V.S.B. ENGINEERING COLLEGE, KARUR

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year 2019-20 (ODD Semester)

Assignment Questions

ALGEBRA AND NUMBER THEORY

1) Let $(G,o),(H,*)$ be groups with respective identities e_G, e_H. If $f: G \to H$ is a homomorphism, then

a) $f(e_G) = e_H$ b) $f(a^{-1}) = [f(a)]^{-1}$ for all $a \in G$.

c) $f(a^n) = [f(a)]^n$ for all $a \in G$ and all $n \in Z$ $f(S)$ is a subgroup of H for each subgroup S of G.

2) State and prove the fundamental theorem of group homomorphism's.

3) Every subgroup of a cyclic group is cyclic.

4) Show that $(M,\bullet)$ is an abelian group where $M = \{A, A^2, A^3, A^4\}$ with $A = \begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$ and $\bullet$ is ordinary matrix

Further prove that $(M,\bullet)$ is isomorphic to the abelian group $(G,\bullet)$ where $G = \{1,-1,i,-i\}$ and $\bullet$ is ordinary

5) Find the left cosets of the subgroup $H = \{[0],[3]\}$ of the group $(Z_6, +_6)$.

6) Show that H = { [0],[4],[8] } is a subgroup of $(Z_{12}, +_{12})$. Also find the left Cosets of H in $(Z_{12}, +_{12})$.

7) State and prove Lagrange's theorem for finite group.

8) For $\beta = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 4 & 1 & 2 & 3 \end{pmatrix}$ find the subgroup $k = \langle \beta \rangle$.

9) Determine the left cosets of k in $G = S_4$.

10) Let G be a cyclic group. a) If $|G|$ is infinite, then G is isomorphic to $(Z,+)$.

b) If $|G|$=n, where n>1, then G is isomorphic to $(Z_n,+)$.

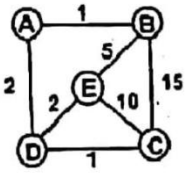
COMPUTER NETWORKS

1. Consider the systems(S1,S2,S3,S4,S5,S6,S7,S8). Create the following topologies (1)Star,(ii)Mesh (iii)Ring (iv)Bus. Compare various topologies. Illustrate which topology is cost effective. Also create wired LAN and Wireless LAN based on the available systems?

2. Consider the domains(www.xyz.com and www.abc.com). Simulate DNS address matching and name resolution methods. Create a communication diagram between sender and the web servers.

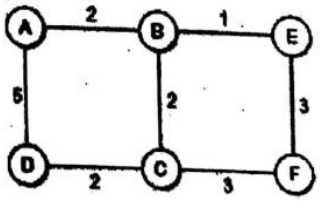
3. Create a table(total networks, network address, last address) for the CIDR notations (192.55.66.88/29)(166.54.66.88/26) and simulate a packet switching network with routing tables and ip-addresses?

4. Construct shortest path from C to all nodes and implement link state algorithm. Create and update forwarding table in node C ?



5. Create a network with 10 hosts. Design routing tables and performance tables. Simulate a packet switching network?

6. Create distance vector routing tables and find shortest distance between nodes?



EC8691-MICROPROCESSOR AND MICROCONTROLLER ASSIGNMENT QUESTIONS

1. Write an Assembly language program in 8086 program to add two 8 bit BCD numbers. Also Explain the instructuctions involved in program.
2. Write an Assembly language program in 8086 program to add two 16-bit numbers with or without carry. Also Explain the instructuctions involved in program
3. Write an Assembly language program in 8086 program to add two 16 bit BCD numbers with carry. Also Explain the instructuctions involved in program
4. Write an Assembly language program in 8086 program to add the content of one segment to another segment. Also Explain the instructuctions involved in program
5. Write an Assembly language program in 8086 program to subtract two 8 bit BCD numbers. Also Explain the instructuctions involved in program
6. Write an Assembly language program in 8086 program to subtract two 16 bit BCD numbers. Also Explain the instructuctions involved in program
7. Write an Assembly language program in 8086 program to subtract two 16-bit numbers with or without borrow. Also Explain the instructuctions involved in program
8. Write an Assembly language program in 8086 program to multiply two 8 bit numbers. Also Explain the instructuctions involved in program

OBJECT ORIENTED ANALYSIS & DESIGN

1. Introduction to Database, Elements of Database & DBMS.

2. Explain System Development in Database Environment in detail.

3. Design of Database – Normalization with its types and examples.

4. Principles of Software Design.

5. System Testing. Different between: White box testing and Black box testing.

6. Testing Strategies with types. Different between: Alpha testing and Beta testing.

7. What is Testing? Types of System Testing.

8. Levels of Testing with examples and diagram.

9. System Conversion Methods – Parallel, Direct cut over, Pilot and Phased – in method with merits, demerits and diagram.

10. What is object oriented model? Explain OOM with example and diagram.

11. Characteristics of OOM – Class & object Link & association, Generalization & Inheritance with examples.

12. Benefits of OOM.

13. Introduction to OOA & Advantages & Disadvantages of OOA.

CS8503/THEORY OF COMPUTATION

1. Construct a minimized DFA for the RE (10+0+11)0*1.
2. Construct an NFA equivalent to (0+1)*(00+11)(0+1)*
3. Construct a NFA accepting the set of strings over {0, 1} ending in 110.Use it to construct a DFA accepting the same set of strings.
4. Construct a PDA to accept the language L={$a^n b^n$ /n>1 } by empty state and final state.
5. Using pumping lemma for the regular sets, prove that the language L={$a^m b^n$ m > n}.

AIR POLLUTION AND CONTROL ENGINEERING

1. Air Pollution Transportation
2. Agricultural Programs, Resources and Requirements
3. Compliance and Emissions Data Report Interface
4. Community Multi Scale Air Quality Modeling System
5. Alternative Dispute Resolution
6. Ambient Monitoring Technology Information Center
7. Reporting Air Releases From Animal Waste
8. Adaptation Resource Center and Climate Change
9. Computer Aided Management of Emergency Operation

10. Economic Analysis for Air Pollution Regulations
11. Reporting Oil Spills and Hazardous Substance Releases