

4634071

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Fourth Semester

Computer Science and Engineering

DISCRETE MATHEMATICS AND GRAPH THEORY

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Write the logical expression for "If tigers have wings then the earth travels round the sun".
2. Prove the following implication $(p \wedge q) \Rightarrow p$.
3. Show that R is a valid inference from the premises $P \rightarrow Q$, $Q \rightarrow R$ and P .
4. Give the symbolic form of the statement "Every parrot is ugly".
5. Define partial order relation with example.

6. Define distributive lattice.
7. State the conditions for Eulerian circuit.
8. Define subgraph.
9. What is a pendant vertex?
10. Define centre of a tree.

SECTION B — (5 × 11 = 55 marks)

Answer ALL the question, choosing ONE from each
Unit.

All questions carry equal marks.

UNIT I

11. (a) Obtain PDNF of $P \rightarrow (P \wedge (Q \rightarrow P))$. (6)

(b) Without using the truth table prove that

$$(\neg P \vee Q) \wedge (P \wedge (P \wedge Q)) \Leftrightarrow P \wedge Q. \quad (5)$$

Or

12. (a) Prove that $\neg P \rightarrow (q \rightarrow r) \Leftrightarrow q \rightarrow (p \vee r)$. (6)

(b) Obtain PCNF of $(Q \rightarrow P) \wedge (\neg P \wedge Q)$. (5)

(c) G is connected and $p = q + 1$ and

(d) G is acyclic and $p = q + 1$.

Or

20. (a) Prove that every connected graph has atleast one spanning tree. (5)

(b) Describe Kruskal Algorithm. (6)

UNIT II

13. (a) Check the following set of premises, are inconsistent.

(i) If Tharun gets his degree, he will go for the job.

(ii) If he goes for a job, he will get married soon.

(iii) If he goes for higher study, he will not get married.

(iv) Tharun gets his degree and goes for higher study. (6)

(b) Prove that
 $(\exists x)(p(x) \wedge Q(x)) \Rightarrow (\exists x)p(x) \wedge (\exists x)Q(x)$. (5)

Or

14. (a) Establish the validity of the following argument:

"All integers are rational numbers some integers are powers of 2. Therefore, some rational numbers are powers of 2". (6)

(b) Show that $R \rightarrow S$ can be derived from the premises $P \rightarrow (Q \rightarrow S)$, $\neg R \vee P$ and Q . (5)

UNIT III

15. (a) Determine whether $(\rho(A), \subseteq)$, where $A = \{1, 2, 3\}$ is a Lattice. (5)

(b) Prove that in any Boolean algebra

$$a\bar{b} + b\bar{c} + c\bar{a} = \bar{a}b + \bar{b}c + \bar{c}a. \quad (6)$$

Or

16. (a) Prove the following Boolean identities. (6)

(i) $a + (a'.b) = a + b.$

(ii) $a.(a'+b) = a.b.$

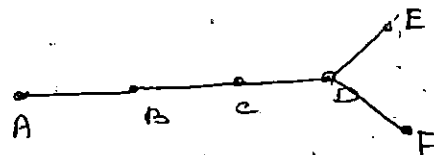
(b) Show that in a Lattice if $a \leq b$ and $c \leq d$, then $a \wedge c \leq b \wedge d.$ (5)

UNIT IV

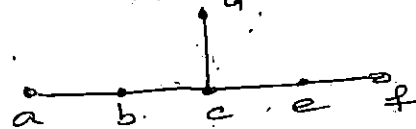
17. Prove that a connected graph is Euler graph if and only if each of its vertex is of even degree. (11)

Or

18. (a) Check the given two graphs G and G' are isomorphic or not. (6)



(G)



G'

(b) Give an example of a graph which is (5)

(i) Eulerian but not Hamiltonian

(ii) Hamiltonian but not Eulerian.

UNIT V

19. Let G be a (p, q) graph. Then prove that the following statements are equivalent :

(a) G is a tree

(b) every two vertices of G are joined by a unique path.

UNIT V

19. Describe varactor diode with its characteristics.

Or

20. Explain in detail the operation and characteristics of UJT.

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Third Semester

CSE

ELECTRONIC DEVICES AND CIRCUITS

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is ohmic contacts?
2. Define clippers and clampers.
3. What is operating point?
4. Define Shockley's equation in BJT.
5. Calculate the efficiency of a class B amplifier for a supply voltage of $V_{CC} = 24 V$ with peak output voltages of :
 - (a) $V_L(P) = 22 V$
 - (b) $V_L(P) = 6 V$

6. Draw the block diagram of a feedback amplifier.
7. Define output voltage for operational amplifier.
8. Define a differentiator circuit.
9. Draw the equivalent circuit of tunnel diode.
10. Differentiate DIAC and TRIAC.

PART B — (5 × 11 = 55 marks).

Answer ALL questions.

UNIT I

11. Explain the piecewise-linear equivalent circuit in detail.

Or

12. The following characteristics are specified for a zener diode : $V_Z = 29 V$, $V_R = 16.8 V$, $I_{ZT} = 10 mA$, $I_R = 20 \mu A$ and $I_{ZM} = 40 mA$. Draw the characteristic curve.

UNIT II

13. Explain the fixed-bias configuration of FET.

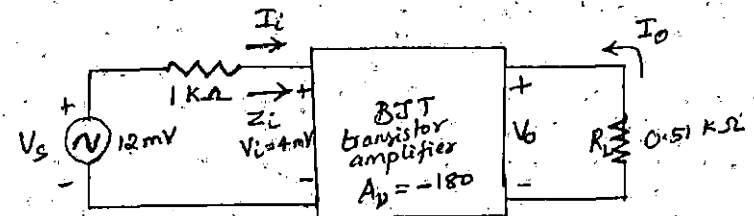
Or

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14. For the BJT amplifier of the figure given below : Determine :

- (a) I_i
- (b) Z_i
- (c) V_o
- (d) I_o
- (e) A_i using the results of part (a) and (d)



UNIT III

15. Explain a series-fed class A amplifier in detail.

Or

16. Explain crystal oscillator with neat circuit diagrams.

UNIT IV

17. Discuss about : (a) Summer, (b) Integrator.

Or

18. Explain a second order low pass and high pass active filters.

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16. (a) Derive the EMF equation of a single phase transformer. (6)
(b) Derive the emf eq. of transform. (5)

UNIT IV

17. Discuss in detail about the working principle of a DC generator and also mention the classifications. (11)

Or

18. (a) What are three different methods of speed control of series motors and explain them in detail? (6)
(b) Derive the expression for armature torque and shaft torque of a DC motor. (5)

UNIT V

19. Present the construction and working principle of single phase induction motor. (11)

Or

20. With the help of the block diagram, explain the various components presented in the UPS. (11)

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Third Semester

Computer Science and Engineering

ELECTRICAL ENGINEERING

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. State the maximum power transfer theorem.
2. Distinguish the loop analysis and mesh analysis.
3. How to define Q factor of a parallel circuit?
4. What is meant by single tuned circuit?
5. Define all day efficiency.
6. Mention the losses in a single phase transformer.
7. What are the classifications of DC generator?
8. What is Swinburne's test?
9. List out the applications of single phase induction motor.
10. Point out the different types of batteries and their applications.

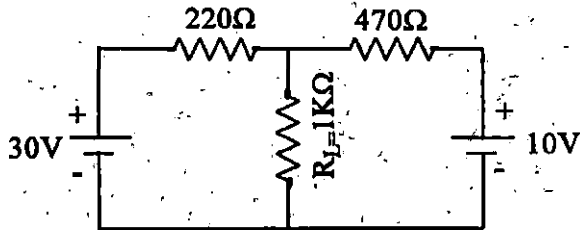
PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each Unit.

All questions carry equal marks.

UNIT I

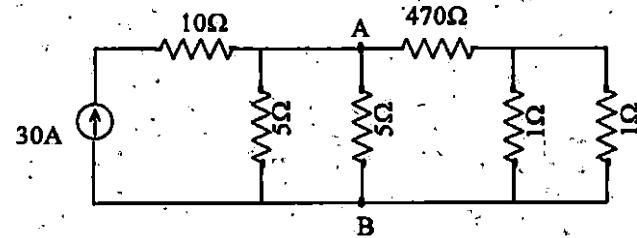
11. State and explain the superposition theorem and apply the same in the figure given below. Find the current flow through the loops and also load resistor RL. (11)



Or

12. (a) Write a short notes on following
- (i) Norton's theorem. (3)
 - (ii) Thevenin's theorem. (3)

- (b) Determine the current flowing through the 5Ω resistor using Norton's theorem in the figure given below. (5)



UNIT II

13. (a) A single phase motor operating from 400V, 50Hz supply is developing 7.46KW output with an efficiency of 84% and a power factor 0.7 lagging. Calculate the input KVA, active and reactive components of current. (7)
- (b) Give a vector diagram for 100V, 50Hz RL series circuit having $\omega L = 1\Omega$ and variable resistance. Find the maximum power and draw the locus of the current vector. (4)

Or

14. Derive the time constant of RL and RC series circuits in transient analysis. (11)

UNIT III

15. Explain the working principle and construction of single phase transformer and also mention the types of transformer. (11)

Or

UNIT IV

17. Explain the steps of file operation with example.

Or

18. Write a program to create template – based stack. Store float and integer in it.

UNIT V

19. Draw and explain the class diagram for a simple banking application.

Or

20. Explain interaction diagrams with an example.

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Third Semester

Computer Science and Engineering

OBJECT ORIENTED PROGRAMMING AND DESIGN

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Write few concepts of object – oriented programming.
2. What is function overloading?
3. What is meant by copy constructor?
4. Describe the syntax of multiple inheritance. When do we use such an inheritance?
5. Give an example to create array of objects using pointers.

6. What is the need of virtual function?
7. What is command line argument? Give an example.
8. What are the advantages of using exceptions?
9. What is meant by activity diagram?
10. Define interaction modelling.

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE question from each Unit.

UNIT I

11. Write a program to evaluate the following function

$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$$

Or

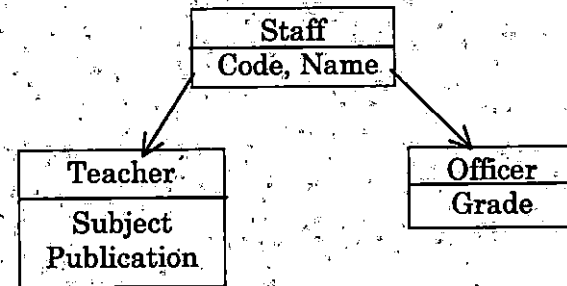
12. (a) What is a friend function. What are the merits and demerits of using friend function? (5)
- (b) Write a program to explain the inline function. (6)

UNIT II

13. Write a program to add two complex numbers using binary operator overloading concept.

Or

14. Write a C++ program to implement the following :



UNIT III

15. (a) Write a program to initialize the private numbers and display them without the use of member function. (5)
- (b) Write a program to declare void pointers and access member variables using void pointers. (6)

Or

16. (a) Write a program to create dynamic object. (5)
- (b) Write a program to invoke function using scope access operator. (6)

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016

Sixth Semester

Computer Science and Engineering

OBJECT ORIENTED ANALYSIS AND DESIGN

(2014 –2015 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Define Object Persistence.
2. What are the diagrams used in Booch Methodology?
3. Define OML.
4. Define Sequence Diagram.
5. What is the use of use case model?
6. Define Axiom. What are the two design axioms applied to object-oriented design?
7. What are the main activities involved in design process.

8. Define View Layer.
9. What is Design Pattern?
10. Define Structural Pattern.

PART B — (5 × 11 = 55 marks)

Answer ALL questions.

Answer ONE question from each Unit.

All questions carry equal marks.

UNIT I

11. Describe the object oriented systems development life cycle? (11)

Or

12. Explain the Jacobson et.al methodology in detail. (11)

UNIT II

13. Consider a digital library system. Draw the following UML diagrams for the above mentioned system and explain. (11)

- (a) Use case Diagram.
- (b) Activity Diagram
- (c) Sequence Diagram
- (d) State Chart Diagram

Or

14. Describe the UML class diagram in detail. (11)

UNIT III

15. Explain the approaches for identifying classes, object and relationship attributes for ATM Banking System. (11)

Or

16. Explain Input and Output of the object oriented design process in detail. (11)

UNIT IV

17. Explain the access layer and object interoperability in detail. (11)

Or

18. Describe view layer for the ATM Banking System. (11)

UNIT V

19. Explain the catalog of Design Patterns in detail. (11)

Or

20. Explain the structural design pattern components in detail. (11)

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Third Semester

Computer Science and Engineering

DIGITAL SYSTEM DESIGN

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Convert the 364 decimal into BCD equivalent.
2. State error detecting and correction codes.
3. Convert Gray number 1110 to its BCD equivalent.
4. Annotate encoder.
5. Define counters.
6. Annotate the shift register
7. List out the types of memories.

8. Differentiate between PLA and PAL.
9. Define modules in verilog.
10. What is meant by full adder?

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each unit.

All questions carry equal marks.

UNIT I

11. Discuss the boolean algebra and theorem with example.

Or

12. Elucidate the minimization of expression using Karnaugh maps and Quine-McCluskey.

UNIT II

13. Explain half adder and full adder with a neat circuit diagram.

Or

14. Illustrate multiplexer and de-multiplexer with a neat circuit diagram.

UNIT III

15. Explain the edge-triggered JK and D flip flops.

Or

16. Design GCD processor with necessary state table and state reduction techniques.

UNIT IV

17. Explain how the RAM and ROM chips can be organized and how the addresses are decoded to select those chips.

Or

18. Illustrate the combinational logic implementations using PROMs, PLAs, PALS.

UNIT V

19. Elucidate the 4-bit ripple carry counter with a neat diagram.

Or

20. Discuss the data types used in Verilog.

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Fifth Semester

Computer Science and Engineering

LANGUAGE TRANSLATORS

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Define the basic functions of assembler.
2. What is meant by machine independent assembler features?
3. What is the difference between the instructions LDA # 3 and LDA THREE?
4. What are the basic functions of loaders?
5. What is lexical analysis?
6. What is a compiler?
7. What is a predictive parser?

8. Define parse tree.
9. Name some optimizations followed in an editor.
10. Define code generation.

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each units.

All questions carry equal marks.

UNIT I

11. Write the algorithm for Pass 1 and Pass 2 Assembler.

Or

12. (a) Give some applications of operating system. (5)
- (b) Explain the symbol defining statements generally used in assemblers. (6)

UNIT II

13. (a) Write the algorithm for absolute loader. (6)
- (b) Brief about the Loader Design Options. (5)

Or

14. (a) What is Dynamic Linking? Explain in detail about the same. (6)
- (b) Write notes on linkage editors.

UNIT III

15. Write the steps required to translate the source program to object program.

Or

16. Give a detailed account on lexical analysis

UNIT IV

17. Elaborate in detail about code generation?

Or

18. Illustrate with suitable example the working function of predictive parser and LR parser.

UNIT V

19. Enumerate and discuss the various issues in the design of code generator.

Or

20. (a) Describe the induction variable optimization technique. (6)
- (b) Write the procedure for generating code from DAGs. (5)

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Sixth Semester

Computer Science and Engineering

E-BUSINESS

Time: Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

- 1. Name the components to build an Electronic Commerce framework.**
- 2. State the benefits of EDI.**
- 3. Define authentication.**
- 4. List out the advantages of CRM portals and ASPs.**
- 5. Write some of the applications of antivirus programs.**
- 6. What is meant by encryption?**
- 7. What are the four revenue streams of Ariba?**

8. Describe the term e-procurement process.
9. Enumerate the applications of search engines.
10. What is meant by HTTP?

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each Unit.

All questions carry equal marks.

UNIT I

11. Explain various technologies adopted in electronic marketplace. (11)

Or

12. Discuss in detail how Internet and World Wide Web play vital role in e-commerce. (11)

UNIT II

13. Describe briefly about Secure Electronic Payment Protocol. (11)

Or

14. Discuss briefly about the several electronic payment schemes. (11)

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UNIT III

15. Explain elaborately about the various tools used for security. (11)

Or

16. Write brief notes on Enterprise Networking. (11)

UNIT IV

17. Illustrate the working of Email with needed diagrams and explain the protocols that involved in the working of email. (11)

Or

18. Explain the concepts of MIME. (11)

UNIT V

19. Explain the various internet tools that help for commerce. (11)

Or

20. Discuss in detail about searching the internet. (11)

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**B.Tech. DEGREE EXAMINATION,
APRIL/MAY 2016.**

Sixth Semester

**Computer Science and Engineering
ENTERPRISE SOLUTIONS**

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. List the characteristics of ERP.
2. Cite the manufacturing roots of ERP.
3. How would you take order in SAP R/3?
4. Define Data Dictionary.
5. What is SQL profile parameter?
6. State the function of workflow instance monitor view.
7. List out the benefits of data mover.
8. What are checklists?
9. Cite the responsibilities in Siebel Applications.
10. What does Enterprise Integration Manager use to prevent duplication of records during processing?

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each Unit.

All questions carry equal marks.

UNIT I

11. How ERP has changed the nature of Business process Reengineering? Explain. (11)

Or

12. (a) ERP's seem like a good idea, so why is return on investment so low? (6)
(b) List and explain the ERP Implementation challenges. (5)

UNIT II

13. (a) Difference between ABAP/4 and ABAP/5. (5)
(b) Summarize the functions of Workbench tools. (6)

Or

14. Explain the Architecture of SAP R/3. (11)

UNIT III

15. Draw and explain the Architecture of ORACLE Apps 11i.

Or

16. (a) Acquaint the different functions of EDI. (6)
(b) Compare OLTP and OLAP. (5)

UNIT IV

17. Discuss the different types of tables in people soft HRMS. (11)

Or

18. (a) Compare pages vs. forms. (5)
(b) Summarize the uses of financial management system. (6)

UNIT V

19. (a) Illustrate the concept of Siebel Tools. (6)
(b) Distinguish between form and list applets. (5)

Or

20. (a) Describe the best practices for configuring siebel applications. (6)
(b) Write short notes on Siebel objects. (5)

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Seventh Semester

Computer Science and Engineering (CSE)

ARTIFICIAL INTELLIGENCE

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. What is meant by intelligent agent?
2. Give an example for constraint satisfaction problem.
3. Why knowledge is to be represented?
4. Write the principle of resolution.
5. How do you measure uncertainty?
6. Write the principle behind Bayesian network.
7. Define state space approach.

8. Name different forms of learning.
9. Where minimax procedure is employed?
10. What is an inference engine in an expert system?

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each unit.

All questions carry equal marks.

UNIT I

11. What is artificial intelligence? What are the problems considered under artificial intelligence? Why? Illustrate the characteristics of artificial intelligence problem.

Or

12. Explain the principle of heuristic search. How do you solve hill climbing problem using this approach? When best-first strategy is adapted, will there be any improvement in arrival time?

UNIT II

13. Describe any four ways of representing knowledge, with suitable examples.

Or

14. With examples, explain the principle of propositional and predicate logic. How unification is used in drawing conclusion?

UNIT III

15. Discuss the principle of non-monotonic reasoning? How this system is useful in solving artificial intelligence problems?

Or

16. Write briefly on rule based system and fuzzy logic concepts.

UNIT IV

17. Explain continuous and conditional planning. How the planning schemes are performed in state space paradigm?

Or

18. Complete explain with comparison between neural net learning and genetic learning.

UNIT V

19. Describe robotic hardware and perception. How this is used?

Or

20. Explain ant colony system principle and discuss on application.

16. An electronic equipment contains 1,000 resistors when any resistor fails, it is replaced. The cost of replacing a resistor individually is Rs. 10 . If all resistors are replaced at the same time, the cost per resistor is Rs. 4. The percent surviving, $s(i)$ at the end of month i is tabulated as follows

i	0	1	2	3	4	5	6
$s(i)$	100	96	89	68	37	13	0

What is the optimum replacement plan.

UNIT IV

17. Discuss the different approaches of management thoughts.

Or

18. What are the qualities of a leader?

UNIT V

19. Explain the characteristics of multinational managers.

Or

20. Discuss how to build and manage effective public organization.

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Eighth Semester

Computer Science and Engineering

ENGINEERING ECONOMICS AND MANAGEMENT

Time : Three hours

Maximum : 75 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is micro economics?
2. Write the basic laws of supply and demand.
3. A person deposit a sum of Rs. 20,000 at the interest rate of 18% compounded annually for 10 years. Find the maturity value after 10 years.
4. What is rate of return of a cash flow?
5. Write the different types of maintenances.
6. What is depreciation fund?
7. Write the stages in decision making.
8. What is strategic management?

9. Name any two organizations which supports and promotes operations management.

10. What are the implications of marketing?

PART B — (5 × 11 = 55 marks)

UNIT I

11. Explain break even analysis with an examples.

Or

12. Explain the consequences of inflation and deflation.

UNIT II

13. An engineer has to bids for an elevator to be installed in a new building. The details of the bids for the elevator are as follows.

Bid	Engineer's estimates		
	Initial cost (Rs.)	Service life (years)	Annual operation and maintenance cost (Rs.)
Alpha elevator INC.	4,50,000	15	27,000
Beta elevator Inc	5,40,000	15	28,500

Determine which bid should be accepted, based on the present worth method of comparison assuming 15% interest rate, compounded annually.

Or

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14. A company invests in one of the two mutually exclusive alternatives. The life of both alternatives is estimated to be 5 years with the following investments, annual return and salvage values.

	Alternatives	
	A	B
Investment (Rs.)	-1,50,000	-1,75,000
Annual equal return (Rs.)	+60,000	+70,000
Salvage value (Rs.)	+15,000	+35,000

Determine the best alternative based on the annual equivalent method by assuming $i = 25\%$.

UNIT III

15. A company have purchased an equipment whose first cost is Rs. 1,00,000 with an estimated life of 8 years. The estimated salvage value of an equipment at the end of its life time is Rs. 20,000. Compute the depreciation and the book value for period 5 using

(a) The straight line method of depreciation

(b) Sum-of-the — years — digits method of depreciation.

Or

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Fifth Semester

Computer Science and Engineering

WEB TECHNOLOGY

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

- 1. List out the different functions of Web Browser.**
- 2. State the uses of IP.**
- 3. How to create Arrays in Java Script?**
- 4. Compare Client and Server side Programming.**
- 5. Define XML namespace.**
- 6. What is ActiveX Control?**
- 7. List the different steps to be followed while adding Multimedia file to the web?**
- 8. List out the basic security requirements for E-Business.**

9. Deduce the pros and cons of Web Services.

10. What is UDDI?

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each Unit.

All questions carry equal marks.

UNIT I

11. (a) Summarize the concept of DNS. (6)

(b) Write short notes on WWW. (5)

Or

12. Explain HTML forms in detail along with form elements, attributes and methods and Write an HTML document to provide a form that collect name and telephone numbers. (11)

UNIT II

13. Write a java Script that inputs several lines of text and a search character determines the number of occurrences of the character in the text using suitable string methods. (11)

Or

14. (a) Explain how are the JSP requests handled with an example. (6)

(b) What are Directives? Explain the concept of JSP directives. (5)

UNIT III

15. Create a XML document for students mark list preparation. Write DTD for validating the XML file. (11)

Or

16. Write XML scheme for the following. (11)

Music	Category			quantity	company	
CD-ID	type	Name	cost		Name	singer

UNIT IV

17. Explain in detail about the N-tier Architecture and its components. (11)

Or

18. Illustrate the components of E-Business XML Systems. (11)

UNIT V

19. Summarize the different major elements of SOAP. (11)

Or

20. Describe the significance and working of WSDL with an example. (11)

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Fourth Semester

Computer Science and Engineering

AUTOMATA LANGUAGES AND COMPUTATION

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Compare NFA and DFA.
2. Give the applications of finite Automata.
3. What is CNF?
4. What is a Context Free grammar?
5. What is meant by Push down Automata?
6. What is Bottom up Parsing?
7. What is a Turing Machine?
8. What is a Primitive Recursive function?

9. What is meant by Time complexity?

10. What is meant by NP class?

PART B — (5 × 11 = 55 marks)

Answer ALL questions.

All questions carry equal marks.

UNIT I

11. Discuss about conversion of NFA to DFA.

Or

12. Explain briefly Moore and Mealy Machines.

UNIT II

13. Discuss the properties of regular sets.

Or

14. Explain Greibach Normal Form.

UNIT III

15. Explain the properties of CFL.

Or

16. Discuss about decision algorithms.

UNIT IV

17. Discuss the working of various Turing Machines.

Or

18. Explain about Enumerable Languages.

UNIT V

19. Explain the Space complexity of Turing Machines.

Or

20. Discuss about NP Completeness.

UNIT V

19. List down core components for building a grid and explain in detail. Also discuss the role of grid computing in Ontario HPC virtual laboratory. (11)

Or

20. Give an overview of grid computing and explain its programming model. (11)
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4438179

B.Tech. DEGREE EXAMINATION,
APRIL/MAY 2016.

Eighth Semester

Computer Science and Engineering

GRID COMPUTING

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. What is DWDM? State its principle.
2. List out the benefits of storage consolidation.
3. Distinguish data parallelism from control parallelism.
4. Name the components of desktop grids.
5. What is meant by grid service orchestration?
6. What is MDS? Write its domain.

7. Differentiate fine grain granularity from coarse grain granularity.
8. What is a Montague river domain?
9. Expand GRAM. Mention its function.
10. What is meant by fault tolerant system?

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each Unit.

All questions carry equal marks.

UNIT I

11. Write notes on the following :
 - (a) Sensor technology. (6)
 - (b) WWW and web services. (5)

Or

12. Explain the various valuation metrics that should be used by an enterprise to build successful grid computing development business cases. (11)

UNIT II

13. What are the key elements to be inevitably considered to evaluate the desktop grid technology? (11)

Or

14. Identify the various alternatives to data grids and explain in detail. (11)

UNIT III

15. Give a detailed description on open grid services infrastructure. (11)

Or

16. Describe the background of parallel computing with its programming paradigm. (11)

UNIT IV

17. (a) What are key function requirements of grid system? (6)
(b) Write about Montague river grid. (5)

Or

18. Narrate the procedure of managing grids. Also write down the minimal set of reports to be followed in order to have a robust grid operating environment. (11)

5633032

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Second Semester

CSE

DATA STRUCTURES

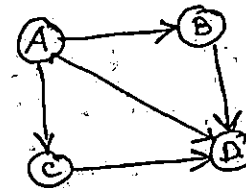
Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Write the algorithm for fibonacci search.
2. What is k-way merge sort?
3. Define stack and its operations.
4. Write the algorithm for insertion in singly linked list.
5. What are the standard ways of traversing a binary tree?
6. What is multiway search tree?
7. Write the adjacency matrix for the graph given:



8. What are the applications of set?
9. What are jagged tables?
10. What are the components of hash table?

PART B — (5 × 11 = 55 marks)

Answer ALL questions.

UNIT I

11. Write and explain the pseudo code for heap sort algorithm.

Or

12. Write a program to implement matrix multiplication.

UNIT II

13. Explain queue and its operations with an application.

Or

14. Write the algorithm for payroll processing application using doubly linked lists.

UNIT III

15. Define binary search tree. Explain its various operations.

Or

16. Explain B+ Tree indexing with an example.

UNIT IV

17. Explain BFS and DFS in detail.

Or

18. Explain the single source shortest path algorithm with an example.

UNIT V

19. Write detailed notes on sequential file organization.

Or

20. Explain any two external sorting techniques.

4438181

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Eighth Semester

Computer Science and Engineering

ORGANIZATIONAL BEHAVIOR

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. What is perception? What factors influence our perception?
2. What are the three key elements of motivation?
3. Define group and distinguish the different types of groups.
4. Contrast groups and teams.
5. Identify the six elements of an organization's structure.

6. Define a virtual organization.
7. Describe the sources of resistance to change.
8. Define organizational development.
9. Define Innovation.
10. Define stress and identify its potential sources.

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each Unit.

All questions carry equal marks.

UNIT I

11. What are the influences of individual differences, organizational constraints, and culture on decision-making? (11)

Or

12. Define creativity and discuss the three-component model of creativity. (11)

UNIT II

13. Describe the communication process and distinguish between formal and informal communication. (11)

Or

14. Compare and contrast charismatic and transformational leadership. (11)

UNIT III

15. Demonstrate how organizational structures differ. Compare and contrast mechanistic and organic structural models. (11)

Or

16. What are the functional and dysfunctional effects of organizational culture? (11)

UNIT IV

17. Compare the four main approaches to managing organizational change. (11)

Or

18. Identify the consequences of stress. Also, contrast the individual and organizational approaches to managing stress. (11)

UNIT V

19. What are the specific advantages of using computerized decision-making? How can computers be better decision makers than humans can? (11)

Or

20. What factors are most likely to change when a company grows very rapidly, as Starbucks did? How can these changes threaten the culture of an organization? (11)

5634083

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Fourth Semester

Computer Science and Engineering

OBJECT ORIENTED PROGRAMMING

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. **What is a ByteCode?**
2. **What is an Interface?**
3. **What is operator Overloading?**
4. **What is Multithreading?**
5. **Give the purpose of containers.**
6. **Give the significance of swing class.**
7. **What is JDBC?**

8. What are Utility packages?
9. What is an InetAddress?
10. What is socket?

PART B — (5 × 11 = 55 marks)

Answer ALL questions.

All questions carry equal marks.

UNIT I

11. Write a Java Program to perform Matrix Multiplication.

Or

12. Discuss about the control structures in Java.

UNIT II

13. Explain how operator overloading can be used for arithmetic in Complex numbers.

Or

14. Explain Exception handling with an example.

UNIT III

15. Write a java program to display an image using applets.

Or

16. Discuss the importance of Garbage Collection and methodology in Java for the same.

UNIT IV

17. Discuss with an example the advantages of using Input Output Packages.

Or

18. Explain the steps for using the JDBC with an example.

UNIT V

19. Explain the steps in using the Bean Development Kit.

Or

20. Explain the facility in Java for Remote Method Invocation.

5634082

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Fourth Semester

Computer Science and Engineering.

DESIGN AND ANALYSIS OF ALGORITHMS

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define small oh notation.
2. What is meant by worst case analysis? Give example.
3. Define Masters ' Theorem.
4. What is a Greedy Technique?
5. Give the advantage of Dynamic Programming.
6. What is a Topological sort?
7. What is a Hamiltonian Cycle?
8. Define Back Tracking.
9. What is a Least Cost search?
10. What is meant by NP Hard problems?

PART B — (5 × 11 = 55 marks)

Answer ALL questions.

UNIT I

11. Give the Insertion Sort Algorithm. Perform the Analysis of the Algorithm.

Or

12. Give the Steps for the Analysis of recursive Algorithms. Finding the formula for finding the Fibonacci Series.

UNIT II

13. Explain binary search algorithm using Divide and Conquer method and discuss about the Worst Case, Best Case and Average Case.

Or

14. Discuss the Prim's method for Finding the Minimum Spanning Tree.

UNIT III

15. Discuss Dijkstra's all pair shortest algorithm.

Or

16. Explain the chained Matrix multiplication using Dynamic programming technique.

UNIT IV

17. Solve the 8 Queens problem using back tracking.

Or

18. Explain sum of subsets problem and give the algorithm to find the same.

UNIT V

19. Explain the Travelling Salesman Problem and solve for five cities using Branch and Bound.

Or

20. Discuss in detail about NP- Hard and NP- Completeness.

5635131

**B.Tech. DEGREE EXAMINATION,
APRIL/MAY 2016.**

Fifth Semester

**Computer Science and Engineering
COMPUTER NETWORKS**

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Name the two types of transmission technology.
2. What is the difference between a passive star and an active repeater in a fiber optic network?
3. Define hamming distance.
4. What is hub?
5. Define spanning tree.
6. Why traffic shaping approach is used in congestion?
7. What is Berkeley socket?

8. What are the two different types of multiplexing?
9. For what purpose the domain name system is used?
10. Write the difference between static web pages and dynamic web pages.

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each Unit.

All questions carry equal marks.

UNIT I

11. Explain detail about the OSI reference model of computer network architecture.

Or

12. Explain briefly about the fiber optics.

UNIT II

13. Explain Error detection and correction briefly.

Or

14. Describe briefly about CSMA protocol with a diagram.

UNIT III

15. (a) Explain the services provided to the transport layer. (7)
- (b) What is fragmentation? Explain briefly. (4)

Or

16. Explain briefly about Internetworking and also explain how networks differ.

UNIT IV

17. How the transport layer protocol establishes and releases the connection?

Or

18. Explain briefly about TCP protocol and its timer management.

UNIT V

19. What is Email? Describe the architecture and the services of Email.

Or

20. Explain the RSA algorithm.

5633033

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Third Semester

Computer Science and Engineering

COMPUTER ORGANIZATION AND ARCHITECTURE

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Bring the difference between computer architecture and computer organization.
2. Define multiprocessor.
3. Write notes on IA-32 Pentium.
4. Give the instruction format of IA-32.
5. Draw the I/O interface for an input device.
6. Define distributed arbitration.
7. Define asynchronous DRAMs.
8. What are the types of flash memory?
9. Define multiphase clocking.
10. What are the steps involved in processing the instruction in pipelined processor?

PART B — (5 × 11 = 55 marks)

Answer ALL the questions.

UNIT I

11. Explain the basic instruction types.

Or

12. With an example, explain indirection and pointers.

UNIT II

13. Discuss various addressing modes of IA-32.

Or

14. Explain subroutines concept in IA-32 architecture.

UNIT III

15. Write notes on :

(a) Enabling and disabling interrupts. (5)

(b) Handling multiple devices. (6)

Or

16. Discuss about :

(a) Pentium interrupt structure (6)

(b) Direct memory access. (5)

UNIT IV

17. Explain about mapping functions in cache memory.

Or

18. Explain address translation in virtual memory.

UNIT V

19. Explain hardwired control in detail.

Or

20. Explain conditional branches and branch prediction in detail.

5634080

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Fourth Semester

Computer Science and Engineering

MICROPROCESSORS AND MICROCONTROLLERS

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Give the purpose of IN and OUT instructions.
2. What is a one byte instruction?
3. List the different types of 8085 interrupts.
4. Give the use of DMA controller.
5. What is Memory Mapped IO?
6. Give the purpose of 8251 USART.
7. What is meant by assembler directive?

8. What is logical memory?
9. What are special function registers?
10. What are ports?

PART B — (5 × 11 = 55 marks)

Answer ALL questions.

All questions carry equal marks.

UNIT I

11. Explain any six addressing modes of 8085 with example.

Or

12. Draw the register organization of 8085. Explain the function of each register and the flags in the flag register.

UNIT II

13. Give the functional description of 8259 Programmable Interrupt Controller.

Or

14. Explain the working of 8253 programmable interval Timer.

UNIT III

15. With example explain I/O interfacing in 8279 Keyboard /Display Interface.

Or

16. Explain the concept of serial communication using RS232C Interface.

UNIT IV

17. Explain the different pins and signals of 8086 microprocessor with a neat diagram.

Or

18. Write an assembly language program to sort 10 numbers.

UNIT V

19. Explain the memory structure of 8051 microcontroller.

Or

20. Explain memory and I/O interfacing in 8051.

5635134

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Fifth Semester

Computer Science and Engineering

SOFTWARE ENGINEERING

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. State the IEEE definition of software engineering.
2. Distinguish software product and process.
3. Write short notes on risk components.
4. Create a task set for project planning.
5. List the characteristics of a good software design.
6. Compare object-oriented and function oriented system.
7. Define UML.
8. List the guidelines of object-oriented design.
9. List the characteristics of a good user interface.
10. Annotate alpha and beta testing.

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each Unit.

All questions carry equal marks.

UNIT I

11. Describe Water fall model with neat sketch.

Or

12. Explain the concepts involved in Spiral model.

UNIT II

13. Discuss the Software Configuration Management process.

Or

14. Elaborate requirements elicitation with an example.

UNIT III

15. Tamil Nadu Electricity Board (TNEB) would like to automate its billing process. Customers apply for a connection (domestic/commercial). EB staff take readings and update the system. Each customer is required to pay charges bi-monthly according to the rates set for the type of

connection. Customers can choose to pay either by cash/card. A bill is generated on payment. Monthly reports are provided to the EB manager.

- (a) Draw the Level-0 DFD

- (b) Draw the Level-1 DFD.

Or

16. Describe the concepts of Coupling and its types.

UNIT IV

17. Explain the class diagram for the word-counting problem.

Or

18. Demonstrate the concept of Use Case diagram with suitable example.

UNIT V

19. Illustrate User Interface Design steps.

Or

20. Discuss black box testing with neat sketch.

19. Enumerate file allocation methods with example.

Or

20. Discuss about:

- (a) Disk management (5)
- (b) Swap space management. (6)

5635130

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Fifth Semester

Computer Science and Engineering

OPERATING SYSTEMS

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Differentiate multiprogramming and multiprocessor operating system.
2. What is meant by context switching?
3. Compare user threads and kernel threads.
4. What are the requirements that a solution to the critical section problem must satisfy?
5. What is resource allocation graph?
6. Define swapping.
7. What is demand paging?
8. Define thrashing.
9. What is the use of boot block?
10. What are the functions of virtual file system (VFS)?

PART B — (5 × 11 = 55 marks)

Answer ALL questions.

11. Discuss hardware protection with a neat diagram.

Or

12. Discuss Co-operating process with an example.

13. Calculate average waiting time and average turnaround time for the following algorithms.

(a) FCFS

(b) Preemptive SJF (SRTF)

(c) Round robin (quantum = 1 ms)

Process Arrival Time Burst Time

P1	0	7
P2	1	3
P3	2	8
P4	3	5

Or

14. Specify the purpose of semaphore and its types with an example.

15. Consider the following snapshot of a system.

Process	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	0	0	1	1	0	0	1	1	1	5	2	2
P1	1	0	0	1	1	7	5	1				
P2	1	3	5	1	2	3	5	2				
P3	0	5	3	1	1	6	5	2				
P4	0	0	1	1	5	6	5	1				

Answer the following using Bankers Algorithm

(a) What is the content of the Need Matrix? (8)

(b) Is the system in safe state? (3)

Or

16. Discuss the various address translation mechanism used in paging.

17. Elucidate FIFO, Optimal and LRU page replacement techniques for the following

2, 3, 2, 1, 5, 2, 4, 5, 3, 2, 5, 2

Or

18. Explain about various directory structures.

UNIT V

4638233

19. (a) Explain the various physical security issues in detail. (5)
(b) Write a short note on software failures. (6)

Or

20. (a) Define risk and discuss about the various steps in risk analysis. (5)
(b) Write a note on computer crimes. (6)

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Eighth Semester

Computer Science and Engineering

INFORMATION SECURITY

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. List any two security problems in computing.
2. Define symmetric and asymmetric encryption.
3. List the various types of flaws.
4. What are the types of controls against program threats?
5. What are the protected objects?
6. List the various security policies.
7. List the necessary requirements for database security.

8. What is a firewall? List its types.
9. Define security plan and list the issues that must be addressed.
10. Compare and contrast law and ethics.

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each unit.

All questions carry equal marks.

UNIT I

11. (a) Discuss the following. (6)
 - (i) vulnerabilities
 - (ii) threats
 - (iii) attacks and controls
- (b) Discuss about AES in detail. (5)

Or

12. (a) Define the following. (6)
 - (i) confidentiality
 - (ii) integrity
 - (iii) availability
- (b) Discuss about DES in detail. (5)

UNIT II

13. Explain about malicious code in detail with its type.

Or

14. Discuss about targeted malicious code in detail.

UNIT III

15. (a) Discuss about memory and address protection in detail. (5)
- (b) Write about the attacks in passwords. (6)

Or

16. (a) Explain about the file protection mechanisms. (5)
- (b) Discuss about any two security models. (3 + 3)

UNIT IV

17. Discuss about sensitive data and its issues in detail.

Or

18. Write a note on Intrusion detection systems in detail.

4638232

B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Eighth Semester

Computer Science and Engineering

HIGH PERFORMANCE COMPUTING

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is Parallel Computing?
2. What is the need for inter-task dependency?
3. Give an example of two way super scalar execution of instructions.
4. Define mapping for Load Balancing.
5. Write the metrics used to evaluate performance of parallel systems.
6. What is the use of nowait clause?
7. Compare 1D and 2D partitionings.
8. Write the algorithm of odd-even transposition sort.
9. Define discrete optimization technique.
10. What is the use of Dynamic Programming?

PART B — (5 × 11 = 55 marks)

Answer ONE question from each Unit.

UNIT I.

11. List the types of Parallelism. Explain each in detail.

Or

12. Explain the need for Parallel Computers in detail.

UNIT II

13. Explain the limitations of memory system performance in detail.

Or

14. Explain the control structures of Parallel Platforms with a neat architecture.

UNIT III

15. Explain Send and Receive Operations over Blocking and Unblocking message passing in detail.

Or

16. Define P threads. Explain synchronization primitives in P threads.

UNIT IV.

17. Explain the Sorting Networks with schematic representation.

Or

18. What is the use of Prim's Algorithm? Explain the algorithm with an example.

UNIT V.

19. Explain 8-puzzle problem with an example.

Or

20. Explain Depth first search algorithm with an example.

UNIT V

19. (a) State merits and demerits of preemptive scheduling. (5)
(b) Explain how accurate time management is achieved in real time kernel. (6)

Or

20. Describe the functional and non functional requirement that needs to be evaluated in the selection of an RTOS with suitable examples. (11)

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B.Tech. DEGREE EXAMINATION, APRIL/MAY 2016.

Fifth Semester

Computer Science and Engineering

EMBEDDED SYSTEMS

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. List some applications of embedded systems.
2. Is LCD projector an Embedded System? Please justify.
3. Implement the statement $x = (a+b)-c$, using ARM instructions.
4. What is ARM Thumb Internetworking?
5. List out the usage of Thumb Register.
6. Cite the purpose of SWI.
7. Tell the purpose of Register Allocation.
8. Write an 8051 C program to send values 00-FF to port P1.

9. Compare monolithic and micro kernel.
10. Define Idle Process.

PART B — (5 × 11 = 55 marks)

Answer ALL questions, ONE from each Unit.

All questions carry equal marks.

UNIT I

11. (a) Draw generic program status register. (6)
(b) Differentiate CISC and RISC processors. (5)

Or

12. (a) Compare ARM 9 five stage and ARM 10 six stage pipeline. (5)
(b) Explain the function of different components of an embedded system. (6)

UNIT II

13. (a) Draw the format of ARM data processing instructions. (6)
(b) Distinguish between Direct and Indirect Addressing. (5)

Or

14. (a) Explain the various data operations in ARM. (6)
(b) Write short notes on Associative cache. (5)

UNIT III

15. (a) Short notes on Thumb Instruction decoding. (5)
(b) Summarize the concept of Data Processing Instructions. (6)

Or

16. State and explain Single and Multi Register Load Store Instructions. (11)

UNIT IV

17. Illustrate the use of Infinite loops with example in embedded system design. (11)

Or

18. Write an 8051 C program to toggle all the bits of P0, P1, and P2 continuously with a 250 ms delay. Use the sfr keyword to declare the port address. (11)