ANALOG ELECTRONICS-II

Unit 1 Multistage Amplifiers
Qus 1. Need for multistage amplifier.
2. Gain of multistage amplifier.
3. Different types of multistage amplifier.
4. RC coupled, transformer coupled, direct
coupled, and their frequency response and bandwidth.

Unit 2.   Large Signal Amplifier
1   Difference between voltage and power amplifiers
2 Class A, Class B, Class AB, and Class C amplifiers, collector efficiency and Distortion in
class A,B,C
3 Single ended power amplifiers
4 Draw heat dissipation curve and importance of heat sinks.
5 What is Push-pull amplifier and complementary symmetry push-pull amplifier

Unit 3 Feedback in Amplifiers
1. Basic principles and typesof feedback.
2. Derivation of expression for gain of an amplifier employing feedback.
3. Effect of feedback (negative) on gain, stability, distortion and bandwidth of an amplifier.
4. RCcoupled amplifier without emitter bypass capacitor.
5. Emitter follower amplifier and its application.

Unit 4 Sinusoidal Oscillators
1 what is Use of positive feedback.
2 what is Barkhausen criterion for oscillations.
3 what is tuned collector Hartley oscillator.
4What is Colpitts oscillator
5 what is phase shift, Wien's bridge and crystal oscillator.

Unit 5.Tuned Voltage Amplifier
1 what is Series and parallel resonant circuits and bandwidth of resonant circuits.
2 Single and double tuned voltage amplifiers and their frequency response.

Unit 6 Wave Shaping Circuits
1 General idea about different wave shapers.
2 RC and RL integrating and differentiating circuits with their applications.
3 Diode clipping and clamping circuits.

Unit 7.Multivibrator Circuits
1 Working principle of transistor as switch.
2 Concept of multi-vibrator:astable, monostable, and bistable and their applications.
3 Block diagram of IC555 and its working and applications.
4 IC555 as monostable and astable multivibrator.

Unit 8.Operational Amplifiers

1 what is Characteristics of an ideal operational amplifier

2 Draw the block diagram of op-amp.

3 Definition of differential voltage gain, CMRR, PSRR, slew rate and input offset current.

4 Discuss Operational amplifier as an inverter, scale changer, adder, subtractor, differentiator, and
Integrator.

5 Concept of Schmitt trigger circuit.

6 what is sample/hold circuit using operational amplifier and their application.

Unit 9.Regulated DC Power supply

1 Concept of d.c Line and load regulation.

2 Concept of fixed VoltageIC regulator.

3 Working principle and block diagram of SMP.

PRINCIPLES OF COMMUNICATION ENGINEERING

Unit 1 Introduction
1 why we Need for modulation and demodulation in communication systems.
2 Basic scheme of a modern communication system.
3 what is Noise and its different types.

Unit 2.Amplitude modulation
1 Derivation of expression for an amplitude modulated wave.
2 what is Carrier and side band components.
3 what is Modulation index.
4 Draw the Spectrum and BW of AM Wave.
5 Elementary idea of DSB-SC, SSB-SC, ISB and VSB modulations, their comparison, and
areas of applications.

Unit 3.Frequency Modulation
 1 Expression for frequency modulated wave and   its frequency spectrum .
2 What is Modulation index, maximum frequency deviation and deviation
ratio, BW of signals.
3. what is Carson's rule.
4. Comparison of FM and AM in communication systems.
5 what is Narrow band and Wide Band FM.

Unit 4.Phase Modulation
1 .Expression for phase modulated wave.
2. what is modulation index.
3. write the comparison with frequency
modulation.

5.Principles of AM Modulators
1 draw the Circuit Diagram and working operation of Collector and Base Modulator
2 Square Law Modulator
3 Balanced Modulator
4 Ring Modulator

Unit 6. Demodulation of AM Waves
1 what is the Principles of demodulation of AM wave using diode detector circuit.
2 concept of Clipping .

Unit 7.Principles of FM Modulators
1 Draw the Circuit Diagram and working
of reactance modulator
 2 what is varactor diode modulator
 VCO n Armstrong phase modulator.

Unit 8.Demodulation of FM Waves
1 Basic principles of FM detection using slope detector.
2 write the Principle of working of the following FM demodulators

Foster-Seeley discriminator
Ratio detector

Unit 9.Pulse Modulation
1 Statement of sampling theorem and elementary idea of sampling frequency for pulse modulation.
2Basic concepts of time division multiplexing (TDM) and frequency division multiplexing (FDM)
Types of pulse modulation PAM, PPM, PWM (Generation and Detection) and their Comparison.

Digital Electronics - I

Very Short answer type questions

Q What do you understand by the term inverter.

Q Define double parity.

Q Write a note on digital system.

Q Divide IEC8716 by A516

Q Convert the binary number 11001 . 001011 to decimal.

Q Is the exact value of an input voltage critical for a digital circuit.

Q A NOR GATE is basically a _____ GATE

Q A + A = _____

Q ADDER is a _____logic circuit.

Q Define comparators.

Q A demultiplexer changes ___ data into___ data.

Q Write truth table of D- flip flop.

Q Write full form of SISO

Q Define asynchronous counter

Q IC 74194 is _____ shift register.

Q Write a short note on minterm.

Q Define octets.

Q Define free running multi vibrator

Short answer type questions

Q Explain the need of digitization.

Q Write the rules for binary multiplication.

Q Design a logic circuit for expression x = (A. B. C.) (C +D)

Q State demorgan's theorem

Q What is a K-map. Why it is used.

Q Explain 4-BIT binary full adder.

Q Draw 4 inputs multiplexers. Write its truth table and realize it using and or OR Gates.

Q Explain the basic operation of LCD with the help of a neat diagram.

Q Explain decimal to BCD encoder with the help of truth table.

Q Why synchronous counter is faster than asynchronous counter.

Q Write a note on universal shift register.

Q Write a note on D-flip flop using wave form and truth table.

Q Convert into binary

a) 0.5454510b) 38.21010

Q Multiply the following hexadecimal numbers

a) 6A16 x DD16b) EC16 x 3916

Q Explain state table for mod-3 synchronous counter.

Long answer type questions

Q Draw truth table, write boolean expression, draw symbol for EX-OR, EX-NOR NAND, NOR, NOT , AND OR GATES.

Q Explain PIPO register in detail.

Q What is a counter. Explain below counters

a)Ring counter

b)Cascade counter Q.6 Write note on

a)LED

b)Correction using parity

State boolean algebraic theorems.

Electrical Machine

Very Short Answer type questions

Q Power in 3 phase system= _____Vplp cosQ.

Q Two wattmeters used to measure power in a 3 phase system read W1 & W2 respectively. Total power will be W1-W2. Yes/No

Q For reducing _____ losses, transformer core is laminated.

Q No. of parallel paths in a 6 pole wave wound armature of d.c. motor are ____.

Q A DC series motor should not be started without load. True/False

Q Back emf induced in a DC motor is more than applied voltage. True/False

Q A universal motor is operates on A.C. only. True/False

Q What is a centrifugal switch?

Q A ceiling fan used split phase motor. True/False

Q How we reverse directions of rotation of single phase motor?

Q Define motor.

Q Iron losses in a transformer consists of _____ and _____.

Q Write two applications of stepper motor.

Q Name the motor used for Electric clock.

Q Three phase induction motor is not self starting. yes/No.

Q A transformer works on the principle of ____.

Q Ideally, the efficiency of single phase transformer should be _____.

Q Define the term transformation ration of a single phase transformer.

Short answer type questions

Q What are the advantages of 3 phase motor over single phase motor?

Q Compare a core type transformer with a shell type transformer.

Q Name different types of connections of 3 phase transformer.

Q List various methods of speed control of DC series motor.

Q List the factor which affects speed of DC motor.

Q How will you determine step angle of stepper motor?

Q How can a synchronous motor be made self starting?

Q Draw a diagram for two wattmeter method of Power measurement with star connection.

Q What is the function of capacitor in ceiling fan?

Q Give application of Singe Phase Induction Motor.

Q Can Transformer work on DC supply? Explain.

Q List different parts of transformer.

Q Rotor of a Squirrel cage I.M. is skewed. Why?

Q What is a commutator? Explain its various functions.

Q Explain Lenz's law.

Long answer type questions

Q.Explain principle and working of a
   Transformer?

Q.Describe various methods of speed control
   of Induction motor.

Q.Write Advantages of 3 phase system over
   single phase system.

Q.Explain auto transformer with diagram.

Q.Explain working ,construction and
characteristics of a Universal motor.

Electronic Instrumentation & Measurement

Very Short Answer type questions
Q.What is indirect method of measur- ement?
Q Define precision.
 Q What is range of a measuring device?
Q Define gross error.
Q What is loading effect?
Q What is importance of standards?
Q PMMC instruments are not used for a.c. measurement. (True/False)
Q Write any two disadvantages of moving iron instruments.
Q Write any two specifications of multimeter.
Q What is the difference between CRT and CRO?
Q What is the function of electron gun?
Q DSO stands for _____.
Q What is function generator?
Q Define distortion meter.
Q Quality factor 'Q' is given by _____.
Q Write applications of Schering bridge.
Q Define universal counter.
Q Define logic probe.

 Short answer type questions
Q What is the importance of measu- rement?
Q Write a short not on "Calibration".
Q What are the reasons for loading effect?
Q Explain the principle of operation of PMMC instruments.
Q Write comparision between analog and digital multimeter.
Q Explain limitations with regard to frequency and input impedance.
Q Draw block diagram of CRO.
Q Write short note on " CRO probes".
Q Explain how phase period can be measured using CRO?
Q Explain working principle of DSO.
Q Write short note on "Pulse generators".
Q What are advantages and disa- dvantages of Hay's bridge?
Q Write a short note on "Q- meter".
Q Explain the working principle of integration type digital voltmeter.
Q What is working principle of logic comparator?

 Long answer type questions.
Q. What do you understand by errors in measurement? What are different sources of errors?
Q.What are moving iron type instruments? What are different types of moving iron type instruments?
Q. Explain the construction and working of CRT.
Q. Describe the block diagram of laboratory type RLC bridge.
Q. Explain measurement of time interval, time period and frequency using Universal counter.

COMPUTER PROGRAMMING AND APPLICATIONS

Very Short answer type questions

Q Define low level language.

Q Define Assembly language.

Q Define Flow chart.

Q Define ASCII.

Q What is a source program?

Q What is bit?

Q What is a variable?

Q An _____ in general is a symbol that operates on a certain data type.

Q Functions in C pass all arguments by value. (True/False)

Q What is meant by looping?

Q What is multi- dimensional array?

Q A _____ is a variable that represents the location (rather than the value) of a data item, such as a variable or an array element.

Q What is a union?

Q What is PSPICE?

Q In terms of declaration syntax, union is similar to _____.

Q Strings are array of characters i.e. they are characters arranged one after another in memory. (True/False)

Q What is meant by opening a data files?

Q Name two different types of data files.

Short answer type questions

Q. Explain what do you understand by Machine language?

Q Explain the concept of Interpreter.

Q Name and describe the four basic data types in C.

Q)What is meant by associativity?

Q Describe the four relational operators included in C.

Q How are library functions usually packaged with in a C compiler?

Q Explain what do you understand by PSIM Software.

Q What is the purpose of a buffer area when working with a stream oriented data file?

Q How are one dimensional arrays defined?

Q How is pointer variable declared? What is the purpose of the data types included in the declaration.

Q What is structure? How does a structure differ from an array?

Q How is an array of structure initialized?

Q How is a union member accessed? How can a union member be processed?

Q State several advantages to the use of function.

Q Explain the difference between function declaration and a function definition.

Long answer type questions.

Q Explain for loop and break statement.

Q Discuss the software applications in Electrical Engineering.

Q Write a program that accepts a string and an integer and print the string as many times as the value of the integer. This procedure should continue until the user presses q to quit.

Q Suppose a function receives a pointer as an argument. Explain how this function is declared with in its calling function. In particular explain how the data type of the pointer argument is represented?

Q Write short note on any two:-

a.Pointer   b.High Level language   c.Logical operator