

Eighth Semester B.tech Degree Examination April 2012
Computer science & Engineering

Model question paper

08.801 SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

Time : 3 Hours

Max. Marks : 100

PART – A

Answer *all* questions(10 * 4)

1. How is Cyclomatic complexity calculated?
2. What is an Object point.Explain how is it useful in estimating Project effort?
3. What are the types of Risks encountered during software development.Explain how these risks are estimated?
4. Give differences between White Box testing and Black Box testing?.
5. What is Data Dictionary?What is its use in system design?
6. Give an example of a design fault that leads to failure.
7. Define Software Quality Assurance. How does ISO 9000 standard used in Software Quality Assessment?
8. What is meant by software change?
9. Bring out the necessity of architectural design in software project management?
10. Why is User Interface Design important in Software Development Life Cycle?
(10*4=40)

PART – B

Answer *one* question from each module(3 * 20).

Module -I

11. i)What is CMM? Explain different levels and areas of CMMI. (12)
ii)Compare CMMI with ISO 9000 standard? (8)

OR

12. i) Compare and Contrast Waterfall and RAD model for software development (10)
ii)Discuss three different techniques used for requirement elicitation of a software (10)

Module -II

13. i) Distinguish between Integration Testing and System testing (10)
ii) Why is maintenance important in SDLC.What are the different types of maintenance. (10)

OR

14. i) What are the different design heuristics for effective modularity? (10)

- ii) Explain Cohesion and Coupling with necessary diagrams ? Why are these concepts important in System Design? (10)

Module -III

15. i) How changes are controlled in software engineering projects ? (12)
ii) Explain the basic principles of software project scheduling? (8)

OR

16. i) How does CASE tools help software engineers in software development? List any 5 CASE tools with their specific application? (12)
ii) What are the building blocks of CASE tools (8)

(3 * 20 = 60)

Eighth Semester B Tech Degree Examination- Model Question
Department of Computer Science & Engineering
08.802 Computer System Architecture

Time : 3 hrs

Max marks : 100

Part A

(Answer All Questions)

1. Explain how instruction set and memory hierarchy affect the CPU performance in terms of clock rate, program length and effective CPI.
2. Briefly describe differences among UMA, NUMA and COMA model.
3. Describe different types of hazards due to data dependency .
4. What is the significance of Bernstein's condition to detect parallelism?
5. Describe the cache inconsistencies caused by process migration.
6. Distinguish between static and dynamic interconnection network.
7. Describe collision-free scheduling.
8. Write short note on CPA and CSA.
9. Distinguish between multiprocessors and multicomputers.
10. Compare fine-grained and coarse-grained SIMD architecture.

(10X4 = 40 marks)

Part B

- 11.(a) Characterize the architectural operations of SIMD and MIMD computers.

(8 marks)

- (b) A workstation uses a 15 MHz processor with a claimed 10-MIPS rating to execute a given program mix. Assume one cycle delay for each memory access.

(i) What is the effective CPI of this computer?

(ii) Suppose the processor is being upgraded with a 30 MHz clock. However the speed of the memory subsystem remains unchanged, and consequently two clock cycles are needed per memory access. If 30% of the instructions require one memory access and another 5 % require two memory accesses per instruction, what is the performance of the upgraded processor with a compatible instruction set and equal instruction counts in the given program mix?

(12 marks)

OR

12 (a) Distinguish between register-to-register and memory-to-memory architecture for building conventional multivector supercomputers. (6 marks)

b) Analyze the data dependences among the following statements in a given program:

S1: Load R1, 1024 /R1 ←1024/
S2: Load R2, M(10) /R2 ←Memory(10)/τ
S3: Add R1, R2 /R1 ← (R1) + (R2)/
S4: Store M(1024), R1 /Memory(1024) ← (R1)/
S5: Store M((R2)), 1024 /Memory(64) ←1024/

Where (R_i) means the content of register R_i and Memory(10) contains 64 initially.

(i) Draw dependence graph to show all the dependences.

(ii) Are there any resource dependences if only one copy of each functional unit is available in the CPU? (14 marks)

13. Consider the following reservation table for a four stage pipeline with a clock cycle τ = 20 ns

1 2 3 4 5 6

S1	X					X
S2		X		X		
S3			X			
S4				X	X	

- What are the forbidden latencies and the initial collision vector?
- Draw the state transition diagram for scheduling the pipeline.
- Determine the MAL associated with the shortest greedy cycle.
- Determine the pipeline throughput corresponding to the MAL and given τ

(20 marks)

OR

14. (a) Describe the issues in preserving sequential consistency of instruction execution in superscalar processor.

(b) What is the use of reorder buffer ? (20 marks)

15. Explain the following cache coherence protocol

(a) Snoopy bus protocol

(b) Full map directory based protocol (20 marks)

OR

16. a. Describe the concepts of distributed memory SIMD computer.

b. Compare data flow and hybrid architecture (20 marks)

Eighth Semester B Tech Degree Examination- Model Question
Department of Computer Science & Engineering
08.803 Cryptography and Network Security

Time : 3 hrs

Max marks : 100

Part A
(Answer All Questions)

1. Encrypt the message "she is listening music" using Vigenere cipher with 'PASCAL' as the initial secret key .
2. Explain brute force attack & statistical attack.
3. Multiple stages of substitution & transpositions in an encryption algorithm makes cryptanalysis tedious. Support the statement with an algorithm.
4. What is Elliptic curve cryptography?
5. What is factoring problem? Explain it in the context of RSA algorithm.
6. Generate two 8- bit subkeys for Simplified-DES algorithm, given a 10-bit initial key.
7. How is key generated in RSA algorithm?
8. What are the principal services provided by Pretty Good Privacy protocol?
9. What are the services provided by SSL Record Protocol?
10. List 4 techniques used by firewalls to control access and enforce a security policy.

(10X 4=40 marks)

Part B
(Each question carries 20 mark. Answer one full question from each module))

MODULE I

11. a) Explain Playfair cipher .Encrypt the message "good morning" using playfair.
b) Write short notes on Rotor cipher.

(OR)

12. a) Explain the basic structure of AES Encryption Algorithm
b) Explain the following
 - I) Monoalphabetic cipher
 - II) One-time pads
 - III) Steganography

MODULE II

13. a) Explain Diffie Hellman Key Exchange Algorithm.
b) How is distribution of public keys done by
 - I. Public key certificates
 - II.Public key authority.

(OR)

14. a) What are Message Authentication Codes? How can MAC be used for
 - I. Message authentication and
 - II. Message authentication and Confidentiality.
- b) Explain Direct Digital signatures and Arbitrated Digital Signatures.

MODULE III

15. a) What is a packet filter?
b) What are the different types of firewalls?
c) Explain the benefits of IPsec.

(OR)

16. a) What are the limitations of SMTP. Does MIME overcome the limitations of SMTP. Explain
b) Explain Secure Socket Layer architecture.
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**08.804 DISTRIBUTED SYSTEMS
MODEL QUESTION PAPER**

Time : 3 hrs

Maximum Marks : 100

PART A

Answer ALL questions. Each question carries 4 marks.

1. Give an example of a URL. List the three main components of a URL, stating how their boundaries are denoted and illustrating each one from the example. To what extent is a URL location transparent?
2. What are the challenges involved in the design of scalable distributed systems?
3. Distinguish between architectural model and fundamental model for distributed systems?
4. Describe the failure model for UDP datagram communication. How is reliability ensured in UDP communication?
5. Briefly describe how external data representation is done in CORBA.
6. What is remote interface in the context of distributed object model?
7. Differentiate between monolithic kernels and microkernels.
8. Why should UFID be unique across all possible file systems? How is uniqueness for UFIDs ensured?
9. What is a nested transaction? List the advantages of a nested transaction.
10. What data must the NFS client module hold on behalf of each user-level process?

PART B

Answer any one question from each module. Each question carries 20 marks

MODULE I

11. a. Describe the various design requirements for distributed architectures. 10 marks
b. Distinguish between synchronous and asynchronous distributed systems.
Why is it difficult to design synchronous distributed systems? 10 marks

OR

12. a. How can the failures in distributed systems be classified? Describe each type of failure stating whether it affects communication channel or process. 15 marks
b. Differentiate between IP Version 4 and IP Version 6. 5 marks

MODULE II

13. a. Describe how IP multicast is used to implement group communication. 10 marks
b. Describe the ways by which the request reply protocol masks the heterogeneity of operating systems and of computer networks. 10 marks

OR

14. a. Describe the design issues for Remote Method Invocation. 4 marks
b. Describe how RMI is implemented. 8 marks
c. Explain how distributed event-based systems work. 8 marks

MODULE III

15. a. Explain how two-phase commit protocol for nested transactions ensures that if the top-level transaction commits, all the right descendants are committed or aborted. 8 marks
b. Explain the architecture and implementation details of Andrew File System 12 marks

OR

16. a. What are the disadvantages associated with locking when used for concurrency control? 5 marks
b. How does optimistic concurrency control work? 10 marks
c. How does AFS deal with the risk that callback messages may be lost? 5 marks

Eighth Semester B.Tech Degree Examination
2008 Scheme
08.805 (4) GRAPH THEORY (R) (Elective III)

Time: 3 Hours

Max. Marks: 100

PART - A

Answer all questions. Each question carries 4 marks.

1. Define the terms (a) simple graph (c) complete graph (c) null graph
2. Prove that the number of vertices of odd degree in a graph is always even.
3. Write notes on graph isomorphism with suitable examples.
4. What is meant by the term fundamental circuit in the context of a spanning tree?
5. Distinguish between planar and non planar graphs. With an example, illustrate Euler's formula for finding the number of regions in a planar graph.
6. Sketch the two Kuratowski graphs. Explain their relevance in determining the planarity of graphs.
7. Distinguish between strongly and weakly connected digraphs. What is meant by the condensation of a digraph?
8. Briefly describe the concept of a contact network.
9. What is meant by an m-cube? Mention the properties of m-cubes.
10. Write brief notes on the state graph of a sequential machine, and illustrate the same with an example.

PART - B

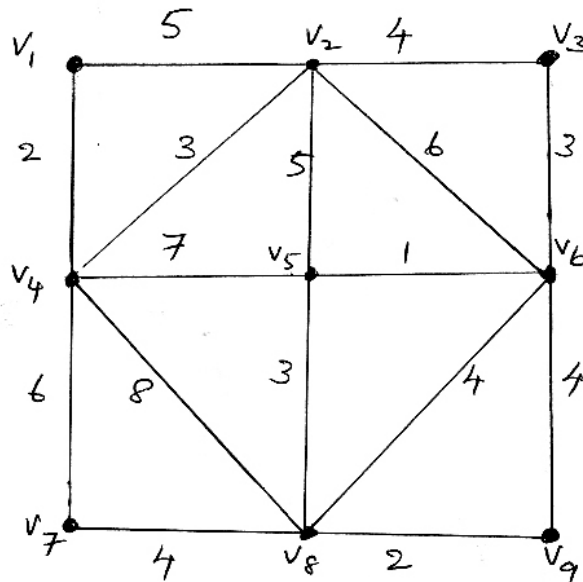
Answer any one full question from each module. Each question carries 20 marks.

Module - I

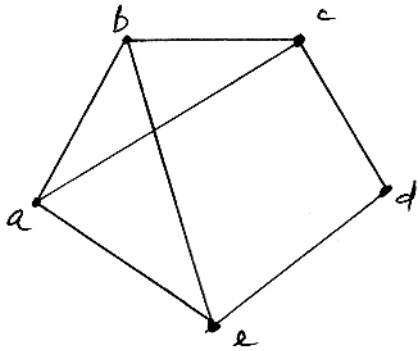
11. (a) With proper examples, explain the different operations possible on graphs.
 (b) When is a graph considered to be a tree? List the various properties of a tree. Describe the terms center, radius and diameter in the context of a tree.

OR

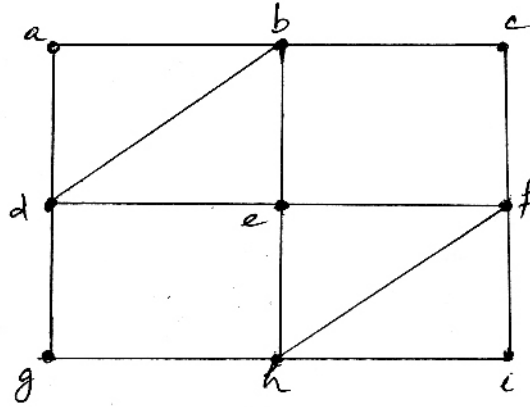
12. (a) What is meant by the minimum spanning tree of a graph? Outline the steps involved in finding the minimum spanning tree of the following graph using (a) Kruskal's algorithm (b) Prim's algorithm.



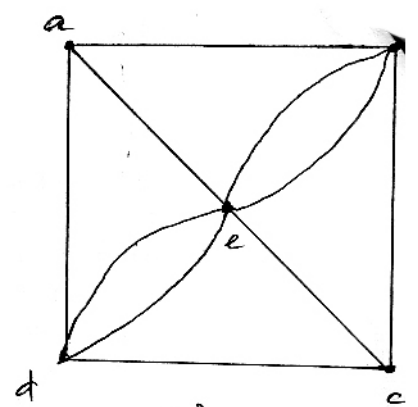
(b) Distinguish between Euler and Hamiltonian circuits. What is the necessary condition for a graph to be a Euler graph? Which among the following graphs have Euler circuits?



(i)



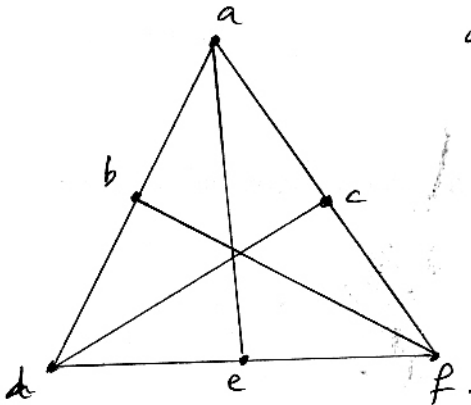
(ii)



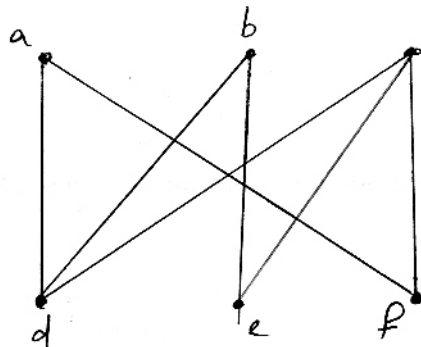
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Module - II

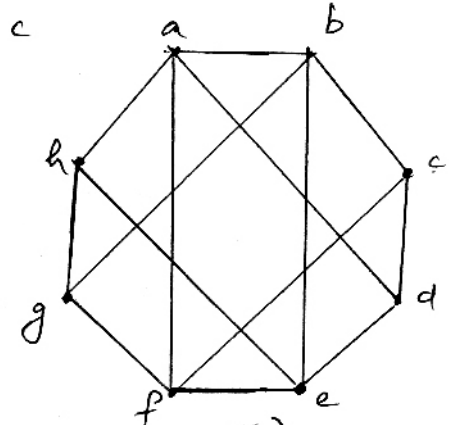
13. (a) Describe the procedure used to determine the planarity of a given graph. Use the same to find which among the following graphs are planar.



(i)



(ii)



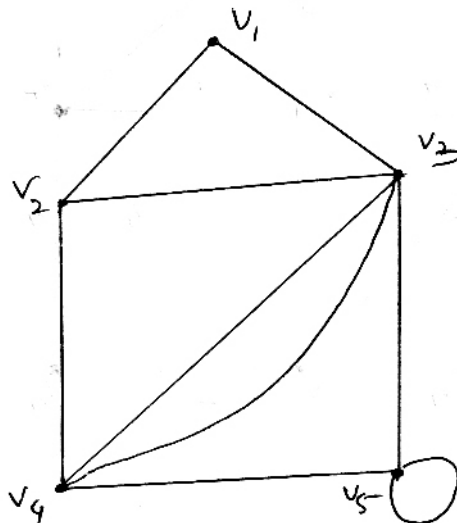
(iii)

(b) Write brief notes on the application of digraphs for representing binary relations.

OR

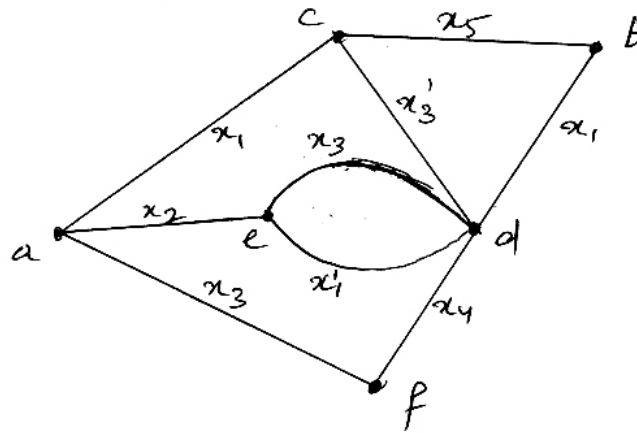
14. (a) Write notes on the vector space associated with a graph. What is meant by the basis vectors of a graph? Explain with an example.

(b) Explain the procedure for obtaining the geometric dual of a given graph. Determine the geometric dual of the following graph.



Module – III

15. (a) Explain the various methods of representing graphs in a computer.
(b) What is meant by the transmission of a contact network? Find the transmission, transmission matrix and primitive connection matrix of the contact network given below.



OR

16. (a) Describe the algorithm used in computers to obtain the components of a given graph.
(b) Write brief notes on the application of graphs in coding theory.
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EIGHTH SEMESTER B TECH DEGREE EXAMINATION MAY-2012
08.806 ARTIFICIAL INTELLIGENCE (ELECTIVE IV)
MODEL QUESTION PAPER

Time : 2 Hrs

Max Marks :100

PART A

(Answer all questions)

1. Define AI. Specify any one application.
2. Describe one criteria for computer software to be considered " Intelligent".
3. Prove that BFS is a special case of Uniform cost search .
4. Compare the optimality and completeness of DFS & BFS.
5. Represent the sentence
" All Germans speak the same language " in Predicate calculus. Use Speaks(x , l) meaning that person x speaks language l.
6. How can resolution be used to show that a conclusion is valid?
7. Explain the significance of initial values of weights and the learning rate parameters in learning laws?
8. Write notes on Unification in PROLOG.
9. Explain the basic principles of Rule based expert systems.
10. What is meant by goal driven reasoning ? Explain. (10 x 4 = 40 marks)

PART B

(Answer any one question from each module. All question carry equal marks)

MODULE 1

- 11 (a) Using Constraint satisfaction, Solve SEND + MORE = MONEY. (12 marks)
(b) Briefly discuss Alpha Beta procedue. (8 marks)

OR

- 12 (a) Explain how Min Max search procedure can be used for game playing? (10 marks)
(b) Discuss A* Algorithm . Is it optimal under all conditions? (10 marks)

MODULE 11

- 13 (a) Briefly discuss the candidate elimination algorithm in Version Space Search. (12 marks)
(b) Briefly explain any one AI Representational Scheme. (8 marks)

OR

- 14(a) Derive the algorithm for Back Propagation learning. (12 marks)
(b) What is meant by Genetic algorithm? Explain. (8 marks)

MODULE 111

- 15 (a) With a neat diagram discuss the different stages of language analysis . (12 marks)
(b) Explain any one natural language application . (8 marks)

OR

- 16 (a) Discuss the ways for representing facts and rules in PROLOG. (12 marks)
(b) Explain how recursion works in PROLOG . (8 marks)

Eighth Semester B.tech Degree Examination April 2012
Computer science & Engineering

Model question paper

08.806(4) INTERNET TECHNOLOGY (ELECTIVE IV)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions(10 X 4)

1. Write short note on SMTP.
2. What is the difference between XML,HTML and DHTML
3. What is the role of Web Server in internet?
4. Write note on World Wide Web.
5. What is DOM?Write a short note on DOM.
6. Explain about SSL protocol.
7. Write a short note on VPN.
8. What is Domain name resolution.
9. Expalin about FTP.
10. What is the difference between TCP and UDP header services.

(4X10=40)

PART – B

Answer one question from each module(3 X 20).

Module -I

11. What is XML?Discuss the structure of XML. Define the role of DTD in XML (20)

OR

- 12.Explain about various style sheet used in HTML? Why it is useful in webpage design. (20)

Module -II

13. Explain in detail online payment process (20)

OR

14. Write notes on the following

- a)proxy server
- b) search engines
- c)plug-ins

(20)

Module -III

15 Explain Remote login using TELNET protocol.

(20)

OR

16. Explain in detail video over IP

(20)
