J&K BOARD OF TECHNICAL EDUCATION

Semester: 4th   **Branch: ALL**

Subject: G.S & E.D   **Scheme: New**

Time: 3 Hours   **M.M.: 100**

Note: Attempt any five questions.

Q1(a) Explain the term self-concept. How it is developed?   (10)

(b) Explain the lifelonglearning and its importance.   (10)

Q2. What is trait? Explain different types of traits.   (10)

Q3. What are the stages of team development? Explain briefly.   (20)

Q4. Describe briefly four phases of task.   (20)

Q5. Explain different methods of problem solving.   (20)

Q6(a) What are the environmental factors that affect entrepreneurship?   (10)

(b) Give a list of qualities a good entrepreneur must possess.   (10)

Q7. Explain briefly about NSIC schemes.   (20)

Q8. What is meant by small scale industry? What is the importance of small-scale industries?   (20)

Q9. Define sale forecasting. Explain different methods used for forecasting the demand of a product.   (20)

Q10. What is meant by project report? Explain the contents of a project report.   (20)

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16011-23M4-44021

MJ23   ROLL NO:........

J&K BOARD OF TECHNICAL EDUCATION

Branch: Electronics & Communication Engg.   Semester: 4th

Subject: Communication System-I   Max. Marks: 100

Attempt any five questions. All questions carry equal marks.

Q1. (a) Define AM Transmitter? How will you classify transmitters on the basis of power frequency? 5
(b) Differentiate between Low Level Modulation and High-Level Modulation   5

    (c) Draw and explain the block diagram of AM transmitter.   10

Q2. (a) Draw and explain the block diagram of Super Heterodyne AM Receiver   10

    (b) Explains the terms: 10

        1) Sensitivity   2) Selectivity   3) Image Frequency and Rejection Ratio

Q3. (a) Draw and explain the block diagram of FM Receiver   10

    (b) Define pre-emphasis and de-emphasis.   5

    (c) Describe the function of an RF Amplifier Stage   5

Q4. (a) Explain the electromagnetic Spectrum with respect to antennas   10

    (b) Explains the terms: 10

        1) Directive Gain   2) Aperture   3) Radiation Pattern

Q5. (a) Define Antenna. Give brief description of various types of antennas.   10

    (b) Explain the concept of Half Wave dipole antenna.   10

Q6. (a) Explain Sky Wave Propagation   10

    (b) List and describe the application of Ground waves Propagation.   5

    (c) What do you mean by Critical Frequency?   5

Q7. (a) Describe the principle of Light Penetration.   10

    (b) Describe various losses in Optical Fiber?   10

Q8. (a) What do you mean by Splicing?   5

    (b) List some advantages of Optical Fiber Communication.

    (c) Draw and explain the block diagram of optical fiber communication link.   10

Q9. Write short note on   10x2

    1) Geo Stationary Satellite   2) RhombicAntenna

Q10. Write short note on   10x2

    1) Reactance FET   2) Duct Propagation

1J23

J&K BOARD OF TECHNICAL EDUCATION

LASS: 4th Semester
RANCH: Electronics & Communication Engg./Medical Electronics
UBJECT: Power Electronics
lax Marks: 100

SESSION: MJ-2023   Time: 3Hrs

Attempt any five questions.

Q1. a) Describe working and VI characteristics of an SCR.   (15)

    b) What is the function of gate in a thyristor? Explain briefly.   (5)

Q2. a) What are the different methods of turning ON an SCR? Explain any one method.   (15)

    b) Give brief description of Gate turn off thyristor.   (5)

Q3. a) Explain the two transistor analogy of an SCR.   (15)

    b) Explain briefly the VI characteristics of UJT.   (5)

Q4. a) Explain with the help of circuit diagram the working of speed control of fan regulator using SCR.   (15)

    b) Give a brief idea about the selection of heat sinks for thyristors.   (5)

Q5. Explain the working principle of single phase full wave rectifier using resistive load (with waveform).   (20)

Q6. a) Explain with the help of circuit diagram the working of series inverter circuit.   (15)

    b) Explain briefly the principle of operation of basic inverter circuit.   (5)

Q7. Explain with the help of block diagram a cyclo converter with necessary wave shapes.   (20)

Q8. a) What is chopper? Explain class A and class B chopper.   (12)

    b) Explain briefly OFF-LINE UPS   (8)

Q9. a) Describe 78XX and 79XX voltage regulators.   (14)

    bGive a brief introduction of SMPS.   (6)

Q10. Explain any two of the following: (20)

    1. UJT relaxation oscillator   2. MOSFET   3. DIAC   4. Dual converter

MJ2023

J&K BOARD OF TECHNICAL EDUCATION

Branch : Electronics & Communication Engg / Computer Engg/ IT / Medical Electronics

Class: 4th Semester

Marks : 100

Subject : Microprocessor

Time : 3 hours

Note: Attempt any five Questions.

1. (a) What is Bus .Explain Bus organization with diagram in 8085.
   (b) Draw block diagram of 8085   10
   (c) What is function of Program counter & stack pointer .   5
                                                                                          5

2. (a) Give the function of following pins in 8085.
   i) SID   ii) WR   iii) HOLD   iv) ALE   v) AD0 – AD7
   (b) How is a stored program executed in 8085.   10
   (c) Write any five features of 8085   5
                                                                                     5

3. (a) What do you mean by Addressing mode. Explain by Addressing mode in 8085 with examples.   10
   (b) Explain Instruction format with examples.   10

4. (a) Explain concept of Memory Mapped I/O scheme.
   (b) Difference between Memory Mapped I/O and I/O Mapped I/O scheme.   8
   (c) Define RAM and EPROM.   6
                                                                                    6

5. (a) How is Instruction set classified in 8085. Explain with Examples.
   (b) Explain Hardware Interrupt in 8085.   8
   (c) Difference between Maskable & Non Maskable nterrupt.   6
                                                                                    6

6. (a) Explain Synchronous data transfer technique.
   (b) what do mean by DMA data transfer scheme.   10
                                                                                    10

7. (a) Write Assembly language program to multiply any two 8 bit numbers.
   (b) What is function of stack.   8
   (c) Define opcode and operand   6
                                                                                    6

8. (a) Draw block diagram of 8255 PPI Chip and explain function of each block.
   (b) what are operating modes of 8255.   10
                                                                                     10

9. (a) Define
   (i) Machine cycle   (ii)T states   (iii) fetch cycle   (iv) Execute cycle
   (b) Explain the function of Program status word (PSW) of 8085.   12
                                                                                    8

10. write note on any two
    (a) Assembler
    (c) DeMultiplexing   (b) Evolution of Microprocessor.   10,10
                                  (d) Memory organization

MJ23   ROLL NO: 43990

J&K BOARD OF TECHNICAL EDUCATION

CLASS: 4th Semester

BRANCH: Electronics & Communication Engg./ Instrumentation & control Engg.

SUBJECT: Electrical Machines

Max Marks: 100   **Time: 3Hrs**

Note: Do any five questions.All question carry equal marks.

Q1.(a) Describe advantages of three phase system over single phase system.   10,10
(b) Define power and power factor in a three phase system .How are they measured by the two wattmeter method.

Q2.(a) With reference to the transformer describe the following   10,10
  i) Difference between core type and shell type transformers.
  ii) Difference between single phase and three phase transformer.

Q3.(a)Describe the Losses in the transformer   10,10
(b)Describe an Auto Transformer.

Q4.(a)Write the definition of Motor and Generator. What is their principle of working.   10.10
(b)Describe the basic laws of Electromagnetic Induction.

Q5.(a)Describe the working principle and construction of DC motor.   10,10
(b)On what factors does the speed of DC motor depend.

Q6.(a)What are the characteristics of different types of DC machines..   10,10
(b)What are the various starters of dc motor and also list some of the application of dc motors

Q7.(a) What are the working principles of three phase induction motor.   10,10
(b) Describe the construction features of squirrel cage motor.

Q8.(a)Describe the starting method and control of speed of three phase induction motor.   12,8
(b)What are the application of Induction motor.

Q9.(a)Describe the working principle of synchronous machines.   12,8
(b)What are the various application of synchronous machines.

Q10.(a)Write short on any two   10,10
  i) Principle of operation of single phase motor.
  ii) Definition of split phase ; capacitor start, capacitor run and start , single phase motor.
  iii) Working principle of Commutator type single phase motor
  iv) Definition of Servo and stepper motor.

ROLL NO:................

J&K BOARD OF TECHNICAL EDUCATION

Semester 4th

Branch: Electronics & Communication Engg.

Subject: Network filters and Transmission Lines   M. Marks: 100

Note: Attempt only five questions.

Q.No. 1: (a) Define Network and Port.   (6)

(b) What is the difference between a lumped Network a distributed network? Give an example of each.   (7)

(c) What is the difference between an active network and a passive network? Give an example of each.   (7)

Q.No.2: (a) Differentiate between   (6)
(i) Unilateral and Bilateral networks
(ii) Linear and Non linear networks

(b) Draw a symmetrical T-network and calculate open circuit and short circuit impedance for it.   (7)

(c) For any symmetrical network, show that the value of open circuit as well as the short circuit impedances are same when viewed from either ports (input and output) of the network.(7)

Q. No. 3: (a) Write a short note on propagation constant of a two port network?   (5)
(b) Define attenuator. Write a few applications of an attenuator.   (5)
(c) Derive a relation between nepers and decibels   (5)
(d) What are symmetrical and asymmetrical networks?   (5)

Q. No. 4: (a) Find the attenuation in decibels of a symmetrical π-attenuator having 200Ω resistance in series arm and 45Ω resistnce in each shunt arm. Given that the characteristic impedance $Ro=37.34\Omega$ and one of the design equations is $R2=Ro((N+1)/(N-1))$ (10)

(b) Define a filter. List the characteristics of an ideal filter.   (5)

(c) Differentiate between ideal filter and a practical filter?   (5)

Q.No.5: (a) Give the classification of filters on the basis of frequency characteristics.   (8)
(b) Differentiate between Active and passive filters   (6)
(c) Draw a T-type low pass filter. Also plot its frequency response.   (6)

Q.No.6: (a) What is a prototype filter? What are its limitations?   (6)
(b) Explain the working principle of high pass filter. Also plot its frequency response.   (7)
(c) What are the advantages of m-derived filter over constant-K filter?   (7)

Q.No.7: (a) Draw the following: (5)
(i) π-type low pass filter
(ii) π-type high pass filter

(b) Write a short note on Crystal filter?   (5)

(c) Explain the concept of reflection in transmission lines. (5)

(d) What are the causes of reflection in transmission lines? (5)

Q.No.8: (a) What are standing waves? How are they produced? (6)

(b) What is stub matching in transmission lines? What are its advantages and disadvantages? (8)

(c) Write a short note on losses in a transmission line? (6)

Q.No.9: (a) List various applications of transmission lines. (6)

(b) Give the classification of transmission lines? (7)

(c) Write a short note on parameters of a transmission line? (7)

Q.No.10: (a) Explain the concept of frequency distortion and delay distortion. (6)

(b) Define the terms: (6)

(i) Voltage standing wave ratio

(ii) Current standing wave ratio

(c) Write a short note on (8)

(i) Co-axial cable

(ii) Optical fiber cable