G 1720   (Pages : 2)   Reg. No.................................

Name.................................

B.TECH. DEGREE EXAMINATION, MAY 2018

Seventh Semester

Branch : Information Technology

IT 010 702—OBJECT ORIENTED MODELING AND DESIGN (IT)

(New Scheme—2010 Admission onwards)

[Improvement / Supplementary]

Time : Three Hours   Maximum : 100 Marks

Part A

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

1. What is a Meta class ?

2. Outline the purpose of modeling a data flow diagram.

3. Present an outline of object-oriented analysis.

4. "Inheritance allows a software developer to derive a new class from an existing one". Elucidate with an example.

5. Outline the use of synchronization bars in an activity diagram.

(5 × 3 = 15 marks)

Part B

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

6. How object oriented methodology differ from other programming methodologies ?

7. Outline event, state and operation with an example.

8. When two objects are inherently concurrent ? Outline with an example

9. "Divide and conquer strategy is crucial to system design". Elucidate with an example.

10. Explain with an example a concrete use case and an abstract use case.

(5 × 5 = 25 marks)

Turn over

Part C

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

Explain with a diagram the object oriented system development life cycle.

Or

(a) Explain with an example generalization as extension and restriction. (6 marks)

(b) Outline with an example constraints on objects and constraints on association links.

(6 marks)

How to model the dynamic aspects of object oriented systems ? Discuss with an example.

Or

Outline with an example the relation of functional model to class and dynamic model.

Explain with an example the process of defining concurrent tasks.

Or

What is an architectural framework ? Explain with an example the components of an architectural framework.

Name the object design activities and present an outline of the same.

Or

Outline the use of inheritance and explain with an example the need for adjustment of inheritance.

Model a class diagram for a "Library Management System". State the functional requirements you are considering.

Or

(a) Model a use case diagram for the following scenario : (6 marks)

Deepthi super market wants a subsystem to process supply orders via the Web. The user will supply via a form their name, password, account number, and a list of supplies along with an indication of the quantities desired. The subsystem will validate the input, enter the order into a database, and generate a receipt with the order number, expected ship date, and the total cost of the order. If the validation step fails, the subsystem will generate an error message describing the cause of the failure.

(b) Illustrate with an example the use of swimlane, fork and join (merge) in an activity diagram.

(6 marks)

$[5 \times 12 = 60 \text{ marks}]$

B.TECH. DEGREE EXAMINATION, MAY 2018

Seventh Semester

Branch : Information Technology

IT 010 703—COMPUTER GRAPHICS AND MULTIMEDIA SYSTEMS (IT)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours
Maximum : 100 Marks

Part A

Answer **all** *the questions.*

Each question carries 3 marks.

1. What are the functionalities of display devices ? Explain.

2. How a line can be scaled by 25 % of its original size ? Explain.

3. What is the purpose of using hidden surface removal algorithms ?

4. What are the components of Multimedia System ?

5. What are the main issues in Multimedia Operating System ?

(5 × 3 = 15 marks)

Part B

Answer **all** *the questions.*

Each question carries 5 marks.

6. Briefly explain different types of input devices.

7. What is shearing ? Explain the process of shearing of a given rectangle.

8. Explain hidden line removal algorithm.

9. What are the characteristics of traditional data streams ?

10. Explain the major steps in data compression.

(5 × 5 = 25 marks)

Turn over

Part C

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

11   Consider two points PI (100,100) and P2 (105, 95). Using the DDA algorithm, show the points selected for drawing a line from P1 to P2. Show necessary calculations according to DDA algorithm.

Or

12.   Explain boundary fill and flood fill algorithm along with an example.

13. (a)   Show the calculations for translating a triangle with vertices at original co-ordinates (10, 20), (10,10), (20, 10) by $t_x = 5$ and $t_y = 10$.

(6 marks)

(b)   Show the calculations for rotating a triangle about the origin with vertices at the original coordinates (10, 20), (10, 10), (20, 10) by 30 degrees.

(6 marks)

Or

14.   Perform a composite transformation on a triangle (x_1, y_1), (x_2, y_2) and (x_3, y_3) for rotation with 45° with respect to point (x_1, y_1) and scaling with 50 % of the current size. Show necessary calculations for this transformation.

15   Explain A-buffer algorithm for hidden surface removal. Compare it with a Z-buffer algorithm.

Or

16.   What is the purpose of shading in computer graphics ? Explain Z-Flat shading and Gouraud Shading.

17.   What is an image ? Explain, the fundamental steps involved in digital image processing.

Or

18.   Explain speech recognition system and speech analysis techniques.

19.   What are the characteristics of real time multimedia systems ? What are the major challenges in handling real time multimedia data ? Explain.

Or

20.   Write a short note JPEG and MPEG compression techniques.

(5 × 12 = 60 marks)

G 1749

(Pages : 2)

B.TECH. DEGREE EXAMINATION, MAY 2018

Seventh Semester

Branch : Information Technology

IT 010 704—INTERNET WORKING [IT]

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

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

1. ARP is often cited as a security weakness. Explain why.

2. Describe the effect of supernetting on routing.

3. Why delay is not used as a metric in most protocols ?

4. Imagine that we decide to create a new Internet, parallel to the existing Internet that allocates addresses from the same address space. Can NAT technology be used to connect the two arbitrarily large Internets that use the same address space ? Justify your answer.

5. If an RTP message arrives with a sequence number far greater than the sequence expected, what does the protocol do ? Why ?

(5 × 3 =15 marks)

Part B

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

6. With an example, explain the process of fragmentation and reassembly of packets.

7. Enlist the Data Structures and Algorithms for classless lookup. Explain any *two* in detail.

8. State and explain Karn's Algorithm.

9. What is the purpose of IP switching ? Explain.

10. Explain how QoS is supported in Internet ?

(5 × 5 = 25 marks)

Turn over

Part C

*Answer **one** full question from each module.*
Each full question carries 12 marks.

11. What is the purpose of using Reverse Address Resolution Protocol (RARP) ? Explain working principle of the RARP.

Or

12. What is the relevance of connectionless datagram delivery in network layer ? Explain how IP datagrams are forwarded in network.

13. Assume that your company has the network ID 145.141.0.0. You are responsible for creating subnets on the network, and each subnet must provide at least 950 host IDs. What subnet mask meets the requirement for the minimum number of host IDs and provides the greatest number of subnets ? Justify your answer along with the necessary calculations.

Or

14. What are the issues in end to end service for providing Releiable Stream Transport Service ? How TCP is able to provide reliable transmission ? Explain.

15. What is an autonomous system ? Explain the routing protocol for routing a datagram within an autonomous system along with an example.

Or

16. Open Shortest Path First (OSPF) is used for routing packets within an autonomous system. Explain OSPF protocol and its advantages.

17. (a) What is Internet Multicasting ? What are its applications ? Explain its working principle.

    (b) Explain any *one* protocol in detail, which is used for remote login.

                                                                (6 + 6 = 12 marks)

Or

18. (a) How can a site provide multiple computers at the site access to Internet services without assigning each computer a globally-valid IP address ? Explain in detail.

    (b) Explain DNS protocol ? What are its advantages ?

19. What are the features of FTP, TFTP and NFS file transfer protocols ? Explain.

Or

20. Explain how RTP and RSVP supports Voice and Video over IP.

                                                                [5 × 12 = 60 marks]

G 1762

(Pages : 2)

Reg. No..............................

Name...................................

B.TECH. DEGREE EXAMINATION, MAY 2018

Seventh Semester

Branch : Information Technology

IT 010 705—WEB APPLICATIONS DEVELOPMENT (IT)

(New Scheme—2010 Admission onwards)

[Improvement / Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

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

1. What is document engineering ?

2. What are the different J2EE layers ?

3. State the various parts of a Bean.

4. Describe the servlet lifecycle briefly.

5. What is CORBA ?

(3 × 5 = 15 marks)

Part B

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

6. Discuss about the various JDBC driver types.

7. Write the differences between JSP and servlets.

8. Write a note on MVC design.

9. Distinguish between Stateless and State full session beans with a suitable example each.

10. What are servlets ? Explain the different stages in life cycle of a servlet API.

(5 × 5 = 25 marks)

Turn over

Part C

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

11. Discuss the architecture of a J2EE based Web application.

Or

12. Describe the process of defining a J2EE application, from its interface to validating the code.

13. Write a program to accept user input through HTML forms and display the entered values back to the user using Java Servlets and JDBC.

Or

14. With a neat diagram and suitable examples, explain the process of accessing multiple databases using JDBC.

15. Briefly explain the process of JSP application design with MVC architecture. Explain the concept of MVC with a relevant example.

Or

16. Explain how to generate dynamic content using scripting element with an example. Also, discuss the concept of JSP objects.

17. With an example, explain how JavaBeans components can be used in JSP pages. How is the data sharing between different JSP pages managed ?

Or

18. Write notes on :

   (i) Session Java Beans.

   (ii) Entity Java Beans.

19. Write a program using RMI (Remote Method Innovation) concept such as client and server program in which client sends hello message to server and server replies for the client.

Or

20. What are Message driven Beans ? With an example, explain how they can be used in a real-world Web application.

(5 × 12 = 60 marks)

G 1804 *MOR-V* (Pages : 2) Reg. No..............................

Name...................................

B.TECH. DEGREE EXAMINATION, MAY 2018

Seventh Semester

Branch : Information Technology

IT 010 706 L06—DATA MINING AND DATA WAREHOUSING—(Elective—II) (IT)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours Maximum : 100 Marks

Part A

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

1. List the characteristics of a Data Warehouse.

2. Write a note on correlation analysis.

3. Define the term "Interestingness of patterns".

4. Why is data preprocessing an important prerequisite for both data mining and data warehousing ? Explain briefly.

5. Define an outlier with a clear example.

(5 × 3 = 15 marks)

Part B

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

6. What are associations ? Show how they are used with a relevant example.

7. Briefly describe the process of generating a data cube.

8. Explain the features of density based clustering algorithms.

9. What are the different types of data repositories on which Data mining can be performed ? Explain.

10. What is correlation analysis ? What is its significance ? Demonstrate with an example.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*

Each full question carries 12 marks.

11. Explain with diagrammatic illustration, the relationship between operational data, a data warehouse and a data mart.

Or

12. Write a short note on multidimensional data model. Briefly explain any *two* types of schemas used for modelling multidimensional databases.

13. A data warehouse for a university consists of four dimensions: student, course, semester, and instructor, and two measures : count and average grade. Assume at least 4 attributes for each dimension.

    (a) Draw a snowflake schema diagram for the data warehouse.

    (b) Starting with the base cuboid [student ; course ; semester ; instructor], what specific OAP operations (e.g., roll-up from semester to year) should one perform in order to list the average grade of CS courses for each student ?

Or

14. Discuss the importance of Business Intelligence in enterprise data management. With an example scenario, explain how a business analysis tool can be applied to generate BI data.

15. What is meant by dimensionality reduction ? Why is it required ? Discuss any *two* methods for dimensionality reduction.

Or

16. With a diagrammatic illustration, discuss the steps involved in the process of knowledge discovery from databases.

17. Discuss in detail, Bayesian and rule based classification techniques.

Or

18. How is classification different from clustering ? Discuss any *two* classification techniques in detail.

19. Write any *two* algorithms used for mining spatial databases.

Or

20. With an example application scenario, explain the process of Web Structure mining and Web Usage mining.

(5 × 12 = 60 marks)