of 2.3 V per cell?**
  - **Answer:** Constant voltage charging method
- **96. What is the use of battery analyzers with rapid-test program?**
  - **Answer:** Indicate the health condition of battery
- **97. Which device is used to test the fully charged condition of a lead acid battery cell?**
  - **Answer:** High rate discharge tester
- **98. Why the load testing is done on the lead-acid battery?**
  - **Answer:** Verify the rated power delivery

Unit 5: AC & DC measuring Instruments

- **99. Which bearing is supporting the shaft of moving coil assembly in a PMMC instrument?**

    - **Answer:** Jewelled bearings
- **100. What is the full form of the abbreviation PMMC meter?**
    - **Answer:** Permanent Magnet Moving Coil meter
- **101. Which type of wave is generated in Schmitt trigger circuit?**
    - **Answer:** Square wave
- **102. Which electrode controls brightness of the image on the screen of oscilloscope?**
    - **Answer:** Control grid
- **103. Which band is used for UHF in International Telecommunication System?**
    - **Answer:** Band 9
- **104. Which parameter is measured by a multimeter?**
    - **Answer:** Voltage
- **105. What is the name of the symbol marked X in the panel meter?**
    - **Answer:** Moving coil with rectifier
- **106. Which torque is used in PMMC meter movement?**
    - **Answer:** High torque
- **107. Which instrument used to measure resistance, capacitance and inductance?**
    - **Answer:** LCR bridge
- **108. Find the value of shunt resistance required for 1 mA meter to extend the range and measure 10 mA (RM = 27 Ohm) ?**
    - **Answer:** 3 Ohms
- **109. In which arrangement the high value of resistor is connected to extend the range of voltmeter?**
    - **Answer:** Series
- **110. In which analog meter the battery is provided?**
    - **Answer:** Ohm meter
- **111. Which function control in CRO, adjust the trace sharper?**
    - **Answer:** Focus
- **112. Which meter uses a moving coil for measurement?**
    - **Answer:** PMMC meter
- **113. Which parameter is used in the working of moving coil meter?**
    - **Answer:** Permanent magnetic fields
- **114. What is the advantage of using digital multimeter?**
    - **Answer:** Accuracy
- **115. Which meter movement is not affected by stray magnetic fields?**
    - **Answer:** PMMC meter
- **116. In which measuring instrument this movement is used?**
    - **Answer:** Centre zero galvanometer
- **117. In which position, the moving coil meter is kept for measurements?**
    - **Answer:** Vertical
- **118. Which characteristics enable the deflection of pointer in the attraction type moving iron meter?**
    - **Answer:** Deflection is independent of current direction
- **119. Which band of frequency is used for RADAR in frequency spectrum allotted by the International Telecommunication Union (ITU)?**
    - **Answer:** ITU band - 10
- **120. Which control is used in repulsion type moving iron instrument to keep the pointer at zero position?**
    - **Answer:** Spring control
- **121. Which frame is used for winding the coil of PMMC meter?**

    - **Answer:** Aluminium frame
- **122. What is the purpose of damping torque in PMMC meter?**
    - **Answer:** Control the swinging of the coil
- **123. Why the soft iron pieces in the moving iron meter is tongue shaped?**
    - **Answer:** To achieve uniformity of scale
- **124. How the sensitivity of voltmeter is determined?**
    - **Answer:** Ohms per volt rating
- **125. What is the maximum test voltage of the moving iron volt meter?**
    - **Answer:** 2500 V
- **126. What is the name of the procedure carried out to ensure the trustworthy standards of the measuring instrument?**
    - **Answer:** Calibration
- **127. How the accuracy of amplitude and frequency measured by CRO is checked?**
    - **Answer:** By built-in calibration signal

Unit 6: Soldering / Desoldering and Various Switches

- **128. Which bonding material is used for soldering a joint?**
    - **Answer:** Flux
- **129. At which temperature the 6040 solder start meeting?**
    - **Answer:** 200∘C
- **130. Which step is important for soldering a joint?**
    - **Answer:** Heating the joint
- **131. What is the range of temperature used in soldering station?**
    - **Answer:** 150∘C to 450∘C
- **132. What is the name of the tool?**
    - **Answer:** Plunger de-soldering tool
- **133. What is the name of the soldering iron tip?**
    - **Answer:** Pyramid
- **134. What is the name of flux used for soldering electronic components?**
    - **Answer:** Rosin
- **135. How many types of soldering is used for joining metal surfaces?**
    - **Answer:** Two
- **136. What is the full form of the abbreviation SPDT used in switches ?**
    - **Answer:** Single Pole Double Throw
- **137. Which ratio of tin-lead combination is used for electronic component soldering work?**
    - **Answer:** 6337
- **138. When does the rosin flux melts in a soldering process?**
    - **Answer:** When the solder is heated
- **139. What is the additional advantage of rosin flux used for soldering electronic components?**
    - **Answer:** It is non-conductive
- **140. What is the full of the abbreviation DPDT used in switches?**
    - **Answer:** Double Pole Double Throw
- **141. How is the soldering method used for joining large metal called?**
    - **Answer:** Brazing

- **142. How much time is required to make a quality soldered joint using soldering iron?**
  - **Answer:** 3-7 seconds
- **143. Which type of soldering is used for electronic circuit?**
  - **Answer:** Soft soldering
- **144. Which tool works on the principle of air suction?**
  - **Answer:** Desoldering pump
- **145. Which soldering instrument has hot air blowing facility?**
  - **Answer:** Soldering station
- **146. What is produced by the power supply connected soldering iron?**
  - **Answer:** Heat
- **147. What is the purpose of flux in soldering electronic circuit components?**
  - **Answer:** Dissolve the oxide layer on the metal surface
- **148. Which gauge number of rosin-cored solder is suitable for soldering medium sized joints?**
  - **Answer:** 18 gauge rosin cored
- **149. How the flux residue is removed after soldering a joint?**
  - **Answer:** Isopropyl alcohol
- **150. What is the effect of over heating on soldering a joint?**
  - **Answer:** It will corrode the joint
- **151. What is the name of defect if the flux is unable to remove the tarnish from the soldered joint?**
  - **Answer:** Poor wetting
- **152. What is the result of forced air is blown to cool the joint while soldering?**
  - **Answer:** Results in dry brittle joint
- **153. What is the effect of shaking the soldered joint while cooling?**
  - **Answer:** Dull grainy surface
- **154. Why the solvent Iso Propyl Alcohol (IPA) is used on the solder joint?**
  - **Answer:** Remove residual flux and prevent corrosion
- **155. What is the defect on the soldered joint, if it is cooled by blowing air?**
  - **Answer:** Dry solder joint
- **156. How the thick layers of oxide is removed before doing the soldering activity?**
  - **Answer:** Use abrasive method
- **157. Which method is used for soldering electronic components?**
  - **Answer:** Clinched lead method
- **158. Why the plunger desoldering tool needs periodical cleaning?**
  - **Answer:** To prevent clogging of the nozzle

Unit 7: Active and Passive Components

- **159. What is the type of transformer?**
  - **Answer:** High frequency transformer
- **160. How power rating is specified for transformers?**
  - **Answer:** Volt ampere (VA)
- **161. Which component opposes any change in current?**
  - **Answer:** Inductor
- **162. What is the unit of inductance?**
  - **Answer:** Henry

- **163. Which value is equal to one picofarad?**
  - **Answer:** 10-12 Farad
- **164. Which factor determines the inductance value?**
  - **Answer:** Diameter of the coil
- **165. What is the name of the type of resistor?**
  - **Answer:** Carbon type variable
- **166. What is the colour code for 1000 resistor?**
  - **Answer:** Brown, black, red
- **167. How many ohms is equal to one Mega ohm?**
  - **Answer:** 1000 kW
- **168. Determine the current flows through 2kΩ resistor (R2).**
  - **Answer:** 6 mA
- **169. Which property of the capacitor stores electrical energy in electrostatic field?**
  - **Answer:** Capacitance
- **170. Which unit is used to measure capacitance value?**
  - **Answer:** Farad
- **171. What is the name of the coil?**
  - **Answer:** High frequency inductors
- **172. What is the name of Multi-turn potentiometers?**
  - **Answer:** Multi turn trim pots
- **173. What is the purpose of the electronic component used in radio receiver?**
  - **Answer:** Tuning circuit
- **174. What is the name of the triangle used in resistor, inductor in AC circuit?**
  - **Answer:** Impedance triangle
- **175. Which meter is used to find the exact resistance value of resistors?**
  - **Answer:** Ohm meter
- **176. How much is the impedance of the circuit?**
  - **Answer:** 50 W
- **177. What is the cause of burnt relay contacts?**
  - **Answer:** Excessive contact current
- **178. At which condition the cold resistance of the low voltage lamp is measured using ohmmeter?**
  - **Answer:** Lamp is OFF at room temperature
- **179. What is the result of hysteresis loss in magnetic material?**
  - **Answer:** Energy loss takes place
- **180. What is the phase relationship between the applied voltage and current in the primary of a transformer with open secondary winding?**
  - **Answer:** Current lags voltage by 90∘
- **181. What is the value of carbon composition resistor?**
  - **Answer:** 3300 W
- **182. What is the voltage (V2) drop across the resistor R2?**
  - **Answer:** V2=40V
- **183. What is the purpose of trimmer capacitor?**
  - **Answer:** Fine tuning
- **184. Find the total resistance value of 10 ohms and 20 ohms connected in parallel.**
  - **Answer:** 6.666 Ohms
- **185. Find the total inductance value of two inductors 10H and 15H of connected in series.**

    - **Answer:** 25 H
- **186. What is the power dissipated if 10mA current flows through a 10KΩ resistor?**
    - **Answer:** 1000 milli watts
- **187. Find the current (13) using Kirchhoff s current law?**
    - **Answer:** 5A
- **188. What is the name of effect of changing current in one coil, induces EMF in nearby coil?**
    - **Answer:** Mutual induction
- **189. What is the main problem caused for severe pitting in relays ?**
    - **Answer:** Excessive contact current
- **190. What is the effect on the transformer operated below the rated voltage?**
    - **Answer:** Delivers reduced secondary voltage
- **191. What is the purpose of vacuum contactors in electrical panel?**
    - **Answer:** Fast switching
- **192. What is the reason for the use of contactors in control circuits?**
    - **Answer:** Supply power to loads
- **193. Why the transformer core is made as thin laminations?**
    - **Answer:** To minimize eddy current losses
- **194. Which part of the relay causes most trouble?**
    - **Answer:** Relay contacts
- **195. What type of ripple filter circuit is used for large load current requirements?**
    - **Answer:** Inductor Input filter

Unit 8: Power Supply Circuits

- **196. What is the current through the zener diode with full load condition?**
    - **Answer:** Minimum
- **197. Which circuit produces the ripple waveform?**
    - **Answer:** Filter circuit
- **198. Which component filter the ripples in the rectifier circuit?**
    - **Answer:** Capacitor
- **199. Which parameter is maintained constant in zener diode?**
    - **Answer:** Voltage
- **200. What is the meaning of maximum safe reverse voltage across a diode?**
    - **Answer:** PIV voltage
- **201. What is the name of the circuit diagram?**
    - **Answer:** Bridge rectifier
- **202. When does the zener diode begins to conduct in the reverse biased condition?**
    - **Answer:** Voltage across it reached the zener voltage
- **203. What is the current through the zener diode under no load condition?**
    - **Answer:** Maximum
- **204. What is the output pulse frequency of the full wave rectifier with input frequency of 50 Hz?**
    - **Answer:** 100 Hz
- **205. What is the maximum safe reverse voltage rating of a diode?**

    - **Answer:** PIV voltage
- **206. Which is the first step followed in troubleshooting of electronic circuit?**
    - **Answer:** Physical and sensory test
- **207. Which diode is used in low power communication circuits?**
    - **Answer:** Signal diodes
- **208. What is the disadvantage of the two diode full wave rectifier compared with a bridge rectifier?**
    - **Answer:** The need of bulky transformer
- **209. What is the process of adding impurities to a pure semi conductor material?**
    - **Answer:** Doping
- **210. How much is the regulated output voltage?**
    - **Answer:** 12 Volts
- **211. Which impurity is added to form P - type semiconductor material?**
    - **Answer:** Gallium
- **212. Which impurity is added to pure semiconductor to form N-type material?**
    - **Answer:** Arsenic
- **213. What is the output frequency of the pulsating DC in a two diode fullwave rectifier?**
    - **Answer:** Double the input A/C frequency
- **214. What is the name of the process of converting AC into DC voltage?**
    - **Answer:** Rectifying
- **215. What is the effect on the output voltage in a bridge rectifier circuits, with one diode open?**
    - **Answer:** Half of the rated output voltage
- **216. What is the peak to peak voltage in a bridge rectifier circuit with load current of 10 mA, capacitance of 470 F and 50 Hz supply frequency?**
    - **Answer:** 0.213 v
- **217. What is the minimum current rating of four diode bridge rectifier to supply load current of 1.8 Amp?**
    - **Answer:** 0.9 Amp

Unit 9: Computer Hardware, OS

- **218. Which signal is sent by the SMPS to computer mother board?**
    - **Answer:** Power good signal
- **219. What is the full form of the abbreviation ISA?**
    - **Answer:** Industry Standard Architecture
- **220. Which device is used to produce hard copy of a document in a computer?**
    - **Answer:** Printer
- **221. Which port is used to connect a plug and play peripheral device to CPU?**
    - **Answer:** USB port
- **222. What is the function of schottky diode BA 157 in SMPS circuit?**
    - **Answer:** Fast recovery diode
- **223. What is the advantage of SMPS in computer?**
    - **Answer:** High efficiency
- **224. What is the full form of electronic component MOV?**
    - **Answer:** Metal Oxide Varistor
- **225. Which port is used to connect the HDD on the mother board?**

    - **Answer:** IDE port
- **226. What is the full form of the abbreviation LBA in computer system?**
    - **Answer:** Logical block accessing
- **227. What is the full form of the abbreviation CD-ROM in computer?**
    - **Answer:** Compact Disk Read Only Memory
- **228. Which component, which reads the command from memory and executes?**
    - **Answer:** Micro processor
- **229. Which codes are stored in computer ROM BIOS chip?**
    - **Answer:** Permanent codes
- **230. Which mouse action is used to move an object from one location to another?**
    - **Answer:** Drag and drop
- **231. Which memory device loses data on power failure?**
    - **Answer:** RAM
- **232. Which section is used by the processor to save instructions?**
    - **Answer:** Memory
- **233. Which option opens a list of programs, currently installed in the computer?**
    - **Answer:** All program
- **234. In computer processing data, which table maintain the size of the partition?**
    - **Answer:** Partition table
- **235. The speed of spindle motor rotates inside the hard disk**
    - **Answer:** 3600 to 7200 r.p.m
- **236. Which metal coating is used on compact disk?**
    - **Answer:** Aluminium
- **237. Where the programs and datas are stored after execution in computer?**
    - **Answer:** Memory
- **238. Which shortcut key function is used to close the working window on the computer?**
    - **Answer:** Alt+F4
- **239. Which device converts digital data from computer into analog data and transmit through telephone line?**
    - **Answer:** MODEM
- **240. Which component is used to prevent over voltage of AC supply in SMPS?**
    - **Answer:** Metal oxide varistor
- **241. Which component is used to remove the heat generated inside the SMPS?**
    - **Answer:** Heat sink

Unit 10: IC Regulators

- **242. How many transistors are built inside the Very Large Scale Integration (VLSI) IC package?**
    - **Answer:** 1000 and above
- **243. Which IC package consist of 100 to 1000 transistors?**
    - **Answer:** Medium scale integration (MSI)
- **244. Which is the 3 terminal, negative voltage regulator IC?**
    - **Answer:** IC 7905
- **245. Which three terminal voltage regulator IC has adjustable output?**
    - **Answer:** LM 317

- **246. How much is the maximum load current of the negative voltage regulator IC 7912?**
  - **Answer:** 1.0 A
- **247. What is the current rating of voltage regulator IC LM338K?**
  - **Answer:** 5A
- **248. What is the function of the transistor 2N 3055 in the circuit?**
  - **Answer:** To handle higher load current
- **249. Which method is followed to troubleshoot the problem causing section by the symptom?**
  - **Answer:** Logical approach method
- **250. What is the current rating of voltage regulator IC LM317L?**
  - **Answer:** 0.1 A
- **251. What is the function of capacitor C2 in the voltage regulator?**
  - **Answer:** Improve the transient response of output voltage
- **252. What is the range of output voltage of regulator IC LM 317?**
  - **Answer:** 1.2 V to 32 V
- **253. Which type of voltage regulator is IC 723?**
  - **Answer:** Multipin variable voltage regulator
- **254. What is the purpose of diode (D1) in the variable output voltage regulator?**
  - **Answer:** To protect the IC against short due to C3
- **255. Which component protects the regulator IC from short circuit due to capacitor C3?**
  - **Answer:** Diode D2
- **256. What is the purpose of diodes in the circuit?**
  - **Answer:** Avoid the common load problem

Module 1: Digital Storage Oscilloscope

- **Question:** What is the full form of the abbreviation D.S.O?
  - **Answer:** Digital Storage Oscilloscope
- **Question:** What type of wave form is available at pin number 2 of function generator IC 8038?
  - **Answer:** Triangular wave
- **Question:** What is the name of the circuit?
  - **Answer:** Astable multivibrator
- **Question:** Which function makes a stable waveform displayed on the DSO screen?
  - **Answer:** Auto set function
- **Question:** Which acquisition mode is used by the DSO to sample the highest and lowest values of the input signal?
  - **Answer:** Peak detect mode
- **Question:** What is the purpose of sampling in DSO operation?
  - **Answer:** Convert analog signal to digital
- **Question:** How the overall operation of DSO is controlled?
  - **Answer:** Using microprocessors
- **Question:** Which function is performed by the sample / Hold circuit along with the ADC in Digital Storage Oscilloscope?
  - **Answer:** Data acquisition
- **Question:** What is the name of the circuit built with IC 8038?
  - **Answer:** Function generator

- **Question:** What is the name of the factory setup done to the Digital Storage Oscilloscope?
  - **Answer:** Default setup
- **Question:** Which IC is used in the Astable multivibrator circuit?
  - **Answer:** IC 555
- **Question:** Which type of waveform is available in pin number 3 of IC 8038 function generator?
  - **Answer:** Square wave
- **Question:** What is the advantage of the Digital Storage Oscilloscope?
  - **Answer:** Stores digital data for later viewing
- **Question:** Which part of the DSO stores the processed data of input signal voltage?
  - **Answer:** Memory
- **Question:** What is the name of waveform displayed on the DSO screen?
  - **Answer:** Ringing waveform
- **Question:** How the digital equipment works with the input voltage samples?
  - **Answer:** Convert it to Binary numbers
- **Question:** Which circuit is used in Digital Storage Oscilloscope (DSO) to convert the input sample voltage into digital information?
  - **Answer:** Analog to Digital converter circuit
- **Question:** Which type of waveform is available at pin number 9 of function generator IC 8038?
  - **Answer:** Square wave

Module 2.1: Basic SMD - I

- **Question:** What is the type of SMD IC package?
  - **Answer:** PGA pack
- **Question:** What is the acceptable resistance value limit for the ESD wrist strap?
  - **Answer:** 1MΩ
- **Question:** What is the type of SMD IC package?
  - **Answer:** PLCC
- **Question:** What is the power rating of soldering iron used in electrical and electronics work?
  - **Answer:** 15 to 35 watts
- **Question:** What is the full form of the abbreviation PGA used in SMD IC package?
  - **Answer:** Pin Grid Array
- **Question:** Which type of hot air pencil tip is used in SMD soldering?
  - **Answer:** Fine/jet type
- **Question:** What is the range of temperature setting on soldering work station for soldering SMD ICs?
  - **Answer:** 250°C to 280°C
- **Question:** How does the desoldering braid removes the molten solder from the joint on the PCB?
  - **Answer:** By capillary action
- **Question:** Which method is effective to control ESD, during manufacturing the devices?
  - **Answer:** Use ESD wrist strap
- **Question:** Which technology is used to place the components directly on the printed circuit boards?
  - **Answer:** Surface Mount Technology

- **Question:** What is the name of the device?
  - **Answer:** SMD workstation
- **Question:** What is the name of SMD tool?
  - **Answer:** Heated tweezers
- **Question:** Which type of leads constructed in SOIC package?
  - **Answer:** Gull wing leads
- **Question:** Which SMD IC needs lead forming equipment to cut and bent into gull wing type?
  - **Answer:** FLAT Package
- **Question:** Which is alternative to ceramic SMD IC packages?
  - **Answer:** Plastic packages
- **Question:** What is the purpose of bumpered corners of the Bumpered Quad Flat Pack?
  - **Answer:** Protects the IC leads
- **Question:** What is the full form of the abbreviation SOIC?
  - **Answer:** Small Outline Integrated Circuits
- **Question:** What is the name of the IC package?
  - **Answer:** BQFP
- **Question:** What is the full form of the abbreviation SMT?
  - **Answer:** Surface Mount Technology
- **Question:** What is the use of Bench top Ionisers?
  - **Answer:** To control ESD in work environment
- **Question:** What is called 'tinning' in soldering?
  - **Answer:** Melt a little solder on the tip of the iron
- **Question:** What is the name of the defect caused due to ESD event?
  - **Answer:** Latent defect
- **Question:** How to minimize the cause of ESD during the manufacturing of devices?
  - **Answer:** Used ESD controlled footwear
- **Question:** What is the percentage of defect caused to devices due to ESD?
  - **Answer:** 25 to 30
- **Question:** Which material is used to make conductive shoe covers to protect from static charges?
  - **Answer:** Polypropylene
- **Question:** What is the cause of 'Voiding' in SMT?
  - **Answer:** Damaged wiring

Module 2.2: Basic SMD - II

- **Question:** What is the composition of solder paste used for reflow soldering process?
  - **Answer:** Powdered solder and flux
- **Question:** Which conformal coating material is used as two part thermosetting mixture?
  - **Answer:** Epoxy resin
- **Question:** Which material is used to make the drill bits for drilling PCB holes?
  - **Answer:** Solid coated Tungsten carbide
- **Question:** What is the size of pad width for soldering resistors, capacitors and diodes on the PCB?
  - **Answer:** 50 Thou
- **Question:** Which colour of solder mask is used on PCBs?
  - **Answer:** Green

- **Question:** What is the shape of pad used to solder Dual In Line (DIL) components on PCB?
    - **Answer:** Oval
- **Question:** Which method of conformal coating is used for epoxy coated on PCBs?
    - **Answer:** Microblasting
- **Question:** Which conformal coating is easy to apply and remove with low moisture absorption?
    - **Answer:** Acrylic resin
- **Question:** Which protective chemical coating is applied on the PCB?
    - **Answer:** Polymer film coating
- **Question:** Which is the last zone on the reflow soldering?
    - **Answer:** Cooling zone
- **Question:** Which is the second stage in the reflow soldering process?
    - **Answer:** Thermal soak zone
- **Question:** Which zone is the lengthiest in the reflow soldering process?
    - **Answer:** Preheat zone
- **Question:** What is the ramp-up rate of temperature in the preheat zone of reflow soldering process?
    - **Answer:** 1°C to 3°C/ sec
- **Question:** Which is the common method of attaching surface mount components to a printed circuit board?
    - **Answer:** Reflow soldering
- **Question:** What is the purpose of providing solder mask on the PCBs?
    - **Answer:** Prevent solder bridges
- **Question:** How the solder mask is removed on the PCB for replacement of components?
    - **Answer:** Grinding and scraping
- **Question:** What is the range of peak temperature reached at reflow zone of reflow soldering process?
    - **Answer:** 20°C to 40°C
- **Question:** How the fine grain structure of soldered joint is achieved by using reflow soldering process?
    - **Answer:** Fast cooling rate
- **Question:** What is the typical temperature range of cooling zone in flow soldering process?
    - **Answer:** 30° to 100°C
- **Question:** Which fabrication technology is used for the assembly of the circuit board?
    - **Answer:** Plated through hole fabrication
- **Question:** What is the name of technology used to mount components on multilayer PCBs?
    - **Answer:** Plated through hole
- **Question:** Which type of coating process is used to apply para-xylylene as conformal coating on PCB?
    - **Answer:** Chemical vapour deposition
- **Question:** What is the effect on the solder paste, when the ramp-up rate exceeds the maximum slope in reflow soldering process?
    - **Answer:** Spattering effect
- **Question:** What is the effect on components, after the ramp-up rate exceeds the maximum slope in the heat zone of reflow soldering process?
    - **Answer:** Cracking

- **Question:** At which zone the maximum allowable temperature of the reflow soldering process is reached?
  - **Answer:** Reflow
- **Question:** What is the purpose of apply polymer coating on the PCB?
  - **Answer:** To prevent corrosion
- **Question:** What is the cooling rate suggested for reflow soldering process?
  - **Answer:** 4°C/second
- **Question:** What is the effect on excessive intermetallic growth caused by wetting time above liquidus (TAL) in reflow soldering process?
  - **Answer:** Joint brittleness
- **Question:** What causes a decrease in flux cleaning action leads to poor wetting and defective solder joint in reflow soldering process?
  - **Answer:** More thermal soak exposure
- **Question:** How the damaged Vias in PTH circuit boards are repaired?
  - **Answer:** Use eyelets

Module 3: Protection Devices

- **Question:** What is the fusing factor of rewireable HRC fuse?
  - **Answer:** 1.1
- **Question:** What is the current rating of cartridge fuse used for domestic wiring?
  - **Answer:** 1250 Ampere
- **Question:** What is the current rating of rewireable fuse used for domestic wiring?
  - **Answer:** 200 A
- **Question:** What is the name of the part marked as X in the MCB?
  - **Answer:** Latch
- **Question:** What is the name of the relay used in electrical circuit?
  - **Answer:** Dry reed relay
- **Question:** What is the current rating of tinned copper wire 40 SWG used for rewireable fuse?
  - **Answer:** 1.0 A
- **Question:** What is the name of the fuse cartridge part marked as X?
  - **Answer:** Break indicator
- **Question:** What is the full form of the abbreviation ELCB used in Electrical circuit?
  - **Answer:** Earth Leakage Circuit Breakers
- **Question:** What is the type of relay?
  - **Answer:** Latch relay
- **Question:** Which series MCB is used for protection of motor?
  - **Answer:** 'G' series MCBS
- **Question:** What is the breaking capacitor of a DC series MCB?
  - **Answer:** 6 kA
- **Question:** What is the maximum voltage rating for 'DC' series MCBs?
  - **Answer:** 220 VDC
- **Question:** What is the maximum current rating for 4 pole MCB?
  - **Answer:** 80 A
- **Question:** What is the fusing factor of a rewireable fuse selected for over current protection in a circuit?
  - **Answer:** 1.4
- **Question:** What is the name of the current interrupted by the circuit breaker?
  - **Answer:** Prospective fault current

- **Question:** Which relay has contact arrangement to break make or transfer contact combination?
  - **Answer:** Clapper type armature relay
- **Question:** Which relay functions whenever the current in the coil reaches on upper limit?
  - **Answer:** Current sensing relay
- **Question:** Which device is used in electrical installations to protect from electric shock?
  - **Answer:** ELCB
- **Question:** Which type of relay is used in voltage stabilizer?
  - **Answer:** Voltage sensing relay
- **Question:** What is the name of device?
  - **Answer:** Contactor
- **Question:** What is the maximum earth fault loop impedance if an ELCB with a rated tripping current of 30 mA?
  - **Answer:** 1666 Ω
- **Question:** What is the fusing current for a rewireable fuse?
  - **Answer:** 1.4 to 1.7
- **Question:** Which parameter opens the fuse element under fault, without damaging the load?
  - **Answer:** Current rating
- **Question:** Which relay is used for the time delay purpose?
  - **Answer:** Thermal relay
- **Question:** Which relay is operating with very low power?
  - **Answer:** Reed relay
- **Question:** What is the current rating of cartridge fuse with brown colour code?
  - **Answer:** 4A
- **Question:** How much time is taken by overload relay to open motor contact at 500 percentage of full load current?
  - **Answer:** 10 sec
- **Question:** What is the type of miniature circuit breaker (MCB)?
  - **Answer:** 3 pole MCB
- **Question:** Which device opens and closes an auxiliary circuit?
  - **Answer:** Relay
- **Question:** What is the current rating of copper colour fuse cartridge?
  - **Answer:** 63 ampere
- **Question:** Which function is performed by the isolator in an electrical circuit?
  - **Answer:** As a switch
- **Question:** Which condition the MCB is breaking open of the electrical circuit?
  - **Answer:** Short circuit
- **Question:** What is the trip for clearing short circuits in MCB combination circuit breaker?
  - **Answer:** 3 milli second
- **Question:** What is the cause of motor starts with chattering noise?
  - **Answer:** Dust between the contacts in electromagnet
- **Question:** Which formula is used to find the fusing factor?
  - **Answer:** Fusing formula=minimum fusing current/Rated current
- **Question:** What is the cause of humming noise from the starter?
  - **Answer:** Low voltage

- **Question:** What is the factor for time taken a fuse to interrupt the circuit in the event of fault?
    - **Answer:** Cut off factor
- **Question:** What is the cause of failure of contactor due to too much heating of the no-volt coil?
    - **Answer:** Low voltage
- **Question:** Why the AC relay connected to DC supply draw more current?
    - **Answer:** Absence of inductive reactance

Module 4: Electrical Control Circuits

- **Question:** Which single phase induction motor is rated for less then 1HP?
    - **Answer:** Fractional horse power motor
- **Question:** What is the name of the centrifugal switch part marked X?
    - **Answer:** Contacts
- **Question:** What is the name of the torque speed characteristics curve of the motor?
    - **Answer:** Capacitor-start induction run motor
- **Question:** How many watts is equal to 1 Horse power (HP)?
    - **Answer:** 746 watts
- **Question:** Which type of switch is used in the capacitor start, induction run motor?
    - **Answer:** Centrifugal switch
- **Question:** Which motor is characterised by low rotor circuit resistance and reactance?
    - **Answer:** Class - A
- **Question:** What is the class of squirrel cage induction motor according to the starting characteristics?
    - **Answer:** Class - D
- **Question:** How much starting torque is achieved by the Class-D type squirrel cage motor?
    - **Answer:** 5
- **Question:** How the centrifugal switch is connected in a capacitor start, induction-run motor?
    - **Answer:** Series with the starting winding
- **Question:** What is the starting torque of Class-C type squirrel cage motor in the rated speed?
    - **Answer:** 2
- **Question:** What is the purpose of capacitor used in the single phase motor?
    - **Answer:** To split phase
- **Question:** Which induction motor is preferred for constant speed with high efficiency performance?
    - **Answer:** Squirrel cage Im
- **Question:** What is the name of the permanent capacitor motor part marked X?
    - **Answer:** Auxiliary winding
- **Question:** Which test is conducted through the circuit?
    - **Answer:** Discharge test on Capacitor
- **Question:** What is determined by the way of connecting main winding and auxiliary winding in a split-phase motor?
    - **Answer:** Direction of rotation
- **Question:** Why the main and starting windings of split-phase motor connected across the supply only at the time of starting?
    - **Answer:** Produce rotating magnetic field

- **Question:** Which synchronous speed of the motor, the starting winding is opened by the centrifugal switch?
    - **Answer:** 75 to 80%
- **Question:** How the overload relay in a manual D.O.L starter is activated during heavy load current?
    - **Answer:** Bimetallic strip get heated up
- **Question:** Which force is used capacitor-start, induction-run motor to disconnect the starting winding?
    - **Answer:** Centrifugal force
- **Question:** What is the full load current of a 10 HP, three phase, 415 V squirrel-cage motor?
    - **Answer:** 15A
- **Question:** Which test is conducted through the circuit?
    - **Answer:** Capacity test on capacitor
- **Question:** Which class of squirrel case induction motor is taking normal starting torque and used for general purpose?
    - **Answer:** Class - A
- **Question:** What is the synchronous speed (Ns) of a 3phase induction motor with 8 poles working at 50 Hz?
    - **Answer:** 750 rpm
- **Question:** What is the result on the split-phase motor by changing the main winding terminals?
    - **Answer:** Direction of rotation reversed
- **Question:** Why squirrel cage induction motor is preferred for efficient performance?
    - **Answer:** Constant speed
- **Question:** Which motors are used on loads having high inertia and long acceleration period?
    - **Answer:** Resistance start-induction run motor

Module 5: Electronic Cables and Connectors

- **Question:** What is the size of thinnet type coaxial cable used in network installations?
    - **Answer:** 0.25 inch
- **Question:** What is the distributed capacitance value between the core and screen of coaxial cable per meter?
    - **Answer:** 120 pF
- **Question:** What is the data transmission speed of USB 3.0 for interfacing computers?
    - **Answer:** 625 Mbps
- **Question:** What is the full form of the abbreviation DVI?
    - **Answer:** Digital Visual Interface
- **Question:** What is the maximum data transfer speed of coaxial cable?
    - **Answer:** 10 Mbps
- **Question:** What is the audible frequency range in communication?
    - **Answer:** 20 Hz to 20 kHz
- **Question:** What is the full form of the abbreviation PTZ cable used in security camera?
    - **Answer:** Pan Tilt Zoom
- **Question:** What is the name of cable?
    - **Answer:** PTZ combo cable
- **Question:** Which purpose BNC connector with 75 Ohms is used?

    - **Answer:** Carry video Signals
- **Question:** What is the data transmission speed of category 4 twisted pair Network cables?
    - **Answer:** 16 mbps
- **Question:** Which types of cables are used for balanced signal circuits?
    - **Answer:** Double core screened cables
- **Question:** What is the purpose of heavy-duty audio cable four core individually screened 7x0.2mm?
    - **Answer:** For main line usage
- **Question:** Which cable supports the data, power and video signals in security camera application?
    - **Answer:** PTZ combo cable
- **Question:** Which type of RF cable is used for higher power applications?
    - **Answer:** RG 213
- **Question:** Which cable is used for lower power application?
    - **Answer:** RG 174
- **Question:** What is the purpose of screen wire used in audio cables?
    - **Answer:** Reject unwanted signal
- **Question:** What is the use of F-connector?
    - **Answer:** Cable TV circuits
- **Question:** What is the advantage of twisted copper wire in single transmission?
    - **Answer:** Reduces cross talk
- **Question:** What is the purpose of shielded wire used in audio signal cable?
    - **Answer:** Grounds interference signal
- **Question:** Which connector is used specifically to provide DC power connection to devices?
    - **Answer:** Barrel connector
- **Question:** Which part of the signal cable is crimped to the outer conductor of F-connector?
    - **Answer:** Shield of the cable
- **Question:** How many channels of uncompressed PCM audio signals are carried by the S/PDIF cable?
    - **Answer:** Two
- **Question:** Which cable is used in S/PDIF interconnecting home theatre and digital audio systems?
    - **Answer:** Coaxial cable
- **Question:** Which purpose the two core individually screened heavy duty cables are used?
    - **Answer:** Program amplifiers
- **Question:** What is the characteristics impedance of RG 6U cable used for long line cable TV transmission?
    - **Answer:** 75Ω
- **Question:** What is the maximum length of UTP cable used from node to Hub connection?
    - **Answer:** 100 meters
- **Question:** Which speed of maximum data signal is carried by the CAT-6 twisted pair network cable?
    - **Answer:** 250 MHz
- **Question:** What is the full form of the abbreviation HDMI?
    - **Answer:** High Definition Multimedia Interface

- **Question:** Which tool is used to connect the cable ends to lug terminals for firm contact and avoid breaking of leads?
    - **Answer:** Crimping tool
- **Question:** Which type of cable is used in satellite receiver?
    - **Answer:** CT 100
- **Question:** What is the characteristics impedance (ZO) of BNC connector?
    - **Answer:** 75Ω
- **Question:** Which connector is used on unbalanced audio cables?
    - **Answer:** RCA plug
- **Question:** What is the effect of mismatch in characteristic impedance (ZO) with 50Ω to 75Ω coaxial cable?
    - **Answer:** RF circuit fails
- **Question:** Why the cotton braid is provided in between the leads and shield of audio cables?
    - **Answer:** Flexibility to the cable
- **Question:** Why more number of strands and thicker gauge wire is used for high power amplifier to connect another location?
    - **Answer:** To avoid line loss
- **Question:** What is the effect of using bare coaxial cables without end connectors?
    - **Answer:** Mismatch the loads

Module 6: Communication Electronics

- **Question:** What is the range of frequency for short wave (SW) band?
    - **Answer:** 3 MHz to 30 MHz
- **Question:** What is the name of block diagram?
    - **Answer:** TRF receiver
- **Question:** What is fidelity of receiver circuits?
    - **Answer:** Accuracy of reproduction
- **Question:** What is the name of the section marked X in the digital communication system?
    - **Answer:** Modulator
- **Question:** What is the name of the signal used in digital modulation?
    - **Answer:** ASK signal
- **Question:** What is the range of frequency for Medium Wave (MW) in AM broadcasting?
    - **Answer:** 530 kHz to 1650 kHz
- **Question:** What is the speed of light?
    - **Answer:** 3×108 meters per second
- **Question:** What is the function of analog multiplier IC AD 633?
    - **Answer:** Generate AM signal
- **Question:** Which antenna is used for Medium Wave band in AM receiver?
    - **Answer:** Ferrite rod antenna
- **Question:** Which types of modulation techniques is used to produce the wave form?
    - **Answer:** ASK
- **Question:** What is the name of radio receiver?
    - **Answer:** Reflectional receiver
- **Question:** What is the modulation index of the Amplitude modulated waveform?
    - **Answer:** 0.5
- **Question:** What is the function of capacitor (C) in the envelope detector circuit?

    - **Answer:** Stores the signal
- **Question:** Which circuit is used to process the demodulation of Amplitude modulated signal?
    - **Answer:** Envelope detector
- **Question:** Which type of FM detector concept produces the frequency response characteristics curve?
    - **Answer:** Foster-seeley FM detector
- **Question:** Which instrument is necessary to align the FM detector in receiver circuit?
    - **Answer:** Distortion Analyser
- **Question:** Which type of modulation uses the signal superimposed over the carrier waves?
    - **Answer:** Amplitude modulation
- **Question:** Which modulation method is used in binary phase shift keying applications?
    - **Answer:** Phase Modulation
- **Question:** What is the expansion of AFC?
    - **Answer:** Automatic Frequency Control
- **Question:** What is the range of frequency for FM broadcasting?
    - **Answer:** 88 MHz to 108 MHz
- **Question:** Which amplifier is first matches the output impedance of the carrier oscillator with the input impedance?
    - **Answer:** Buffer amplifier
- **Question:** Which type of antenna is used for point-to-point communication of radio waves?
    - **Answer:** Parabolic antenna
- **Question:** Why the modulation index is kept within limits in amplitude modulated signal transmission?
    - **Answer:** Reduce distortion
- **Question:** What is the effect of increasing the modulation depth to 100% in Amplitude modulation process?
    - **Answer:** Over modulation
- **Question:** How the image frequency is prevented in radio receiver circuits?
    - **Answer:** Highly selective RF amplifier
- **Question:** How the over modulation of carrier signal is prevented by the broadcast station?
    - **Answer:** Limiter circuits provided
- **Question:** What is the effect on the AM transmitter output if the modulation index value exceeds unity?
    - **Answer:** Produces erroneous distortion

Module 7: Microcontroller (8051)

- **Question:** Which pin is marked as the master reset (RST) function in microcontroller IC 8051?
    - **Answer:** Pin No 9
- **Question:** What is the name of device marked 'X'?
    - **Answer:** Microcontroller
- **Question:** Which circuits uses microcontroller?
    - **Answer:** Embedded system
- **Question:** Which is developed to overcome the drawback of the microprocessor?

    - **Answer:** Microcontroller
- **Question:** Expand the abbreviation CISC used in microcontroller?
    - **Answer:** Complex Instruction Set Computer
- **Question:** Which electronic component is connected in pin number 18 and 19 of the IC 8051 microcontroller?
    - **Answer:** Crystal
- **Question:** How many bits are numbered from OOH to 7FH for general-purpose addressable locations in 8051 microcontroller?
    - **Answer:** 128 bits
- **Question:** Which instruction set, the accumulator specific instructions are grouped?
    - **Answer:** Arithmetic
- **Question:** How many instructions available in the microcontroller family instruction set?
    - **Answer:** 111
- **Question:** How the logic operations performed by the MCS 51 family microcontroller?
    - **Answer:** Bits and Byte operands
- **Question:** What is the Vcc supply pin number for the microcontroller IC 8051?
    - **Answer:** 40
- **Question:** What is the use of microcontroller?
    - **Answer:** Automatically controlled devices
- **Question:** What is produced by the DC motor, interfaced with 8051 microcontroller?
    - **Answer:** Torque
- **Question:** What is the bit length of upcounting timers in 8051 microcontroller?
    - **Answer:** 16 Bits
- **Question:** What is the name of the section that counts a predefined number of processor clock pulses, to generate a programmable delay?
    - **Answer:** Timer
- **Question:** Which section in IC 8051 is running on external clock source?
    - **Answer:** Counter
- **Question:** What is the maximum delay possible using a single 8051-microcontroller timer running at 12 MHz frequency?
    - **Answer:** 65536 μs
- **Question:** Which is the timer input frequency for the 8051 microcontroller running at 12 MHz?
    - **Answer:** 1 MHz
- **Question:** What is the purpose of using divide by 12 network in 8051 microcontroller oscillator output to feed the timer?
    - **Answer:** Special function register
- **Question:** How the longer delays in basic program using timer in 8051 microcontroller is implemented?
    - **Answer:** Looping number of times
- **Question:** What is the minimum delay possible using a single 8051 microcontroller timer running at 12 MHz frequency?
    - **Answer:** 1 μs
- **Question:** Which chip is versatile to use from simple consumer electronics to high-end applications?
    - **Answer:** Microcontrollers
- **Question:** What is the full form of the abbreviation SFR used in microcontroller?
    - **Answer:** Special Function Register

- **Question:** Which lens is fitted on the yellow light to produce green light in the traffic light control interfaced with the 8051 microcontroller?
    - **Answer:** Blue lens
- **Question:** Which device protects the microcontroller from high current drawn by DC motor circuit interfaced with it?
    - **Answer:** Opto isolator

Module 8: Sensors, Transducers and Application

- **Question:** What is the name of the device?
    - **Answer:** Strain gauge
- **Question:** What is the name of device used to convert a physical quantity into its corresponding electrical signal?
    - **Answer:** Transducer
- **Question:** What is the full form of the abbreviation RTD used as a sensor?
    - **Answer:** Resistance Temperature Detector
- **Question:** What is the maximum temperature of platinum RTD device?
    - **Answer:** 650°C
- **Question:** What is the range of temperature measurement using thermocouples?
    - **Answer:** 270° to 3000°C
- **Question:** Which sensor detect the presence of objects without any physical contact?
    - **Answer:** Proximity sensor
- **Question:** Which device is used to convert force into electrical signal?
    - **Answer:** Load cell
- **Question:** Which sensor is suitable for process temperature measurement of steel?
    - **Answer:** Thermocouple
- **Question:** Which test is conducted through the circuit diagram?
    - **Answer:** Light level control test
- **Question:** What is the use of resistance hygrometer?
    - **Answer:** To measure humidity
- **Question:** What is the application of strain gauge?
    - **Answer:** Compression and tension measurement
- **Question:** What is the application of LVDT?
    - **Answer:** To measure displacement
- **Question:** Which is functioning as the active type transducer?
    - **Answer:** Thermocouple
- **Question:** Which working principle is used in the proximity sensor?
    - **Answer:** Electromagnetic field
- **Question:** What is the application of thermistor in sensing circuit?
    - **Answer:** To measure temperature
- **Question:** Which signal is used by the passive transducer to produce output signal?
    - **Answer:** Excitation signal
- **Question:** Which type of sensor gives quick and precise measurements?
    - **Answer:** Electrical strain gauge
- **Question:** Which type of strain gauge is the most sensitive and reliable?
    - **Answer:** Electrical resistance
- **Question:** Which measurement is carried out by this test?
    - **Answer:** Strain measurement
- **Question:** What is the function of resistance strain gauge?
    - **Answer:** Measurement of torque

- **Question:** Which component is used as the transducer in the measurement of displacement?
  - **Answer:** Inductor
- **Question:** What is the use of load cell?
  - **Answer:** Converts force into electrical signal
- **Question:** How the increase in temperature affects the resistance value of the positive temperature coefficient (PTC) component?
  - **Answer:** Resistance value increases

Semester 4

Module 1: Fiber Optical Communication

- **Question:** What is the standard range of optical fiber cable diameter in mm?
  - **Answer:** 0.25 mm to 0.5 mm
- **Question:** What is the full form of the abbreviation PPM?
  - **Answer:** Pulse Position Modulation
- **Question:** What is the wavelength of visible light spectrum?
  - **Answer:** 380 to 750 nano meter
- **Question:** What is the core diameter size of single mode optical fiber?
  - **Answer:** $3.5\times10-4$ inches
- **Question:** What is the name of part marked X in the multi mode optical fiber cable?
  - **Answer:** Cladding
- **Question:** What is the full form of the abbreviation OTDR?
  - **Answer:** Optical Time Domain Reflectometer
- **Question:** Which colour is coated on the outer jacket of fiber optic cable to identify the single mode application?
  - **Answer:** Yellow
- **Question:** What is the frequency of sine wave signal taken from function generator to use OFC trainer kit?
  - **Answer:** 1 kHz
- **Question:** What is the name of the bouncing back effect of light rays from a shiny surface?
  - **Answer:** Reflection
- **Question:** Which parameter makes the fiber optic communication is the perfect choice for transmitting broad band signals?
  - **Answer:** Wider bandwidth
- **Question:** What is the refractive index of vacuum?
  - **Answer:** 1
- **Question:** What is the basis for the selection of LED or LASER diode as the light source in optical fiber communication?
  - **Answer:** Application
- **Question:** Which electronic device is used to convert the signal at receiving terminal of fiber optic communication channel?
  - **Answer:** Photo detector
- **Question:** Which light source is used to convert the electrical signal in the fiber optic communication?
  - **Answer:** Light emitting diode

- **Question:** Which method is used to transmit information by means of light pulses?
  - **Answer:** Fiber optic communication
- **Question:** What is the name of optical fiber cable part marked X?
  - **Answer:** Buffer jacket
- **Question:** Which type of optical fiber is used to carry telephone and television signals?
  - **Answer:** Single mode fiber
- **Question:** Which equipment is necessary for the optical fiber cable servicing?
  - **Answer:** Fusion splicer
- **Question:** Which mode the signal wave travels through the optical fiber?
  - **Answer:** Transverse mode
- **Question:** Which optical fibre is best suited for local area network applications?
  - **Answer:** Graded index fiber
- **Question:** What type of joining technique is used for fiber optic cables?
  - **Answer:** Fusion techniques
- **Question:** Which circuit is used for the wave guide dispersion?
  - **Answer:** Optical fiber circuit
- **Question:** Which device is used as the light source for long distance and high data rate applications in fiber optic communication?
  - **Answer:** Laser diode
- **Question:** Which device is used as the light source for short distance and low data rate applications in fiber optic communication?
  - **Answer:** Light emitting diode
- **Question:** Which technology has replaced the copper wire in the core communication networks?
  - **Answer:** Optical fiber communication
- **Question:** What is the effect on the angle of incidence of light is made greater than the critical angle?
  - **Answer:** Reflection occurs
- **Question:** What is the name of the loss occurring due to the bend of finite radius in the optical fiber cable?
  - **Answer:** Radiative loss
- **Question:** Which loss is related to the fiber material used for optical communication?
  - **Answer:** Absorption

Module 2: Digital Panel Meter

- **Question:** What is the count range of 3 digit DPM?
  - **Answer:** 0-999
- **Question:** What is the name of the digital electronic device marked x?
  - **Answer:** Multiplexer
- **Question:** How many input lines are available in BCD to 7 segment decoder IC?
  - **Answer:** Four
- **Question:** Which type of seven segment display all the 8 anodes are left free?
  - **Answer:** Common cathode type
- **Question:** How the scaling down of the input is arranged in the Digital Panel Meter?
  - **Answer:** Voltage divider used
- **Question:** What is the function of the block marked X in data selector circuit?
  - **Answer:** Demultiplexer

- **Question:** Which signal format is used in Digital Panel Meter to display the input information?
    - **Answer:** Numeric format
- **Question:** What is the function of the 7 segment LED display system part marked X?
    - **Answer:** Driver
- **Question:** Which IC is used on the BCD to 7 segment decoder in the display circuit?
    - **Answer:** IC 7107
- **Question:** What is the function of transistor in the seven segment display circuit?
    - **Answer:** Amplify input current
- **Question:** Which circuit is used in Digital Panel Meters to accomplish scaling down the input?
    - **Answer:** Voltage divider
- **Question:** Which device converts one type of digital format into another digital format?
    - **Answer:** Display decoder
- **Question:** How the sliding of the text is moved vertically on the desktop computer monitor display?
    - **Answer:** Scrolling wheel in the mouse
- **Question:** Which stage provides the required current to display the LED type seven segment display device ?
    - **Answer:** Driver
- **Question:** How the pin number of seven segment display device is marked?
    - **Answer:** Alphabets
- **Question:** Which combination of segments are switched ON to display the digit 6 by the seven segment display?
    - **Answer:** a, c, d, e, f and g
- **Question:** How the seven segment display glows to display the decimal numbers 0 to 9?
    - **Answer:** Forward biasing of segments
- **Question:** What is the function of the resistor connected in the Digital Panel Meter circuit?
    - **Answer:** Current limiting resistor
- **Question:** What is the battery voltage rating of Digital Panel Meter marked X?
    - **Answer:** 9 VDC
- **Question:** Which IC is used in the LCD digital panel meter?
    - **Answer:** ICL 7106
- **Question:** Which type of seven segment display anodes of all the segments are connected together?
    - **Answer:** Common Anode type
- **Question:** What is the voltage drop across the shunt resistor for full scale range in 0 to -1A Digital Panel Meter?
    - **Answer:** 200 millivolt
- **Question:** What is the required current to glow the LED in each segment of seven segement display device?
    - **Answer:** 20 mA
- **Question:** Which IC is used to convert 4 bit binary coded decimal into 8 bit seven segment data ?
    - **Answer:** IC 7448
- **Question:** Which mode is selected for operation to enable the read/write pin of LCD module kept at high level?

    - **Answer:** Read mode
- **Question:** Which connection makes the individual segment in a common anode type 7 segment display illuminated?
    - **Answer:** Connect to logic zero
- **Question:** Which meter measures all input voltages scaled down in descrete steps to match the full count range?
    - **Answer:** Digital panel meter
- **Question:** How many output lines are available in BCD to 7 segment decoder IC?
    - **Answer:** Eight
- **Question:** What causes the change in light angle passing through the molecules of liquid crystal display?
    - **Answer:** Electric current

Module 3: SMPS and Inverter

- **Question:** What is the working principle of constant voltage transformer (CVT)?
    - **Answer:** Ferro resonance
- **Question:** Which type of circuit function is used in the SMPS?
    - **Answer:** Forward converter
- **Question:** Which mode of operation, the transformer is connected?
    - **Answer:** Boost operation mode
- **Question:** Which part of the computer is connected by the 20/24 ATX connector from the SMPS unit?
    - **Answer:** Mother board
- **Question:** Which type of voltage stabilizer is in the block diagram?
    - **Answer:** Automatic control type
- **Question:** What is the name of the forward converter type SMPS?
    - **Answer:** DC to DC buck converter
- **Question:** Which electric component maintains constant output voltage in the power supply section marked X?
    - **Answer:** Zener diode
- **Question:** What is the name of the static device that converts fixed DC input voltage into variable DC output?
    - **Answer:** DC chopper
- **Question:** What is the output pin number of switching regulator IC LM 2576?
    - **Answer:** Pin No.2
- **Question:** What is the operating frequency of linear power supply?
    - **Answer:** 50 Hz to 60 Hz
- **Question:** What is the working voltage range of input AC supply specified for SMPS?
    - **Answer:** 90 VAC to 270 VAC
- **Question:** What is the full form of the abbreviation CVT?
    - **Answer:** Constant Voltage Transformer
- **Question:** Which type of transformer is used in the DC to AC converter?
    - **Answer:** Step up transformer
- **Question:** What is the type of converter?
    - **Answer:** Fly back converter
- **Question:** What is the frequency range of switching circuit in SMPS?
    - **Answer:** 15 kHz to 1 MHz

- **Question:** Which IC is used in the Pulse Width Modulation circuit of computer SMPS?
  - **Answer:** TL 494
- **Question:** What is the efficiency of linear power supply?
  - **Answer:** 30%-40%
- **Question:** Which power device is used for switching purpose in computer SMPS?
  - **Answer:** MOSFET
- **Question:** What is the name of servo voltage stabilizer part marked X?
  - **Answer:** Toroidal auto transformer
- **Question:** Which type of operation is performed by the circuit?
  - **Answer:** Boost operation
- **Question:** Which mode of operation the transformer is connected?
  - **Answer:** Boost operation
- **Question:** What is the function of the transistor marked 'X' in the buck converter circuit?
  - **Answer:** Switching
- **Question:** What is the function of electronic circuit part marked X?
  - **Answer:** Buck boost transformer
- **Question:** What type of transformer is used in automatic voltage stabilizer?
  - **Answer:** Auto transformer
- **Question:** What is the function of series regulator IC 2576 pin No4?
  - **Answer:** Feed back
- **Question:** What is the function of the circuit?
  - **Answer:** Servo voltage stabilizer
- **Question:** Which type of connector is used to supply power from SMPS to the computer mother board?
  - **Answer:** 20/24 Molex connector
- **Question:** Which circuit is used in SMPS for voltage regulation?
  - **Answer:** Switching
- **Question:** What is the switching frequency of SMPS used in computer?
  - **Answer:** 15 kHz
- **Question:** What is the resultant output voltage of the circuit?
  - **Answer:** Adjustable output
- **Question:** Which circuit is provided in control section of SMPS to drive the power switching transistor?
  - **Answer:** Pulse width modulator circuit
- **Question:** Which type of core is used in the SMPS transformer?
  - **Answer:** Ferrite ceramic core
- **Question:** What is the function of opto-coupler in SMPS circuit?
  - **Answer:** Isolate the output section
- **Question:** Which transformer has common winding for both primary and secondary?
  - **Answer:** Auto transformer
- **Question:** What is the continuous speed adjustment of output voltage correction in servo voltage stabilizers?
  - **Answer:** 20 to 40V per second
- **Question:** Which section in SMPS adjust the duty cycle of switching to keep the output voltage constant?
  - **Answer:** Pulse width modulator controller
- **Question:** What is the purpose of the Metal Oxide Varistor connected across the AC supply terminals of SMPS?

- **Answer:** Prevent surge voltage

Module 4: UPS

- **Question:** What is the full form of the abbreviation UPS?
  - **Answer:** Uninterrupted Power Supply
- **Question:** What is the name of the OFF line UPS section marked X
  - **Answer:** Battery Charger
- **Question:** Which type of mounting method is used in battery installation?
  - **Answer:** Tier mounting
- **Question:** What is the type of UPS?
  - **Answer:** Line interactive UPS
- **Question:** What is the name of the electronic circuit?
  - **Answer:** Battery charger
- **Question:** What is the range of specific gravity of lead acid battery, under discharged condition?
  - **Answer:** 1.11 to 1.14
- **Question:** What is the full form of the abbreviation CVT?
  - **Answer:** Constant Voltage Transformer
- **Question:** What is the name of the instrument used for electrical insulation measurements?
  - **Answer:** Megger
- **Question:** Which IC is used in the battery charging circuit of ON-Line UPS?
  - **Answer:** LM 317
- **Question:** Which method of earth resistance measurement is experimented?
  - **Answer:** Three point method
- **Question:** What is the ambient temperature maintained to extend the life of UPS?
  - **Answer:** 15°C to 25° Celsius
- **Question:** How batteries are rated?
  - **Answer:** Ampere hour
- **Question:** Which technique is achieved by switching of the choppers in battery charging circuit?
  - **Answer:** Constant current
- **Question:** What is the function of the circuit?
  - **Answer:** Overload protection
- **Question:** Which is equal to the ratio of the real power to the apparent power?
  - **Answer:** Power factor
- **Question:** Which type of battery mounting method is used for battery installation?
  - **Answer:** Shelf mounting
- **Question:** What is the specific gravity of electrolyte in the lead-acid battery with full charge?
  - **Answer:** 1.26 to 1.28
- **Question:** Which type of operation is done by the battery charger circuit?
  - **Answer:** Trickle charging
- **Question:** What is the function of preset R5 in the circuit?
  - **Answer:** Provides correct charging voltage for battery
- **Question:** Which test is conducted through the experiment?
  - **Answer:** Measure earth resistance
- **Question:** Which action causes damage to the battery?
  - **Answer:** Over charging

Module 5: Solar Power (Renewable Energy System)

- **Question:** Which type of conversion process takes place through the circuit?
  - **Answer:** Solar energy into electrical energy
- **Question:** Which material converts the light energy into electricity?
  - **Answer:** Solar cells
- **Question:** Which type of energy generation produces air pollution?
  - **Answer:** Conventional energy
- **Question:** What is the full form of the abbreviation TFSC?
  - **Answer:** Thin Film Solar Cell
- **Question:** Which PV cells are the most common in use for solar electric system?
  - **Answer:** Crystalline silicon PV cells
- **Question:** What is the name of the block marked X in the grid tied system?
  - **Answer:** Utility supply
- **Question:** What is the name of the SPV system?
  - **Answer:** Grid connected system
- **Question:** Which formula is used to find the size of PV module in Watt-peak (WP)?
  - **Answer:** Daily energy Consumption / (Insulation x Efficiency)
- **Question:** What is the name of the device marked x?
  - **Answer:** Charge controller
- **Question:** What is the full form of the abbreviation MPPT?
  - **Answer:** Maximum Power Point Tracking
- **Question:** What is the type of Solar Photo Voltaic (SPV) electric system?
  - **Answer:** Standalone system
- **Question:** What is the name of the solar electric system block marked X?
  - **Answer:** Array
- **Question:** Which energy is converted from sunlight by the photovoltaic material?
  - **Answer:** Electrical energy
- **Question:** What is the advantage of solar electric system?
  - **Answer:** Renewable energy source
- **Question:** What is the purpose of making hybrid solar panels from a mix of amorphous and mono crystalline cells?
  - **Answer:** Generate maximum efficiency
- **Question:** Which material is coated as a thin layer on the PV cells to reduce surface reflection?
  - **Answer:** Silicon monoxide
- **Question:** What is the standard test conditions for the sizing of PV module ?
  - **Answer:** 1000 watts per square meter
- **Question:** Which type of voltage is available across the output terminals of the circuit?
  - **Answer:** Regulated output
- **Question:** What is the drawback of off-gird system in solar electric power?
  - **Answer:** Lack of storage unit
- **Question:** Which system is designed to operate in parallel and interconnected with the electric utility grid?
  - **Answer:** Grid tied system
- **Question:** Which device limits the voltage and charging of battery in solar electric system?
  - **Answer:** Charge controller
- **Question:** What is the function of the block marked X in the grid connected system?

    - **Answer:** MPPT
- **Question:** What is the type of solar photovoltaic (SPV) electric system?
    - **Answer:** Hybrid system
- **Question:** What is the purpose of photovoltaic cell?
    - **Answer:** Generate voltage from sunlight
- **Question:** What is the function of the part marked X in the electric system?
    - **Answer:** Charge controller
- **Question:** What is the efficiency of monocrystalline?
    - **Answer:** High

Module 6: Cell Phones

- **Question:** What is the full form of the abbreviation IMEI?
    - **Answer:** International Mobile Equipment Identity
- **Question:** What is the full form of the abbreviation FDD?
    - **Answer:** Frequency Division Duplexing
- **Question:** What is the full form of the abbreviation EMS?
    - **Answer:** Enhanced Message Service
- **Question:** What is the full form of the abbreviation NSS used in GSM architecture?
    - **Answer:** Network Switching Subsystem
- **Question:** Which video format is used in Multimedia?
    - **Answer:** MPEG-1
- **Question:** What is the advantage of CDMA communication system?
    - **Answer:** Improved call quality
- **Question:** Which section converts the narrowband signal into wideband signal in CDMA mobile communication?
    - **Answer:** Spreader
- **Question:** Which method is used to reduce the effects of burst error in CDMA system?
    - **Answer:** Interleaving method
- **Question:** Which feature supports audio messages from callers in cell phone communication?
    - **Answer:** Voice mail
- **Question:** Which circuit uses frequency hopping technique?
    - **Answer:** Military
- **Question:** What is the purpose of encoder in CDMA system?
    - **Answer:** To build redundancy into the signal
- **Question:** Which system supports the maintenance of GSM network?
    - **Answer:** Operational support system
- **Question:** How the geographical area under one base station with a single transmitter and receiver is referred?
    - **Answer:** Cell
- **Question:** What is represented by the third group of codes in the IMEI number GG-000033-792410-8 used in cell phones?
    - **Answer:** Serial number
- **Question:** What is the full form of the abbreviation LTE used in mobile communication?
    - **Answer:** Long Term Evolution
- **Question:** What is the temperature setting in soldering station to service the water damaged mobile phone?

    - **Answer:** 250°C
- **Question:** Which lock prevents the operation of mobile phone by the user?
    - **Answer:** SIM lock
- **Question:** Which code is marked by the first two digit in the IMEI number of cellphone?
    - **Answer:** Country code
- **Question:** Which device is used to correct the corrupted software in cell phone?
    - **Answer:** Universal flash storage
- **Question:** What is the purpose of IMEI number in cell phone?
    - **Answer:** Identify the specific device
- **Question:** Which technology allows compatible devices to access data from the computer network?
    - **Answer:** Wireless fidelity
- **Question:** Which frequency band is licence free for bluetooth and Wi-Fi users?
    - **Answer:** 2.4 GHz
- **Question:** What is the name of one or more solar panels put together on a rack facing the sun in solar electric system?
    - **Answer:** Arrays
- **Question:** Which device is used to reload the mobile phone with the correct software for servicing?
    - **Answer:** Universal flash storage
- **Question:** Which wireless technology link is used for mobile phone data transfer?
    - **Answer:** Bluetooth
- **Question:** Which device safeguards from electrical shock in the event of short circuit?
    - **Answer:** Surge protector

Module 7: LED Lights

- **Question:** Which bulb changes the colour due to age and ambient temperature?
    - **Answer:** Fluorescent lamp
- **Question:** What is the range of power density of LED?
    - **Answer:** 300 W/cm2
- **Question:** What is the rate of light transmission of acrylic diffuser plate?
    - **Answer:** 0.92
- **Question:** Which IC is marked X in LED driver circuit?
    - **Answer:** LM 317
- **Question:** Which factor increase the performance of LED light?
    - **Answer:** Thermal management
- **Question:** What is the full form of the abbreviation COB?
    - **Answer:** Chip on Board
- **Question:** What is the name of the component marked X in the LED circuit?
    - **Answer:** Non polar capacitor
- **Question:** What is the range of current rating for LED?
    - **Answer:** 20mA to 30mA
- **Question:** What is the range of rated voltage for LED?
    - **Answer:** 1.6 to 4.2 VDC
- **Question:** Which semiconductor material is used to produce the blue colour LED?
    - **Answer:** Gallium nitride
- **Question:** What is the specification of LED light?

    - **Answer:** Power rating
- **Question:** Which function is performed by the transistor in the LED light circuit?
    - **Answer:** Driver
- **Question:** What is the function of the non-polar capacitor in the LED circuit?
    - **Answer:** Couples AC supply
- **Question:** Which circuit is used to supply rated low voltage DC and protect the LED light from fluctuations?
    - **Answer:** Driver circuit
- **Question:** What is the advantage of LED?
    - **Answer:** Low power consumption
- **Question:** What is the purpose of 82 Ω, resistors in the circuit?
    - **Answer:** Limiting the load current
- **Question:** How to improve the lifespan of high power LEDs?
    - **Answer:** Remove excess heat from light
- **Question:** What is the meaning of group of LEDS connected in the circuit?
    - **Answer:** Stacking
- **Question:** Which component operates at low temperature?
    - **Answer:** LED Light
- **Question:** What is the meaning of directional light source?
    - **Answer:** Emit light in a specific direction
- **Question:** Which colour light is emitted by the LED using gallium indium nitride with wavelength of 450 nanometer?
    - **Answer:** Blue
- **Question:** Which colour is produced by the semiconductor material Aluminium Gallium Phosphide (AlGaP) in LED?
    - **Answer:** Green
- **Question:** What is the value of series resistor (Rs) connected to limit the load current to 10mA?
    - **Answer:** 120 Ω
- **Question:** What is the switching speed of LED light to reach full brightness, compared to other light sources?
    - **Answer:** 100 times faster
- **Question:** What is the condition for glowing LED?
    - **Answer:** Forward biased
- **Question:** What is the efficiency level of incandescent lamp?
    - **Answer:** 0.05
- **Question:** What is the function of the NTC component used in the LED light control?
    - **Answer:** Limits surge current
- **Question:** How much power is consumed by a high power LED?
    - **Answer:** 350 milliwatt
- **Question:** Which electronic component is used to convert current into light, with forward biased condition?
    - **Answer:** LED
- **Question:** What is the name of the diode used in emergency light to prevent the reverse flow of battery charge?
    - **Answer:** Free wheeling diode

Module 8: LCD TV

- **Question:** What is the characteristic of transmitting antenna in TV broadcasting?

    - **Answer:** Radiates electromagnetic waves
- **Question:** What is the full form of the abbreviation PAL?
    - **Answer:** Phase Alternating Line
- **Question:** Which parameter is related to power loss in electronic circuit?
    - **Answer:** Attenuation
- **Question:** What is the full form of the abbreviation NTSC?
    - **Answer:** National Television System Committee
- **Question:** What is the name of LED monitor part marked X?
    - **Answer:** Crystal molecule
- **Question:** What is the full form of the abbreviation HPT?
    - **Answer:** High Power Transmitter
- **Question:** Which term is related to the information about hue and saturation of a colour?
    - **Answer:** Chrominance
- **Question:** What is the function of the block diagram?
    - **Answer:** B/W TV broadcasting system
- **Question:** What is the disadvantage of TN display?
    - **Answer:** Low quality colour reproduction
- **Question:** What is the bandwidth used for TV transmission in India?
    - **Answer:** 7 MHz
- **Question:** What is the range of frequencies covered under S-Band used for TV signal transmission?
    - **Answer:** 174 MHz to 230 MHz
- **Question:** Which signal is processed from R-Y and B-Y signals in colour TV receiver?
    - **Answer:** Chrominance signal
- **Question:** Which function is performed by the section marked X in the TV receiver?
    - **Answer:** Sync and scanning
- **Question:** What is the inter carrier signal in PAL system for TV transmission?
    - **Answer:** 5.5 MHz
- **Question:** What is the function of tuner in TV receiver?
    - **Answer:** Select the desired channel signal
- **Question:** What is the name of the dismantled LCD monitor display part marked X?
    - **Answer:** Polarised glass plates
- **Question:** What is the sub carrier frequency used in PAL standard for modulating colour difference signals?
    - **Answer:** 4.43 MHz
- **Question:** Which is represented by saturation in colour TV signal characteristics?
    - **Answer:** Purity of a colour
- **Question:** What is the function of the block marked X in the TV receiver?
    - **Answer:** Sound section
- **Question:** How many odd fields are scanned in one second by the vertical sweep circuit in TV receiver?
    - **Answer:** 25
- **Question:** Which transmission technique produces the waveform with lower side band suppressed for the carrier of TV signal?
    - **Answer:** Vestigial side band transmission
- **Question:** Which scanning method is used in TV receiver with 625 lines?
    - **Answer:** Interlaced scanning
- **Question:** What is included in chrominance signal?

    - **Answer:** Colour information
- **Question:** Which In- plane switching technology is used in LCD panels for improved contrast ratio?
    - **Answer:** Super TFT
- **Question:** What is the ratio of primary colours mixing to produce luminance (Y) signal?
    - **Answer:** 30%Red+59%Green+11% Blue
- **Question:** What is the bandwidth for SECAM system based on 625 lines?
    - **Answer:** 12 MHz
- **Question:** What is the full form of the abbreviation LPT?
    - **Answer:** Low Power Television
- **Question:** What is the bandwidth of PAL- D system of TV transmission?
    - **Answer:** 8 MHz
- **Question:** Which colour is produced by the additive mixing process of Red with Green in colour TV?
    - **Answer:** Yellow
- **Question:** How much service area is covered by a low power TV signal transmitter?
    - **Answer:** 10 KM radius

Module 9: LED TV

- **Question:** What is the input frequency range of the set-top box used for cable TV application?
    - **Answer:** 880 MHz to 2150 MHz
- **Question:** Which material is used as cathode in OLED?
    - **Answer:** Calcium
- **Question:** What is the limitation of OLED used in TV display?
    - **Answer:** Short life span
- **Question:** Which material is used as anode in OLED TV display?
    - **Answer:** Indium tin oxide
- **Question:** Which layer is negatively charged in OLED TV display?
    - **Answer:** Emissive layer
- **Question:** Which layer is positively charged in OLED TV display?
    - **Answer:** Conductive layer
- **Question:** What is the full form of the abbreviation HDMI?
    - **Answer:** High Definition Multimedia Interface
- **Question:** Which cable is used to connect LED TV and media device?
    - **Answer:** HDMI Cable
- **Question:** What is the name of the connector part marked X?
    - **Answer:** 15 pin VGA male connector
- **Question:** What is the name of the adapter used to interconnect a computer system?
    - **Answer:** DVI to VGA/D-sub adapter
- **Question:** How many bits are used for coding to generate 64 functions in the IR remote control system?
    - **Answer:** 6 bits
- **Question:** Why aluminium is used as lamp body?
    - **Answer:** Dissipate heat
- **Question:** Which microwave repeater station consists of large number of transponders and repeaters?
    - **Answer:** Satellite

- **Question:** What is the wavelength of Infra Red light rays produced by the IR LED?
  - **Answer:** 850 to 940 nanometer
- **Question:** What is the full form of the abbreviation OLED?
  - **Answer:** Organic Light Emitting Diode
- **Question:** What is the function of the circuit?
  - **Answer:** Infrared transmitter
- **Question:** What is the name of the block marked X in the infrared remote control receiver?
  - **Answer:** Regulator
- **Question:** Which principle is used in IR remote control?
  - **Answer:** Photoelectric effect
- **Question:** What is the name of the block diagram?
  - **Answer:** Set top box
- **Question:** Which type of flip flop is used in the Infrared remote control receiver circuit block marked X?
  - **Answer:** Bistable flip flop
- **Question:** Which type of connector is used for PCI express audio- video card in the computer?
  - **Answer:** 6 pin connector
- **Question:** What is the function of the block marked X in the remote control transmitter?
  - **Answer:** Oscillator
- **Question:** Which fault frequently occurs in the IR type remote control unit?
  - **Answer:** Corroded battery contact
- **Question:** Which section receives the signal from the dish antenna?
  - **Answer:** Low Noise Block

Here are the questions and their correct answers from the provided PDF, organized by unit:

ITI Question Bank (1st Year)

- **Question 1:** What are gases and liquid gases classified into?

  Answer: Class-C fire

<hr>

- **Question 2:** Which type of toe is used to protect the feet from crushing while shifting equipment?

  Answer: Steel toe caps

  <hr>

- **Question 3:** Which fire extinguisher is used to extinguish Class C type fire?

  Answer: Dry powder

  <hr>

- **Question 4:** What is the shape of mandatory signs?

  Answer: round

  <hr>

- **Question 5:** What materials are used to make instrument cabinets?

  Answer: metal sheet

  <hr>

- **Question 8:** What is the shape of the prohibition sign?

  Answer: round

  <hr>

- **Question 9:** Which step is followed to treat a person suffering from electric shock?

  Answer: Move the victim to a well ventilated area

  <hr>

- **Question 10:** Which angle is checked by try square?

  Answer: 900

  <hr>

- **Question 11:** What is the use of screw driver?

  Answer: tightening and loosening screws

  <hr>

- **Question 13:** Which tool is used to join taper type funnels?

  Answer: Blow Horn Steak

  <hr>

- **Question 14:** What is indicated by x in the operation of a saw?

  Answer: direction of pressure

  <hr>

- **Question 15:** What is the purpose of a wood rasp file?

Answer: preliminary rough work

<hr>

- **Question 17:** What causes electrical fire?

  Answer: Overloading

  <hr>

- **Question 18:** What is the meaning of information mark?

  Answer: First aid point

  <hr>

- **Question 19:** Which artificial respiration method should be avoided in a person with abdominal injury?

  Answer: Schaefer method

  <hr>

- **Question 20:** What is the cause of injuries while lifting weights?

  Answer: Wrong lifting technique

  <hr>

- **Question 21:** How is overlapping of excess sheet metal causing bulges at seams and edges prevented?

  Answer: Notch

  <hr>

- **Question 22:** What is the effect of electric shock at very low voltage level (less than 40v)?

  Answer: unpleasant tingling sensation

  <hr>

- **Question 23:** The electrical conductivity of gold is

  Answer: 67%

  <hr>

- **Question 24:** What is the unit of electric charge?

Answer: Coulomb

<hr>

- **Question 25:** Which material has eight electrons in the valence layer?

  Answer: Insulator

  <hr>

- **Question 26:** Which material is used as an electrical insulator?

  Answer: porcelain

  <hr>

- **Question 27:** Which electrical parameter opposes the flow of electrons?

  Answer: Resistance

  <hr>

- **Question 28:** Single strand wire is called?

  Answer: Hook up wire

  <hr>

- **Question 29:** What is the purpose of the cover provided over electrical conductors?

  Answer: Protection against the weather

  <hr>

- **Question 30:** Which core is used in intermediate frequency transformer?

  Answer: Ferrite

  <hr>

- **Question 31:** Which materials conduct electricity?

  Answer: Copper

  <hr>

- **Question 32:** How many electrons are there in a pair of electric charge?

  Answer: 6.25times1018 electrons

<hr>

- **Question 33:** What is the movement of electrons through a conductor in a particular direction called?

  Answer: electric current

  <hr>

- **Question 34:** Which metal has very good conductivity in electric current?

  Answer: silver

  <hr>

- **Question 35:** What is the size of standard wire gauge?

  Answer: Circular metal disk

  <hr>

- **Question 36:** Which formula is used to find conductivity?

  Answer: I/V

  <hr>

- **Question 37:** How does the insulation coating remain undamaged even when the wire is bent?

  Answer: due to the elastic properties of the insulation

  <hr>

- **Question 38:** What is the purpose of standard wire gauge?

  Answer: Measure the diameter of the wire

  <hr>

- **Question 39:** Which electrical parameter is measured by Megger?

  Answer: insulation resistance

  <hr>

- **Question 40:** Which energy is converted into electrical energy in hydroelectric stations?

  Answer: mechanical energy

<hr>

- **Question 41:** Which instrument is used to measure the size of wire?

  Answer: standard wire gauge

  <hr>

- **Question 42:** Which parameter of wire is directly proportional to current carrying capacity?

  Answer: Diameter of the conductor

  <hr>

- **Question 43:** What is the effect on current flow with increased diameter of conductor?

  Answer: allows higher current flow

  <hr>

- **Question 44:** What is the name of the pair of metal strips used in a battery cell?

  Answer: Electrode

  <hr>

- **Question 45:** Which electrolyte is used in lead acid batteries?

  Answer: Sulphuric acid

  <hr>

- **Question 47:** Which material is used for the negative terminal of alkaline manganese dioxide battery?

  Answer: Zinc

  <hr>

- **Question 48:** What is the rated voltage of a single cell in a lead acid battery?

  Answer: 2.2V

  <hr>

- **Question 49:** What is the range of current rating of lead acid batteries used in automobiles?

Answer: 100 to 400 Amps

<hr>

- **Question 50:** What is the colour of the positive electrode of a fully charged lead acid battery?

  Answer: reddish brown colour

  <hr>

- **Question 51:** What is the specific gravity of concentrated sulfuric acid?

  Answer: 1.835

  <hr>

- **Question 54:** What is the electrolyte level maintained above the top of the plates in a lead acid battery cell?

  Answer: 10mm to 15mm

  <hr>

- **Question 55:** What is the lowest voltage level for discharging a lead acid battery?

  Answer: 1.7V

  <hr>

- **Question 56:** What is the additional percentage of power provided by Lithium Ion compared to NiMH battery?

  Answer: 40%

  <hr>

- **Question 57:** Which battery is made from non-toxic materials?

  Answer: nickel metal hydride

  <hr>

- **Question 58:** Why load testing is done in lead acid batteries?

  Answer: measure the rated output voltage

  <hr>

- **Question 59:** What is the full form of PMMC?

Answer: Permanent Magnet Moving Coil meter

<hr>

- **Question 60:** What type of waveform is produced in a Schmitt trigger circuit?

  Answer: Square wave

  <hr>

- **Question 61:** Which band is used for UHF in the international telecommunication system?

  Answer: Band 9

  <hr>

- **Question 62:** Which parameter is measured by a multimeter?

  Answer: Voltage

  <hr>

- **Question 63:** Which torque is used in PMMC meter movement?

  Answer: medium torque

  <hr>

- **Question 64:** Which instrument is used to measure resistance, capacitance and inductance?

  Answer: LCR bridge

  <hr>

- **Question 65:** In which analog meter battery is provided?

  Answer: Ohm meter

  <hr>

- **Question 66:** Which meter uses a moving coil for measurement?

  Answer: PMMC meter

  <hr>

- **Question 67:** Which parameter is used in the working of moving coil meter?

Answer: permanent magnetic fields

<hr>

- **Question 68:** Which meter's movement is not affected by stray magnetic fields?

  Answer: PMMC meter

  <hr>

- **Question 69:** Which band of frequency is used for RADAR in the frequency spectrum allocated by the International Telecommunication Union?

  Answer: ITU band- 10

  <hr>

- **Question 70:** Which frame is used for winding the coil of PMMC meter?

  Answer: Aluminum frame

  <hr>

- **Question 71:** How is the sensitivity of a voltmeter determined?

  Answer: Ohm per volt rating

  <hr>

- **Question 72:** What is the name of the process undertaken to ensure reliable parameters of a measuring instrument?

  Answer: Calibration

  <hr>

- **Question 73:** How is the accuracy of amplitude and frequency measured by CRO checked?

  Answer: By built in calibration

  <hr>

- **Question 74:** Which material is used for soldering a joint?

  Answer: Flux

  <hr>

- **Question 75:** Which step is important in soldering a joint?

Answer: warming the joint

<hr>

- **Question 76:** What is the name of the tool?

  Answer: Plunger de-soldering tool

  <hr>

- **Question 77:** What is the name of soldering iron tip?

  Answer: Conical

  <hr>

- **Question 78:** What is the full form of the abbreviation SPDT used in switches?

  Answer: Single Pole Double Throw

  <hr>

- **Question 79:** When does rosin flux melt in the soldering process?

  Answer: when the solder is heated

  <hr>

- **Question 80:** What is the abbreviation of DPDT used in switches?

  Answer: Double Pole Double Throw

  <hr>

- **Question 81:** Which method is used for soldering large metal parts?

  Answer: brazing

  <hr>

- **Question 82:** How much time is required to make a quality solder joint using a soldering iron?

  Answer: 3-7 seconds

  <hr>

- **Question 83:** Which type of soldering is used for electronic circuits?

  Answer: soft soldering

<hr>

- **Question 84:** Which device works on the principle of air suction?

  Answer: Desoldering pump

  <hr>

- **Question 85:** Which soldering instrument has the facility of blowing hot air?

  Answer: soldering station

  <hr>

- **Question 86:** What is produced by the power supply in a soldering iron?

  Answer: heat

  <hr>

- **Question 87:** What is the name of the defect if the flux is unable to remove tarnish from a soldering joint?

  Answer: cold joint

  <hr>

- **Question 88:** Why is solvent Iso Propyl Alcohol used on solder joints?

  Answer: Remove residual flux and prevent corrosion

  <hr>

- **Question 89:** How are the oxide pearl layers removed before soldering activity is carried out?

  Answer: Use abrasive method

  <hr>

- **Question 90:** Why does plunger desoldering tool require periodic cleaning?

  Answer: To prevent clogging of the nozzle

  <hr>

- **Question 92:** How is power rating specified for a transformer?

  Answer: Volt ampere (VA)

<hr>

- **Question 93:** Which factor determines inductance?

  Answer: diameter of the coil

  <hr>

- **Question 94:** Which property of a capacitor stores electrical energy in an electrostatic field?

  Answer: Capacitive reactance

  <hr>

- **Question 95:** Which unit is used to measure capacitance value?

  Answer: Farad

  <hr>

- **Question 96:** What is the receiver?

  Answer: Tuning circuit

  <hr>

- **Question 97:** Which meter is used to find the accurate resistance value of resistors?

  Answer: Ohm meter

  <hr>

- **Question 98:** What is the result of hysteresis loss in magnetic materials?

  Answer: energy is lost

  <hr>

- **Question 99:** What is the value of Carbon Composition Register? ORANGE ORANGE RED SILVER

  Answer: 3300W

  <hr>

- **Question 100:** What is the purpose of trimmer capacitor?

  Answer: Fine tuning

<hr>

- **Question 101:** What is the purpose of vacuum contactors in electrical panels?

  Answer: fast switching

  <hr>

- **Question 102:** Why is the transformer core made in the form of thin strips?

  Answer: To reduce eddy current losses

  <hr>

- **Question 103:** Which part of the relay causes most trouble?

  Answer: relay contacts

  <hr>

- **Question 104:** Which type of ripple filter circuit is used for large load current requirements?

  Answer: Capacitor input filter

  <hr>

- **Question 105:** Which component filters out ripple in a rectifier circuit?

  Answer: Capacitor

  <hr>

- **Question 108:** What is the name of the circuit diagram?

  Answer: bridge rectifier

  <hr>

- **Question 109:** Which is the first step in troubleshooting an electronic circuit?

  Answer: Physical and sensory testing

  <hr>

- **Question 110:** Which diode is used in low power communication circuits?

  Answer: Signal diode

  <hr>

- **Question 111:** What is the process of adding impurities to a pure semiconductor?

  Answer: Doping

  <hr>

- **Question 112:** What is the regulated output voltage?

  Answer: 12 volts

  <hr>

- **Question 113:** Which impurity is added to make P-type semiconductor material?

  Answer: gallium

  <hr>

- **Question 114:** Which impurity is added to a pure semiconductor to form an N-type material?

  Answer: Arsenic

  <hr>

- **Question 115:** What is the name of the process of converting AC into DC voltage?

  Answer: Rectifying

  <hr>

- **Question 119:** What is the advantage of SMPS in computer?

  Answer: High efficiency

  <hr>

- **Question 120:** What is the full form of MOV in electronic components?

  Answer: Metal Oxide Varistor

  <hr>

- **Question 121:** Which port is used to connect HDD on the motherboard?

  Answer: IDE

  <hr>

- **Question 122:** What is the full form of the abbreviation LBA in computer systems?

Answer: Large block accessing

<hr>

- **Question 123:** What is the full form of the abbreviation CD-ROM in computers?

  Answer: Compact Disk Read Only Memory

  <hr>

- **Question 124:** Which component reads and executes commands from memory?

  Answer: Random Access Memory

  <hr>

- **Question 125:** Which code is stored in the computer ROM BIOS chip?

  Answer: Permanent code

  <hr>

- **Question 126:** Which mouse action is used to move an object from one place to another?

  Answer: Drag and Drop

  <hr>

- **Question 127:** Which section is used by the processor to save instructions?

  Answer: Memory

  <hr>

- **Question 128:** Which option opens a list of programs currently installed in the computer?

  Answer: all programs

  <hr>

- **Question 129:** In computer processing data, which table maintains the size of partitions?

  Answer: Partition table

  <hr>

- **Question 130:** At what speed does the spindle motor rotate inside the hard disk?

Answer: 3600 to 7200 rpm

<hr>

- **Question 131:** Which metal coating is used on compact discs?

  Answer: Aluminium

  <hr>

- **Question 132:** Where are programs and data stored after execution in a computer?

  Answer: Memory

  <hr>

- **Question 133:** Which shortcut key function is used to close the working window on a computer?

  Answer: Alt+F4

  <hr>

- **Question 134:** Which device converts digital data from a computer into analog data and transmits it through a telephone line?

  Answer: Modem

  <hr>

- **Question 135:** Which component is used to resist AC supply voltage in SMPS?

  Answer: Metal Oxide Register

  <hr>

- **Question 136:** Which component is used to remove the heat generated inside SMPS?

  Answer: cooler fan

  <hr>

- **Question 137:** How many transistors are made inside a VLSI (Very Large Scale Integration) IC?

  Answer: 1000 and above

  <hr>

- **Question 138:** Which IC package contains 100 to 1000 transistors?

Answer: LSI

<hr>

- **Question 139:** Which is a 3 terminal, negative voltage regulator IC?

  Answer: IC 7905

  <hr>

- **Question 140:** Which three terminal voltage regulator IC has adjustable output?

  Answer: LM-317

ITI Question Bank (2nd Year)

- **Question 1:** What is the full form of the abbreviation DSO?

  Answer: Digital Storage Oscilloscope

<hr>

- **Question 2:** What type of wave form is available at pin number 2 of function generator IC 8038?

  Answer: sine wave

  <hr>

- **Question 3:** Which function produces a stationary wave displayed on the DSO screen?

  Answer: Auto set function

  <hr>

- **Question 4:** What is the purpose of sampling in DSO operation?

  Answer: convert analog signal to digital

  <hr>

- **Question 5:** How is the overall operation of the DSO controlled?

  Answer: by using a microprocessor

  <hr>

- **Question 6:** Which function is performed by the sample/hold circuit with ADC in a digital storage oscilloscope?

  Answer: Data acquisition

  <hr>

- **Question 7:** What is the name of the circuit built with IC 8038?

  Answer: function generator

  <hr>

- **Question 12:** Which circuit is used in a DSO to convert the input sampled voltage into digital information?

  Answer: Analog to digital converter circuit

  <hr>

- **Question 13:** What type of waveform is available at pin number 9 of the function generator IC 8038?

  Answer: Square wave

  <hr>

- **Question 14:** What is the type of SMD IC package?

  Answer: LCC

  <hr>

- **Question 17:** What is the power rating of soldering irons used in electrical and electronics work?

  Answer: 15 to 35 watts

  <hr>

- **Question 18:** What is the full form of PGA used in SMD IC package?

  Answer: Pin Grid Array

  <hr>

- **Question 19:** Which type of hot air pencil tip is used in SMD soldering?

  Answer: Angle type

<hr>

- **Question 21:** Which method is effective for controlling ESD during manufacturing of devices?

  Answer: Use ESD wrist strap

  <hr>

- **Question 22:** Which technique is used to place components directly on printed circuit boards?

  Answer: Surface mount technology

  <hr>

- **Question 23:** What is the name of the device?

  Answer: SMD workstation

  <hr>

- **Question 24:** What is the name of SMD device?

  Answer: Heated Tweezers

  <hr>

- **Question 25:** What is the alternative to ceramic SMD IC package?

  Answer: Plastic packages

  <hr>

- **Question 26:** What is the purpose of the bumper corners of a bumper quad flat pack?

  Answer: Protecting the IC leads

  <hr>

- **Question 27:** What is the full form of the abbreviation SOIC?

  Answer: Small outline integrated circuits

  <hr>

- **Question 28:** What is the full form of the abbreviation SMT?

  Answer: Surface mount technology

<hr>

- **Question 29:** What is the use of bench top loners?

  Answer: To control ESD in the working environment

  <hr>

- **Question 30:** What is tinning in soldering?

  Answer: Melt some flux on the tip of the iron

  <hr>

- **Question 31:** What is the name of the fault caused by an ESD event?

  Answer: Latent defect

  <hr>

- **Question 32:** How to reduce the cause of ESD during manufacturing of devices?

  Answer: By using ESD controlled footwear

  <hr>

- **Question 33:** What is the cause of voiding in SMT?

  Answer: Impaired joint strength

  <hr>

- **Question 34:** What is the composition of solder paste for reflow soldering process?

  Answer: Powdered solder and flux

  <hr>

- **Question 35:** Which conformal coating material is used as a two part thermosetting mixture?

  Answer: Epoxy resin

  <hr>

- **Question 36:** Which material is used to make drill bits for drilling PCB holes?

  Answer: Solid coated tungsten carbide

  <hr>

- **Question 37:** What is the pad width size for soldering resistors, capacitors and diodes on a PCB?

  Answer: 70 Thou

  <hr>

- **Question 38:** Which color of solder mask is used on PCB?

  Answer: Green

  <hr>

- **Question 39:** What is the size of the pads for soldering Dual In Line (DIL) components on a PCB?

  Answer: oval

  <hr>

- **Question 40:** Which method of conformal coating is used to coat epoxy on PCB?

  Answer: Micro blasting

  <hr>

- **Question 41:** Which conformal coating is easy to apply and remove with low moisture absorption?

  Answer: Acrylic resin

  <hr>

- **Question 42:** Which protective chemical coating is applied on PCB?

  Answer: Polymer film coating

  <hr>

- **Question 43:** What is the last zone on reflow soldering?

  Answer: Cooling zone

  <hr>

- **Question 44:** What is the second step in the reflow soldering process?

  Answer: thermal soak zone

  <hr>

- **Question 45:** Which zone is the longest in reflow soldering process?

  Answer: preheat zone

  <hr>

- **Question 46:** What is the ramp up rate of temperature in the preheat zone in reflow soldering process?

  Answer: 1circC to 3circC/sec

  <hr>

- **Question 47:** What is the common method for attaching components to a printed circuit board?

  Answer: Reflow soldering

  <hr>

- **Question 48:** What is the purpose of solder mask on a PCB?

  Answer: To prevent solder bridges

  <hr>

- **Question 49:** How is the solder mask on a PCB removed for replacement of components?

  Answer: Photolithography

  <hr>

- **Question 50:** What is the range of peak temperatures reached in the reflow zone of the reflow soldering process?

  Answer: 20circC to 40circC

  <hr>

- **Question 51:** How is the fine grain structure of soldered joint achieved using soldering process?

  Answer: faster cooling rate

  <hr>

- **Question 52:** What is the typical temperature range of the cooling zone in the process of applying flow soldering?

Answer: 30circC to 100circC

<hr>

- **Question 53:** Which manufacturing technique is used for the assembly of circuit boards?

  Answer: Microchip fabrication

  <hr>

- **Question 54:** What is the name of the technique used to mount components on multilayer PCBs?

  Answer: Plated through holes

  <hr>

- **Question 55:** Which type of coating process is used to apply per-xylene as conformal coating on PCB?

  Answer: Chemical vapour deposition

  <hr>

- **Question 56:** What is the effect on solder paste when the ramp-up rate exceeds the maximum slope in the preheat zone?

  Answer: spattering effect

  <hr>

- **Question 57:** The maximum allowable temperature of the reflow soldering process is reached in which region?

  Answer: Reflow

  <hr>

- **Question 58:** What is the cooling rate for the reflow soldering process?

  Answer: 4°C/second

  <hr>

- **Question 59:** What is the reason, lack of flux cleaning action leads to poor wetting and defective solder joint in reflow soldering process?

  Answer: Insufficient time/temperature

<hr>

- **Question 63:** What is the name of the part marked as x in MCB?

  Answer: solenoid

  <hr>

- **Question 64:** What is the name of the relay used in electrical circuit?

  Answer: dry reed relay

  <hr>

- **Question 65:** What is the current rating of tinned copper wire 40 SWG used for reusable fuse?

  Answer: 1.5A

  <hr>

- **Question 66:** What is the name of the cartridge fuse part marked x?

  Answer: Brake indicator

  <hr>

- **Question 69:** Which series MCB is used for motor protection?

  Answer: 'G' series MCBs

  <hr>

- **Question 70:** What is the breaking capacity of a DC series MCB?

  Answer: 6kA

  <hr>

- **Question 71:** What is the maximum voltage rating for DC series MCB?

  Answer: 220VDC

  <hr>

- **Question 72:** What is the maximum current rating for a 4 pole MCB?

  Answer: 60A

  <hr>

- **Question 73:** What is the fusing factor of a reusable fuse selected for overcurrent protection in a circuit?

  Answer: 1.4

  <hr>

- **Question 74:** What is the name of the current interrupted by a circuit breaker?

  Answer: Prospective fault current

  <hr>

- **Question 75:** Which relay has contact arrangement to break, make or shift the contact connection?

  Answer: clamper type armature relay

  <hr>

- **Question 76:** Which relay works when the current in the coil reaches the upper limit?

  Answer: current sensing relay

  <hr>

- **Question 77:** Which device is used in electrical installations to avoid electric shock?

  Answer: ELCB

  <hr>

- **Question 78:** Which type of relay is used in voltage stabilizer?

  Answer: voltage sensing relay

  <hr>

- **Question 79:** What is the name of the device?

  Answer: Contactor

  <hr>

- **Question 80:** If an ELCB has a rated tripping current of 10 mA, what will be the maximum earth fault loop impedance?

  Answer: 1666 Ω

  <hr>

- **Question 81:** What is the fusing current for a rewireable fuse?

  Answer: 1.4 to 1.7

  <hr>

- **Question 82:** Which parameter opens the fuse element under fault without damaging the load?

  Answer: Rupture capacity

  <hr>

- **Question 83:** Which relay is used for time delay purpose?

  Answer: thermal relay

  <hr>

- **Question 84:** Which relay is operating with very low power?

  Answer: reed relay

  <hr>

- **Question 85:** What is the current rating of cartridge fuse with brown colour code?

  Answer: 4A

  <hr>

- **Question 86:** What is the time taken by overload relay to open the motor contacts at 500 percent of full load current?

  Answer: 10 seconds

  <hr>

- **Question 87:** Which device opens and closes the auxiliary circuit?

  Answer: Relay

  <hr>

- **Question 88:** What is the current rating of copper colour fuse cartridge?

  Answer: 63 amperes

  <hr>

- **Question 89:** Which function is performed by an isolator in an electrical circuit?

  Answer: as a switch

  <hr>

- **Question 92:** What is the reason for starting the motor with chattering noise?

  Answer: Dust between contacts in electromagnet

  <hr>

- **Question 93:** Which formula is used to find the fusing factor?

  Answer: Minimum fusing current/Rated current

  <hr>

- **Question 96:** What is the reason for failure of the contactor due to overheating of the no-volt coil?

  Answer: high incoming supply

  <hr>

- **Question 97:** Which single phase induction motor is rated for 1HP or more?

  Answer: fractional horse power motor

  <hr>

- **Question 98:** What is the name of the centrifugal switch part marked x?

  Answer: Governor

  <hr>

- **Question 99:** What is the name of the curve of torque speed characteristics of the motor?

  Answer: split phase motor

  <hr>

- **Question 103:** How is the centrifugal switch connected in capacitor start induction run motor?

  Answer: in series with the starting winding

  <hr>

- **Question 104:** What is the starting torque of class-C type squirrel cage motor at rated speed?

  Answer: 2

  <hr>

- **Question 105:** What is the purpose of capacitor used in single phase motor?

  Answer: to split the phase

  <hr>

- **Question 107:** What is the name of the permanent winding?

  Answer: auxiliary winding

  <hr>

- **Question 109:** What is determined by the way the main winding and auxiliary winding are connected in a split-phase motor?

  Answer: direction of rotation

  <hr>

- **Question 110:** Why are the main and starting windings of a split-phase motor connected to the supply at the time of starting?

  Answer: produce rotating magnetic field

Digital Storage Oscilloscope (DSO)

- **Q: What is the full form of the abbreviation DSO?**
  - **A:** Digital Storage oscilloscope
- **Q: Which function creates a stable waveform displayed on the DSO screen?**
  - **A:** Auto set function
- **Q: What is the purpose of sampling in DSO operation?**
  - **A:** Convert analog signal to digital
- **Q: How is the overall operation of a DSO controlled?**
  - **A:** Using a microprocessor
- **Q: What function is performed by the Sample/Hold circuit along with the ADC in a Digital Storage Oscilloscope?**
  - **A:** Data acquisition
- **Q: What is the name of the factory setup that is done for a Digital Storage Oscilloscope?**
  - **A:** Default setup
- **Q: Which part of the DSO stores the processed data of the input signal voltage?**
  - **A:** Memory
- **Q: What is the name of the waveform displayed on the DSO screen?**

    - **A:** Ringing waveform
- **Q: Which circuit is used in a DSO to convert the input sample voltage into digital information?**
    - **A:** Analog to Digital converter circuit

Function Generator (IC 8038)

- **Q: What type of waveform is available on pin number 2 of function generator IC 8038?**
    - **A:** Sine wave
- **Q: What is the name of the circuit built with IC 8038?**
    - **A:** Function generator
- **Q: What type of waveform is available on pin number 3 of the IC 8038 function generator?**
    - **A:** Triangle wave
- **Q: What type of waveform is available on pin number 9 of function generator IC 8038?**
    - **A:** Square wave

Surface Mount Devices (SMD) and Soldering

- **Q: What is the type of SMD IC package shown in the image?**
    - **A:** PGA pack
- **Q: What is the type of SMD IC package shown in the image?**
    - **A:** LCC
- **Q: What is the power rating of a soldering iron used for electrical and electronics work?**
    - **A:** 15 to 35 watts
- **Q: What is the full name of PGA used in SMD IC packages?**
    - **A:** Pin Grid Array
- **Q: What is the range of temperature setting on a soldering work station for soldering SMD ICs?**
    - **A:** 250°C to 280°C
- **Q: Which method is effective for controlling ESD during the manufacturing of equipment?**
    - **A:** Use an ESD wrist strap
- **Q: Which technique is used for placing components directly on printed circuit boards?**
    - **A:** Surface Mount Technology
- **Q: What is the name of the device in the image?**
    - **A:** SMD Workstation
- **Q: What is the name of the SMD tool in the image?**
    - **A:** Heated Tweezers
- **Q: What is the alternative to a ceramic SMD IC package?**
    - **A:** Plastic package
- **Q: What is the purpose of the bumper corners of a Bumpered Quad Flat Pack?**

    - **A:** Protect IC leads
- **Q: What is the full form of the abbreviation SOIC?**
    - **A:** Small outline integrated circuits
- **Q: What is the full form of the abbreviation SMT?**
    - **A:** Surface mount technology
- **Q: What is tinning in soldering?**
    - **A:** Melt some flux on the iron tip
- **Q: What is the name of the defect caused by an ESD event?**
    - **A:** latent defect
- **Q: How to reduce the cause of ESD during equipment manufacturing?**
    - **A:** By using ESD controlled footwear
- **Q: What is the cause of voiding in SMT?**
    - **A:** Damaged joint strength

Printed Circuit Boards (PCB)

- **Q: What is the composition of solder paste for the reflow soldering process?**
    - **A:** Powdered solder and flux
- **Q: What material is used to make drill bits for PCB hole drilling?**
    - **A:** Solid coated tungsten carbide
- **Q: What is the pad width size for soldering resistors, capacitors, and diodes on a PCB?**
    - **A:** 70 Thou
- **Q: Which color of solder mask is used on PCBs?**
    - **A:** Green
- **Q: What is the shape of the pad for soldering Dual In-Line (DIL) components on a PCB?**
    - **A:** Oval
- **Q: Which method of conformal coating removal is used for epoxy coated on a PCB?**
    - **A:** Micro blasting
- **Q: Which protective chemical coating is applied on a PCB?**
    - **A:** Polymer film coating
- **Q: What is the final zone in reflow soldering?**
    - **A:** Cooling zone
- **Q: What is the second stage in the reflow soldering process?**
    - **A:** Thermal soak zone
- **Q: Which zone is the longest in the reflow soldering process?**
    - **A:** Preheat zone
- **Q: What is the ramp-up rate of temperature in the preheat zone in the reflow soldering process?**
    - **A:** 1°C to 3°C/sec
- **Q: What is the purpose of providing a solder mask on a PCB?**
    - **A:** To prevent solder bridges
- **Q: How is the solder mask removed from a PCB for component replacement?**
    - **A:** Photolithography
- **Q: What is the range of peak temperature reached in the reflow zone of the reflow soldering process?**

    - **A:** 20°C to 40°C
- **Q: How is a fine-grain structure of a solder joint achieved using the soldering process?**
    - **A:** Fast cooling rate
- **Q: What is the name of the technique used for mounting components on multilayer PCBs?**
    - **A:** Plated through hole
- **Q: What type of coating process is used to apply parylene as a conformal coating on PCBs?**
    - **A:** Chemical vapor deposition
- **Q: What is the effect on solder paste when the ramp-up rate exceeds the maximum slope in the reflow soldering process?**
    - **A:** Spattering effect
- **Q: In which zone does the reflow soldering process reach its maximum acceptable temperature?**
    - **A:** Reflow
- **Q: What is the cooling rate for the reflow soldering process?**
    - **A:** 4°C/second
- **Q: What is the reason that a reduction in flux cleaning action causes poor wetting and defective solder joints in the reflow soldering process?**
    - **A:** Insufficient time/temperature

Fuses, Relays, and Circuit Breakers

- **Q: What is the fusing factor of a reusable HRC fuse?**
    - **A:** 1.1
- **Q: What is the current rating of cartridge fuses used for domestic wiring?**
    - **A:** 1250 Ampere
- **Q: What is the current rating of reusable fuses used for domestic wiring?**
    - **A:** 200A
- **Q: What is the name of the part marked as X in the MCB?**
    - **A:** Solenoid
- **Q: What is the current rating of 40 SWG tinned copper wire used for a rewireable fuse?**
    - **A:** 1.5 A
- **Q: What is the full form of the abbreviation ELCB used in electrical circuits?**
    - **A:** Earth leakage circuit breakers
- **Q: What is the type of relay shown in the image?**
    - **A:** Impulse relay
- **Q: Which series of MCB is used for the protection of motors?**
    - **A:** 'G' series MCBs
- **Q: What is the breaking capacity of a DC series MCB?**
    - **A:** 6 kA
- **Q: What is the maximum voltage rating for a DC series MCB?**
    - **A:** 220 VDC
- **Q: What is the maximum current rating for a 4-pole MCB?**
    - **A:** 60 A

- **Q: What is the fusing factor of a rewireable fuse selected for overcurrent protection in a circuit?**
  - **A:** 1.4
- **Q: What is the name of the current interrupted by a circuit breaker?**
  - **A:** Prospective fault current
- **Q: Which relay has a contact arrangement to break, make or transfer contact combinations?**
  - **A:** Clapper type armature relay
- **Q: Which relay operates when the current in the coil reaches the upper limit?**
  - **A:** Current sensing relay
- **Q: Which device is used in electrical installations to protect from electric shock?**
  - **A:** ELCB
- **Q: What type of relay is used in a voltage stabilizer?**
  - **A:** Voltage sensing relay
- **Q: What is the name of the device shown in the image?**
  - **A:** Contactor
- **Q: If an ELCB has a rated tripping current of 10 mA, what will be the maximum earth fault loop impedance?**
  - **A:** 1666 Ω
- **Q: What is the fusing factor for a rewireable fuse?**
  - **A:** 1.4 to 1.7
- **Q: Which parameter opens the fuse element under a fault without damaging the load?**
  - **A:** Rupturing capacity
- **Q: Which relay is used for time delay purposes?**
  - **A:** Thermal relay
- **Q: What is the current rating of a cartridge fuse with a brown color code?**
  - **A:** 4A
- **Q: How much time is taken by an overload relay to open the motor contacts at 500 percent of full load current?**
  - **A:** 10 sec
- **Q: Which device opens and closes the auxiliary circuit?**
  - **A:** Relay
- **Q: What is the current rating of a copper color fuse cartridge?**
  - **A:** 63 ampere
- **Q: What function is performed by an isolator in an electrical circuit?**
  - **A:** As a switch
- **Q: What is the trip time to clear a short circuit in an MCB?**
  - **A:** 3 milli second
- **Q: Which formula is used to find the fusing factor?**
  - **A:** Minimum fusing current/Rated current
- **Q: Which factor is taken for the time taken by the fuse to interrupt the circuit in case of a fault?**
  - **A:** Cut off factor

Electric Motors

- **Q: What is the reason for the motor starting with a chattering noise?**

    - **A:** Dust between contacts in the electromagnet
- **Q: What is the name of the centrifugal switch part marked as X?**
    - **A:** Governor
- **Q: What is the cause of contactor failure due to the no-volt coil getting very hot?**
    - **A:** High incoming supply
- **Q: Which single phase induction motor is rated up to 1HP?**
    - **A:** Commutator motor
- **Q: What is the name of the curve of the torque-speed characteristics of the motor?**
    - **A:** Split phase motor
- **Q: Which motor is described by low rotor circuit resistance and reactance?**
    - **A:** Class - A
- **Q: What is the class of squirrel cage induction motor according to the starting characteristics shown?**
    - **A:** Class - B
- **Q: How much starting torque is obtained by a Class-D type squirrel cage motor?**
    - **A:** 3 times full load torque
- **Q: How is the centrifugal switch connected in a capacitor start induction run motor?**
    - **A:** In series with the starting winding
- **Q: What is the starting torque of a Class-C type squirrel cage motor?**
    - **A:** 2 times full load torque
- **Q: What is the purpose of the capacitor used in a single-phase motor?**
    - **A:** To split the phase
- **Q: Which motor is used for constant speed with high efficiency performance?**
    - **A:** Squirrel cage
- **Q: What test is being conducted in the circuit shown?**
    - **A:** Charge test on capacitor
- **Q: What is determined by the way the main winding and auxiliary winding are connected in a split-phase motor?**
    - **A:** Direction of rotation
- **Q: Why are the main and starting windings of a split-phase motor connected to the supply at the time of starting?**
    - **A:** To produce a rotating magnetic field
- **Q: At what percentage of synchronous speed is the starting winding opened by the centrifugal switch?**
    - **A:** 75 to 80%
- **Q: What force is used by a capacitor-start, induction-run motor to disconnect the starting winding?**
    - **A:** Centrifugal force
- **Q: What is the full load current of a 10HP, 3-phase, 415V squirrel cage motor?**
    - **A:** 15A
- **Q: Which test is being conducted through the circuit?**
    - **A:** Capacitance test on capacitor
- **Q: Which class of squirrel cage induction motor has normal starting torque and is used for general purpose?**
    - **A:** Class - B
- **Q: What is the synchronous speed of a 3-phase induction motor with 8 poles operating at 50 Hz?**
    - **A:** 750 rpm

- **Q: What is the result of changing the main winding terminals on a split-phase motor?**
  - **A:** Direction of rotation is reversed
- **Q: Why is a squirrel cage induction motor preferred for efficient performance?**
  - **A:** Constant speed

Cables, Connectors, and Communication

- **Q: What is the size of the thinnet type of coaxial cable used in network installations?**
  - **A:** 0.25 inch
- **Q: What is the data transmission speed of USB 3.0 for interfacing with a computer?**
  - **A:** 625 Mbps
- **Q: What is the full form of the abbreviation DVI?**
  - **A:** Digital visual interface
- **Q: What is the maximum data transfer speed of coaxial cable?**
  - **A:** 10 Mbps
- **Q: What is the full form of the abbreviation PTZ cable used in security cameras?**
  - **A:** Pan tilt zoom
- **Q: What is the name of the cable?**
  - **A:** PTZ combo cable
- **Q: For what purpose is a BNC connector with 75 ohm used?**
  - **A:** For a rooftop TV receiver

Miscellaneous Electronics

- **Q: What is the audible frequency range in communication?**
  - **A:** 20 Hz to 20 kHz
- **Q: Which color is produced by the process of mixing red with green in a color TV?**
  - **A:** Yellow
- **Q: How does a digital device work with input voltage samples?**
  - **A:** By converting it into a binary number
- **Q: Which semiconductor material is used to produce a blue colored LED?**
  - **A:** Silicon Carbide