

G 1047

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Computer Science and Engineering/Information Technology

SOFTWARE ENGINEERING (RT)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 4 marks.

1. What are the attributes of good software ? Discuss.
2. Explain : product metrics ; process metrics.
3. What are milestones ? Discuss the need for milestones.
4. Distinguish between verification and validation. Give example.
5. Define modularity and explain the same with an example.
6. What is content coupling ? Explain with an example.
7. Explain information hiding with an example.
8. What are code inspections ? Why code inspections ?
9. Define debugging and explain the same with an example.
10. What is a test case ? Explain with an example.

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each question carries 12 marks.

11. Diagrammatically illustrate and discuss the waterfall life-cycle model. (12 marks)

Or

12. What is a software requirement specification (SRS) ? List and discuss the characteristics of SRS document.

(12 marks)

Turn over

13. What is cost estimation model ? Explain the basic COCOMO model. (12 marks)

Or

14. What is software configuration management ? List and explain the configuration management activities. (12 marks)

15. (a) Explain procedural abstraction and data abstraction with an example. (6 marks)

(b) What is modularity ? Discuss. (3 marks)

(c) What is stepwise refinement ? Discuss. (3 marks)

Or

16. What is cohesion ? Explain coincidental cohesion, logical cohesion and temporal cohesion with example. (12 marks)

17. What is structured programming ? What are the rules for writing a structured program ? Discuss with an example. (12 marks)

Or

18. What is static analysis ? What is the objective of static analysis ? How is static analysis done ? Discuss. (12 marks)

19. (a) What is unit testing ? List and explain the targets for unit test cases. (6 marks)

(b) What is equivalence class partitioning ? Explain with an example. (6 marks)

Or

20. What is integration testing ? Explain the types of integration testing with example. (12 marks)

[5 × 12 = 60 marks]

G 1076

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Computer Science and Engineering/Information Technology

NETWORK COMPUTING (RT)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer all questions.
Each question carries 4 marks.*

1. Write a HTML script to present the student details in a table format. Briefly explain the tags used in its creation.
2. Explain absolute positioning of elements with an example.
3. Give the features of DHTML.
4. Write a note on Active X controls.
5. Explain how garbage collection is done in Java.
6. Discuss the life cycle of a thread with a diagram.
7. Explain how applets communicate with each other with an example.
8. What is meant by IP multicasting ? Give its importance in TCP/IP communications.
9. Write a note on HTTP messages.
10. Explain the role of SMTP in communication.

(10 × 4 = 40 marks)

Part B

*Answer all questions.
Each full question carries 12 marks.*

11. Explain HTML style sheets with suitable examples.

Or
12. Discuss the usage of DIV and SPAN tags.
13. Write a Javascript program to sort 'n' numbers in ascending order.

Or
14. Explain how pages can be updated dynamically using Javascripts.

Turn over

15. Discuss the implementation of multilevel inheritance with an example.

Or

16. What is meant by thread synchronization? How is it achieved using synchronized method?

17. Elaborate on the security features for applets.

Or

18. Explain how datagrams are implemented in Java.

19. Elaborate the working of HTTP protocol with necessary diagrams.

Or

20. Write a simple CGI program in C to validate user name and password.

(5 × 12 = 60 marks)

G 1401

(Pages : 3)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Computer Science and Engineering / Information Technology

CS 010 601 / IT 010 605—DESIGN AND ANALYSIS OF ALGORITHMS (CS, IT)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 3 marks.

1. What is an algorithm ? Give its properties.
2. Derive the complexity of bubble sort algorithm.
3. Define travelling salesman problem.
4. What is least-cost branch and bound method ?
5. Give a simple string-matching algorithm.

(5 × 3 = 15 marks)

Part B

Answer all questions.
Each question carries 5 marks.

6. Define Theta notation. Give an example :
 $I_S 2^{n+1} \in O(2^n)$? Justify.
7. Give the randomised version of quick sort.
8. What is the loop invariant in Kruskal's algorithm ?
9. Find an optimal solution to the Knapsack problem :
Using greedy strategy :
 $n = 7, w = 15$
 $(P_1, P_2 \dots P_7) = (10, 5, 15, 7, 6, 18, 3)$ and
 $(w_1, w_2 \dots w_7) = (2, 3, 5, 7, 1, 4, 1).$
10. What is Vertex-cover problem ?

(5 × 5 = 25 marks)

Turn over

Part C

Answer all questions.
Each full question carries 12 marks.

11. (a) Find the complexity of linear search algorithm. (3 marks)

(b) What is a recurrence relation? Construct a recursion-tree for the recurrence
 $T(n) = 2T(n/2) + cn$. (5 marks)

(c) Using Master's Theorem solve :
 $T(n) = 2T(n/2) + n^3$. (4 marks)

Or

12. Explain the algorithm for heapsort. Derive its complexity.

13. Explain the algorithm for finding maximum and minimum, and analyze its time complexity.

Or

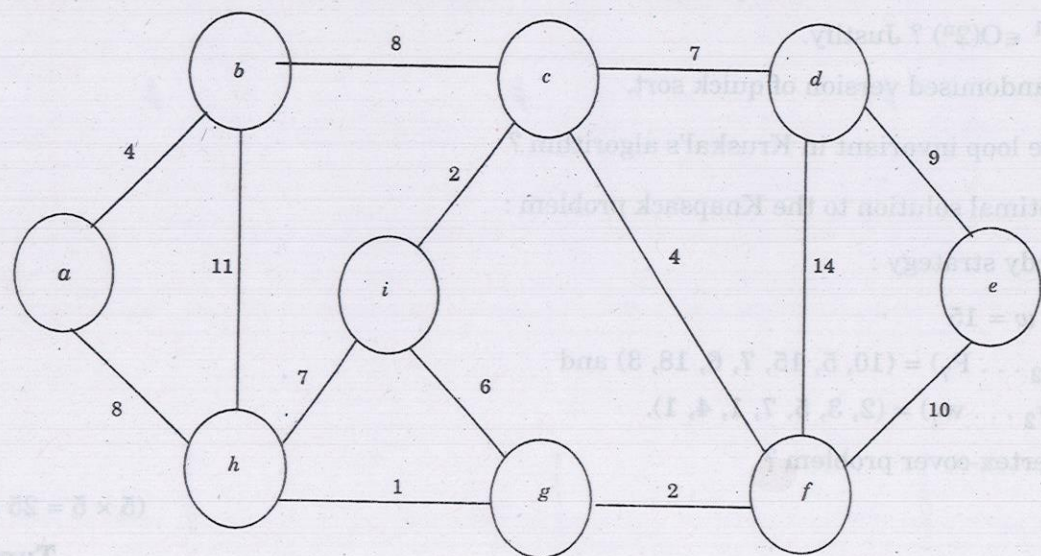
14. What is divide and conquer method? How can recurrence be used as a solution for divide and conquer method?

Apply divide and conquer to merge sort.

15. Using dynamic programming, derive a solution for the travelling salesman problem and analyze its complexity.

Or

16. Execute Prim's algorithm on the graph below and get a MST.



17. How to solve the sum of subset problem and derive its time complexity?

Or

18. (a) Explain generating function and bounding function. (6 marks)

(b) Compare branch and bound and backtracking. (6 marks)

19. Prove that any algorithm that works by comparing keys to find the second largest from a set of n keys must do at least $n + \log n - 2$ comparisons in the worst case.

Or

20. (a) Write short notes on planar graph coloring problem. (6 marks)

(b) How can you find the connected components of a graph? (6 marks)

[5 × 12 = 60 marks]

G 1413

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Computer Science and Engineering

CS 010 602—INTERNET COMPUTING

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. What is the difference between thread and process ?
2. What is wrapper classes ? Give two examples.
3. What is the difference between applet and application ?
4. What component positions can use with a Border Layout manager ?
5. What does Class.forName() method do ?

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Compare and contrast abstract class with interface. Why do you use an abstract class ? Why do you use an interface ?
7. Define Inheritance. How does inheritance helps code reusability ?
8. Write significance of each words in `public static void main(string args[])`.
9. What do meant by character streams. Name any four classes in this stream and mention the purposes of each.
10. Write an applet program to display a message 'I am an applet-Welcome'.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. Explain the terms encapsulation, abstraction and polymorphism.

Or

Turn over

12. Write a java program to add two dates. Define a class Dale with private instance variables *day*, *month*, *year* and a function *add*. Let the function accepts objects of Date class as parameter and return an object of the same type.
13. What is checked and unchecked exceptions Explain with an example the use of *try*, *catch*, *throw*, *throws* and *finally*.

Or

14. What are the different access specifiers of Java ? Describe access control mechanism of java.
15. Write a program to develop an application, which creates two buttons and a label. When button is clicked, display the text associated with it on the label.

Or

16. Develop an applet which displays three checkboxes corresponds to 'Linux', 'Windows', 'Mac'. Capture the event and display the status of each of the check boxes.
17. Write a program to establish socket connection between a client and server. Let the client sends name of a file the to the server. If exists, the server reads the contents of the file and send back it to the client. If not, indicate the client that file doesn't exist.

Or

18. Write a Java program to create two threads. Let one thread outputs numbers 1 to 10 with other output numbers from 10 to 1.
19. Write a program to retrieve an employee record from a database table using EmpNo as the key. Let the database table contains EmpNo, Name. Department and Salary.

Or

20. What are advantages of Servlet over CGI ? Write the purpose into(). *service()* and *destroy()* methods of Servlet interface.

(5 × 12 = 60 marks)

G 1425

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Computer Science and Engineering

CS 010 603—SYSTEM SOFTWARE (CS)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. Explain parameterised macros with an example.
2. Give the format of header, text and end records in assembler output.
3. What is an absolute loader ?
4. What are the capabilities of a debugger ?
5. Define block device driver.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. How can we generate unique labels in a macro ?
7. What is a forward reference ? How is it handled in an assembler with two passes ?
8. What is the need for linking ?
9. Explain text editor user interface.
10. Write notes on general device characteristics.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each full question carries 12 marks.

11. Explain macroprocessor algorithm.

Or

12. Describe how nested macrocalls and recursive macrocalls are handled with the help of examples.

Turn over

13. Give the algorithm for a single pass assembler.

Or

14. Explain the handling of external references by an assembler with the help of examples.

15. Give the algorithm for linking loader.

Or

16. Write notes on UNIX ELF.

17. Explain overall editor structure with a diagram.

Or

18. Explain how the debugger relates with other parts of the system.

19. Give the general design and anatomy of devices.

Or

20. Write notes on character devices and their drivers.

(5 × 12 = 60 marks)

G 1439

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Computer Science and Engineering

CS 010 604—Computer Networks (CS)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** the questions.
Each question carries 3 marks.

1. What are the requirements of a network ?
2. What is clock based framing ?
3. Define packet switching.
4. What is the use of DEC bit ?
5. Define web services.

Part B

(5 × 3 = 15 marks)

Answer **all** the questions.
Each question carries 5 marks.

6. Describe the layered and protocol architecture.
7. Explain WiFi and Wimax.
8. Describe about switching and forwarding.
9. What are the fundamentals of RPC ?
10. Explain peer to peer networks.

Part C

(5 × 5 = 25 marks)

Answer **all** the questions.
Each question carries 12 marks.

11. Explain about OSI architecture in detail.

Or

12. Explain the performance characteristics in a network.

Turn over

13. Explain in detail about byte and bit oriented protocol

Or

14. Describe the reliable transmission stop and wait mechanism.

15. Explain spanning tree algorithms.

Or

16. Explain link state and distance vector routine.

17. Describe connection establishment and termination mechanisms.

Or

18. Explain any *two* congestion control mechanisms.

19. Explain WWW, Email and Name service.

Or

20. Explain Network management.

(5 × 12 = 60 marks)

G 1453

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Computer Science and Engineering

CS 010 605—SOFTWARE ENGINEERING (CS)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. What are the advantages of developing the prototype of a system ?
2. What are the advantages and disadvantages of CASE tools ?
3. Define requirement analysis. Write down the different areas of effect is requirement analysis.
4. How do OOD and structured design differ ?
5. Write short note on unit testing.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. What do you mean by the term "Software Engineering" ? Describe the evolving role of software.
7. Different between Gantt chart and PERT chart.
8. List out requirements elicitation techniques. Which one is the most popular and why ?
9. Explain the design guidelines that can be used to produce "Good Quality" classes or reusable classes.
10. Discuss various steps of data flow Testing.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. Describe the Rapid Application Development (RAD) model. Discuss each phase in detail.

Or

Turn over

12. Compare the waterfall model and the spiral model of software development.
13. Compare COCOMO-I and COCOMO-II.

Or

14. Define software metrics. Discuss the areas of applications of software metrics.
15. Discuss various requirement elicitation techniques.

Or

16. What is Software Requirements Specification (SRS) ? List out the advantages of SRS standards. Why in SRS known as the Black Box specification of a system ?
17. Discuss the objectives of software Design. How do we transform an informal design to a detailed design ?

Or

18. Write down the special features exhibited by CASE tools.
19. Distinguish between Integration Testing and system Testing.

Or

20. What are the testing principles that a software Engineer must apply while performing testing ?
(5 × 12 = 60 marks)

G 1476

(Pages : 2)

Reg. No.....

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B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Computer Science and Engineering

CS 010 606 L01—DISTRIBUTED SYSTEMS (Elective I) [CS]

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. What is the role of middleware in a distributed system ?
2. In order to use distributed shared memory, a distributed synchronization service needs to be provided. Why ?
3. What do you mean by "lazy replication" ?
4. Explain Co-scheduling.
5. What do you mean by "dirty reads" ?

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Explain the challenges of distributed systems with respect to the transparency of its components.
7. List the steps in remote procedure calls.
8. How is naming issue addressed in Sun Network File System ?
9. Explain Fail-stop failures and Byzantine failures.
10. Explain 'lost-update problem' for concurrent transactions.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each full question carries 12 marks.

11. (a) Explain the design issues of distributed systems.

Or

Turn over

(b) Explain workstation model of distributed system. How is an idle workstation found and how can remote process be run transparently in an idle workstation ?

12. (a) What is marshalling ? Why is it necessary for inter process communication ? Explain.

Or

(b) Explain Lamport's algorithm for clock synchronization.

13. (a) Explain caching in server side as well as in client side for distributed file system.

Or

(b) Explain NFS architecture and its implementation.

14. (a) Explain graph theoretic deterministic algorithm for processor allocation. What are its limitations ?

Or

(b) Explain dispatcher/worker model of threads. Compare the model with pipeline model.

15. (a) Explain two-phase commit protocol for distributed transactions. Show the sequence of message transfer between co-ordinator and participants.

Or

(b) How will you detect deadlocks in transactions ? What are the methods to resolve these deadlocks ? Explain using suitable example.

(5 × 12 = 60 marks)

G 1480

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Computer Science and Engineering/Information Technology

CS 010 606 L04/IT 010 606 L03—UNIX SHELL PROGRAMMING—(Elective I) (CS, IT)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. List various kinds of UNIX files.
2. Explain the use of tee utility.
3. Explain how devices are represented in UNIX.
4. How will you count the number of blank lines in a UNIX file ?
5. What are zombies ?

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Explain the UNIX file system hierarchy.
7. Explain how security is implemented in UNIX, with examples.
8. Write a note on various editors in UNIX.
9. Give the uses of the commands : diff, uniq, cmp, head, nice.
10. Write a note on signals in UNIX.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each full question carries 12 marks.

11. (a) Explain the word processing commands : nroff, troff.
(b) List the process related utilities in UNIX.

Or

Turn over

12. (a) Explain mount and unmount operations, with examples.
(b) List the file handling utilities in UNIX.
13. (a) Define regular expression. List regular expression operators with examples.
(b) Give the uses of cut and paste commands, with examples.

Or

14. (a) Explain the use of pipes, with examples.
(b) Explain the uses of sort command, with examples.
15. Explain the use of awk command, with suitable examples.

Or

16. (a) Compare sed with ed command.
(b) Explain grep command.
17. (a) Explain the use of make command, with examples.
(b) Write a shell script to find the largest of three given integers.

Or

18. Write a shell script to print the sum of digits of a given number.
19. (a) Explain the configuration of squid proxy server.
(b) Explain uses of fork () and exec () functions.

Or

20. Explain X window systems. How is it started and stopped ?

(5 × 12 = 60 marks)