Model Viva Questions for“Name **of the Lab: CAD**”

Common to: **VI Sem (ET&T)**

Title of the Practical1&2 :**Draw the Electronic Symbol & Electronic Components**

Q1.What is resistance?

A1 The resistance is the property of a material to oppose the flow of current in a material. its unit is ohm.

Q2. What are the materials used for resistor?

A2. The material used are maganin (alloy of copper magnese and nickel), constantan (alloy of nickel and copper).

Q3.What is inductance?

A3 It is the property of a material by virtue of which it opposes any change of magnitude and direction of current passing through the conductor.

Q4. What happens to voltage when current through the inductor is constant?

A4. The voltage across inductor is zero.

Q5. How will you define capacitance?

A5 It is the ability to store electric charge within it. Capacitance is a measure of charge per unit voltage that can be stored in an element.

Q6.What happens to voltage when current is zero across a capacitor?

A6 the voltage is constant across the capacitor.

Q7.When do we use 3 terminal resistors?

A7 It is used when resistance is less than 1 ohm.

Q8.what is the unit of charge and current?

A8. The units are coulomb and ampere.

Q9.What are the properties of a resistor?

A9. The properties are high resistivity, resistance to oxidation, corrosion and moisture.

Q10. What is Q factor?

A10 The Q factor is ratio of inductive reactance to resistance of a coil.

Q11. What are the materials used for inductance coil?

A11 the materials used are marble because it is unaffected by atmospheric conditions.

Q12.Which capacitor is preferred for high voltage and frequency?

A12 the vacuum and gas filled capacitor are used for high voltage and frequency applications.

Q13 What do you mean by a transformer?

A13: A static machine which transfers ac electrical power from one circuit to the other at same frequency by at different voltage level is called transformer.

Q14 What do you mean by Transformer on load condition?

A14: When a transformer is loaded the secondary ampere turn setup a field in opposite direction to the main field, then transformer is called in load condition.

Q15 What do you mean by an auto transformer?

A15: A transformer having only one winding, a part of which acts as a primary & the other as a secondary is called an auto transformer.

Q16What do you mean by a leakage flux of a transformer?

A16: A part of the flux produced by a winding which is not linking with the other is called leakage flux.

Q17 What do you mean by “turn ratio of a transformer”?

A17: The ratio of primary to secondary turns of a transformer is called Turn’s Ratio.

Q18 What do you mean by Transformation ratio of a transformer?

A19: The ratio of secondary voltage to primary voltage is called voltage transformation ratio of a transformer.

Q20 What do you mean by an ideal transformer?

Ans: An ideal transformer is one which has no ohmic resistance & no magnetic leakage flux i.e. all the flux produced in the core links with primary as well as secondary.

Title of the Practical 3: **Draw the Electrical and Electronic instruments**

Q1.How analog instruments are classified?

A1 The analog instruments are classified as electromechanical and electronic instruments.

Q2.Define recording instruments?

A2 The instrument give a continuous record of the quantity being measured over a specified time.

Q3.What are the operating forces acting in instrument?

A3 The operating forces are deflecting force, controllingand damping force.

Q4. Name the instruments using magnetic effect?

A4 Ammeter,voltmeter,wattmeter and integrating meter.

Q5.Which material is used formaking pointers?

A5 the aluminium strip is used for making pointer.

Q6.Define galvanometer?

A6 It is an instrument used for detecting presence of small current and voltages in a circuit.

Q7.Which material is used for making suspension?

A7 Gold and copper.

Q8.What is tuning?

A8 Tuning means adjustment of natural frequency of moving system so that it is equal to the frequency of current passsing through it.

Q9.What are the uses of PMMC meter?

A9 These are used to measure the dc voltage and current for low and medium impedance circuit.

Q10.What is megger?

A10The megger is used for measurement of high resistance.

Title of the Practical 4 : **Draw front panel layout diagrams of typical Dual Cathode Ray Oscilloscope**

Q1 What is the source for emission of electrons in CRO?

A1 The source of electron is barium and strontium oxide coated cathode.

Q2.Why aquadag is used in CRO?

A2 It is used to collect secondary electrons.

Q3. In a CRT where a focussing anode is located?

A3 It is placed between preaccelerating and accelerating anode.

Q4.What is the need of post acceleration?

A4 When frequency is more than 10 megahetz post acceleration is needed.

Q5. Define deflection sensitivity?

A5 the deflection sensitivity is defined as deflection of screen per unit deflection voltage.

Q6.Which material is used for making screen?

A6 Phosphor is used formaking screen.

Q7. What is the role of time base generator?

A7 the time base generator is used to display waveform that varies as function of time.

Q8. List the applications of CRO?

A8 the applications are measurement of voltage ,current,phase,frequency.

Q9. Which material is used for general purpose display in CRT?

A9 P1 phosphor.

Q10. What is deflection factor?

A10 The deflection factor is defined as reciprocal of sensitivity.It is ratio of deflection voltage per unit deflection.

Title of the Practical 5 **:** . **Draw block diagram of Monochrome TV receiver.**

Q1.List the primary colours?

A1 The primary colours are red,green and blue.

Q2 What is the theory for TV?

A2 Colour television is based on the theory of additive colour mixing, where all colours Including white can be created by mixing red, green, and blue lights.

Q3.What is the function of tuner circuit?

A3 The purpose of tuner circuit is to amplify sound and picture signals picked up by antenna and to convert the carrier frequency and their associated band into IF frequency.

Q4.Who invented color television?

A4 John Logie Baird (August 13, 1888 - June 14, 1946) Scottish engineer and inventor of the world's first working television system.

Q5.What is the essential feature of IF section?

A5 The main function of IF section is to amplify modulated IF signal over its bandwidth.

Q6.What is the function of AGC circuit?

A6 The AFC circuit employs a discriminator arrangement which compares the incoming horizontal sync pulses and the voltage that develops across output of horizontal deflection system.

Q7.Explain picture transmission?

A7. The picture information is optical in character and may be thought of as an assemblage of a large number of tiny areas representing picture details. These elementary areas into which picture details may be broken up are known as ‘picture elements’ or ‘pixels’, which when viewed together represent visual information of the scene. Thus, at any instant there are almost an infinite number of pieces of information that need to be picked up simultaneously for transmitting picture details. However, simultaneous pick-up is not practicable because it is not feasible to provide a separate signal path (channel) for the signal obtained from each picture element.

Q8.Briefly define TV receiver?

A8.The TV receiver has tuned circuits in its input section called ‘tuner’. It selects desired channel signal out of the many picked up by the antenna. The selected RF band is converted to a common fixed IF band for convenience of providing large amplification to it. The amplified IF signals are detected to obtain video (picture) and audio (sound) signals. The video signal after large amplification drives the picture tube to reconstruct the televised picture on the receiver screen. Similarly, the audio signal is amplified and fed to the loudspeaker to produce sound output associated with the scene.

Q9. What are the primary colours?
A9 Red (R), Green (G) and Blue (B) colours are called primary colours.

Q10. Explain need of synchronization?

A10 It is essential that the same co-ordinates be scanned at any instant both at the camera tube target plate and at the raster of picture tube, otherwise, the picture details would split and get distorted.

Title of the Practical 6 : **. Draw circuit diagram of Radio Receiver.**

Q1.Define radio receiver?

A1 The term radio receiver is understood in this article to mean any device which is intended to receive a radio signal and if need be to extract information from the signal.

Q2.Explain direct amplifying receiver?

A2 The directly amplifying receiver contains the input radio frequency filter, the radio frequency amplifier (amplifying radio signal of the tuned station), the detector and the sound frequency amplifier. This design is simple and reliable, but much less sensitive than the superheterodyne (described below).

Q3.What is the value of IF of receiver?

A3 The IF is commonly 455 kHz.

Q4.Define selectivity?

A4 The selectivity is the ability to distinguish between two adjacent carrier frequencies.

Q5.Define sensitivity?

A5 The ability of a receiver to detect the weakest possible signal is known as sensitivity.

Q6.What is image signal?

A6This is a signal whose frequency is above the LO by the same amount as the desired frequency is below the LO frequency.

Q7.Define threshold effect?

A7 The loss of message in an envelope detectoe due to presence of large noise is threshold effect.

Q8.Which receiver has best performance?

A8 Superheterodyne receiver.

Q9.List the components of crystal set receiver?

A9 A crystal set receiver consisting of an antenna, a variable inductor and a capacitor.

Q10.List disadvantages of crystal set receiver?

A10 Disadvantages

1.Insensitive, it needs a very strong RF signal to operate.

2.Poor selectivity, it often only has only one tuned circuit.

Title of the Practical 7: . Draw circuit diagram, PCB component layout diagram, and PCB artwork for Discrete eries Regulated Power Supply, using IC for +5 volts output.

Q1.Define schematic preparation?

A1 Schematic is a circuit that is drawn with help of software or manually on paper with standard symbol.

Q2.Define artwork?

A2 After making the schematic on paper same is duplicated on transparent acrylic plastic sheet.This circuit is called artwork.

Q3.List typesof PCB?

A3 Single board and double board PCB.

Q4.What is need of layout?

A4 This provide all the information about the board.

Q5.What are the requirements of etching process.

A5 It requires use of chemical, acid, resistant dishes and running water supply.

Q6.Name the solution used in etching?

A6 Ferric chloride solution.

Q7.Define tinning?

A7 Tinning is the process of making tinplate which consist of sheetes of iron and steel.

Q8.Define soldering?

A8 It is an allowing process whereby a small amount of soft metal to be joint thereby allowing them.

Q9what do you mean by hysteresis loss?

A9: When the magnetic material is subjected to reversal of flux power is required for the continuous reversal of molecular magnets. This power is dissipated in the form of heat & is known as hysteresis loss.

Q10 How hysteresis losses are minimized?

A10: The hysteresis loss can be minimized by using Si steel material for the construction of core.

Title of the Practical 8: **Draw orthographic and isometric views of Transformer**

Q1 what do you mean by a transformer?

A1: A static machine which transfers ac electrical power from one circuit to the other at same frequency by at different voltage level is called transformer.

Q2 what do you mean by Transformer on load condition?

A2: When a transformer is loaded the secondary ampere turn setup a field in opposite direction to the main field, then transformer is called in load condition.

Q3 what do you mean by an auto transformer?

A3: A transformer having only one winding, a part of which acts as a primary & the other as a secondary is called an auto transformer.

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Q7 what do you mean by an ideal transformer?

A7: An ideal transformer is one which has no ohmic resistance & no magnetic leakage flux i.e. all the flux produced in the core links with primary as well as secondary.

Q8 what do you mean by mutual flux?

A8: The flux that links with both the windings of the transformer is called mutual flux.

Q9 what do you mean by voltage regulation?

A9: At a constant supply voltage the change in secondary terminal voltage from no load to full load with respect to no load voltage is called voltage regulation of the transformer.

Q10 Explain losses in transformer?

Ans: The losses which occur in an actual transformer are- 1. Core losses, 2. Copper losses.

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Title of the Practical 9 : Draw orthographic and isometric views of Loudspeakers & Microphones

Q1 Define microphone?

A1A microphone is is an acoustic-to-electric transducer or sensor that converts sound into an electrical signal.

Q2 What are application of microphone?

A2 Microphones are used in many applications such as telephones, tape recorders, karaoke systems, hearing aids, motion picture production, live and recorded audio engineering, FRS radios, megaphones, in radio and television broadcasting and in computers for recording voice, speech recognition and for non-acoustic purposes such as ultrasonic checking or knock sensors.

Q3 What are elements of microphone?

A3 The sensitive transducer element of a microphone is called its *element* or *capsule.* A complete microphone also includes a housing, some means of bringing the signal from the element to other equipment, and often an electronic circuit to adapt the output of the capsule to the equipment being driven. A wireless microphone contains a radio transmitter.

Q4 Explain condenser microphone?

A4 Here, the diaphragm acts as one plate of a capacitor, and the vibrations produce changes in the distance between the plates. There are two types, depending on the method of extracting the audio signal from the transducer: DC-biased and radio frequency (RF) or high frequency (HF) condenser microphones. With a DC-biased microphone, the plates are biased with a fixed charge (*Q*). The voltage maintained across the capacitor plates changes with the vibrations in the air, according to the capacitance equation (C = Q / V), where Q = charge in coulombs, C = capacitance in farads and V = potential difference in volts. The capacitance of the plates is inversely proportional to the distance between them for a parallel-plate capacitor. (See capacitance for details.) The assembly of fixed and movable plates is called an "element" or "capsule."

Q5 Explain dynamic microphone?

A5 Here, the diaphragm acts as one plate of a capacitor, and the vibrations produce changes in the distance between the plates. There are two types, depending on the method of extracting the audio signal from the transducer: DC-biased and radio frequency (RF) or high frequency (HF) condenser microphones. With a DC-biased microphone, the plates are biased with a fixed charge (*Q*). The voltage maintained across the capacitor plates changes with the vibrations in the air, according to the capacitance equation (C = Q / V), where Q = charge in coulombs, C = capacitance in farads and V = potential difference in volts. The capacitance of the plates is inversely proportional to the distance between them for a parallel-plate capacitor. The assembly of fixed and movable plates is called an "element" or "capsule."

Q6 Explain carbon microphone?

A6 A carbon microphone, also known as a carbon button microphone (or sometimes just a button microphone), use a capsule or button containing carbon granules pressed between two metal plates . A voltage is applied across the metal plates, causing a small current to flow through the carbon. One of the plates, the diaphragm, vibrates in sympathy with incident sound waves, applying a varying pressure to the carbon. The changing pressure deforms the granules, causing the contact area between each pair of adjacent granules to change, and this causes the electrical resistance of the mass of granules to change. The changes in resistance cause a corresponding change in the current flowing through the microphone, producing the electrical signal. Carbon microphones were once commonly used in telephones; they have extremely low-quality sound reproduction and a very limited frequency response range, but are very robust devices.

Q7 What are applications of piezoelectric microphone?

A7 Piezoelectric transducers are often used as contact microphones to amplify sound from acoustic musical instruments, to sense drum hits, for triggering electronic samples, and to record sound in challenging environments, such as underwater under high pressure. Saddle-mounted pickups on acoustic guitars are generally piezoelectric devices that contact the strings passing over the saddle. This type of microphone is different from magnetic coil pickups commonly visible on typical electric guitars, which use magnetic induction, rather than mechanical coupling, to pick up vibration.

Q8 Define loud speaker?

A8 A loudspeaker, a transducer that turns an electrical signal into sound waves, is the functional opposite of a microphone. Since a conventional speaker is constructed much like a dynamic microphone (with a diaphragm, coil and magnet), speakers can actually work "in reverse" as microphones. The result, though, is a microphone with poor quality, limited frequency response (particularly at the high end), and poor sensitivity. In practical use, speakers are sometimes used as microphones in applications where high quality and sensitivity are not needed such as intercoms, walkie-talkies or Video game voice chat peripherals, or when conventional microphones are in short supply.

Q9 What are measurement microphone?

A9 Measurement microphones are generally scalar sensors of pressure; they exhibit an omnidirectional response, limited only by the scattering profile of their physical dimensions.

Q10 What is the purpose of windscreen ?

A10 . Windscreen are used to protect microphones that would otherwise be buffeted by wind or vocal plosives from consonants such as "P", "B", etc. Most microphones have an integral windscreen built around the microphone diaphragm. A screen of plastic, wire mesh or a metal cage is held at a distance from the microphone diaphragm, to shield it

Title of practical 10: . Provide practical hand on experience in using various commands of Auto CAD 2000 for creating 2D/3D shapes, surface and solid modeling especially with reference to electrical engineering

Q1. Define autocad?

A1 The autocad may be defined as software of preparing a drawing with help of commands.

Q2. List reason for implementing autocad?

A2 1.To increase productivity of designer.

2. improves quality of design.

3.i mproves communication.

Q3.List benefits of CAD?

A3 1.more efficiency in drafting.

2. improved accuracy.

3. revisions arepossible.

4. list application of drafting?

Ans 1.automated drafting.2.geometric modelling.

Q4 Explain various steps of design process using CAD?

A4 The design steps are:

1.Recognition of speed.

2.Definition of problem.

3.synthesis.

4.analysis and optimization.

5.evaluation

6. presentation.

Q5 List limitation of CAD?

A5 The limitations of CAD are:

1. 32 bit word computer is necessary.
2. size of software is large.
3. Requires huge investment

Q6 List various CAD software?

A6 The various CAD software are AUTOCAD, CorelCAD,Pro-E,IDEAS,CATIA.

Q7 List various EDIT commands ?Explain any two?

A7 The various edit commands are redo,undo,select, change,copy,array,offset.

1. REDO this command bring back the objects that were removed using UNDO command.

2. UNDO this command nullify previous command or undo one or more commands at a time.

Q8 Explain the function of Mirror and Trim command?

A8 Trim :It is used to trim an object. Objects that can be trimmed include arcs, circles, ellipticalarcs ,lines ,open 2D and 3Drays and splines.

Mirror: It is used to create a mirror image of the selected geometry element.This command creates mirror image of entities by refecting them symmetrically with reference to a defined axis.

Q9 List various CAD softwares?

A9 The various software are: AutoCAD 2.CorelCAD 3.ProE 4. IDEAS 5. CATIA

Q10 Define CAD software?

A10 A CAD software can be regarded as a graphic equivalent of a word processor. It can create, edit, repeat, transfer and translate graphic elements instead of words in a word processor.