

G 5564

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2017

Seventh Semester

Branch : Computer Science and Engineering

CS 010 701 – WEB TECHNOLOGIES [CS]

(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 are Span and Diu Tags?
2. Provide the XML document structures.
3. Write a simple perl program using control statement.
4. Define Cookies.
5. What are rails? Present its advantages.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Discuss in detail, the levels of style sheets.
7. Summarize the different forms of markup that can occur in XML documents.
8. What are Scalars in perl? Discuss their operations.
9. Present the syntactic characteristic of PHP.
10. Highlight the features of Ajax.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. Explain the basics of text markup. Explain how images can be used as hyper link with illustration.

Or

12. How to build a CSS drop-down menu? Explain in detail.

Turn over

13. What are XML schemas? Elaborate in detail, the problems solved by XML Schema definition language.

Or

14. Explain conversion of XML to HTML with XSL minimalist XSL style sheets.

15. With an example, explain the use of hashes, keys and values in perl.

Or

16. With suitable example, explain functions in perl.

17. Describe how cookies can be used to store information on a computer and how the information can be retrieved by a PHP script.

Or

18. (i) Explain session tracking in PHP.

(ii) Write a PHP script that texts whether an e-mail address is input correctly.

(6 + 6 = 12 marks)

19. Explain how forms are processed using rails.

Or

20. Illustrate how Rails are used with Ajax with examples.

[5 × 12 = 60 marks]

G 5608

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2017

Seventh Semester

Branch : Computer Science and Engineering

CS 010 704—OBJECT-ORIENTED MODELING AND DESIGN (CS)

(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 class ? Give example.
2. Why nested state diagrams are modeled ?
3. What is object-oriented analysis ?
4. How classes can be defined in terms of other classes ? Discuss with example.
5. List the elements of an activity diagram.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. What is metadata ? Explain its usefulness.
7. Explain the relation of functional model to object and dynamic models.
8. State reasons why modelers often iterate and revise the analysis model.
9. What is refinement of design ? Discuss.
10. List the elements of a use case diagram and discuss the same with example.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. Explain with example the constraints and characteristics of generalization and specialization.

Or

12. Explain with example the process of organizing the objects and identifying their relationships.

Turn over

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

Or

14. Consider the following business logic for an order system :

Deepthi tools sell a line of high-quality wood working tools. When customers place orders on the company's web site, the system checks to see if the items are in stock, issues a status message to the customer, and generates a shipping order to the warehouse, which fills the order. When the order is shipped, the customer is billed. The system also produces various reports. Draw a data flow diagram for the order system.

15. What is system design ? List and discuss the activities carried out during system design.

Or

16. (a) How to decide allocation of subsystems to processors ? Discuss with example. (8 marks)

(b) What is an access control list ? Discuss with an example. (4 marks)

17. (a) How to implement one-way, two-way and link attribute associations ? Discuss with example. (8 marks)

(b) Why document design decisions ? Discuss. (4 marks)

Or

18. Why careful partitioning of an implementation into packages is important ? List and discuss the issues packaging involves.

19. Model a class diagram for the following scenario :

A company is organized into departments. Each department has employees working in it. The attributes of department include department number and department name. The attributes of employee include employee number, employee name, date of birth, gender, date of joining, designation and basic pay. Each department has a manager managing it. There are also supervisors in each department who supervise a set of employees. Each department controls a number of projects. The attributes of project include project code and project name. A project is controlled only by one department. An employee can work in any number of distinct projects on a day. The date an employee worked, in time and out time has to be kept track.

Or

20. Consider the following use cases in a banking system :

(a) Deposit.

(b) Withdraw (Minimum balance has to be checked).

Model sequence diagram for the above two use cases.

(5 × 12 = 60 marks)

G 5621

(Pages : 2)

Reg. No.....

Name.....

B.TECH DEGREE EXAMINATION, MAY 2017

Seventh Semester

Branch : Computer Science and Engineering

CS010 705 : PRINCIPLES OF PROGRAMMING LANGUAGES (CS)

(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 orthogonality in a programming language mean ?
- 2 Explain primitive data types with example.
- 3 What are conditional expressions ? Give example.
- 4 Why is type checking the parameters of a subprogram important ?
- 5 What is exception handling ? Give example.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

- 6 Present examples of syntactic design choices that affect program readability and discuss the same.
- 7 What primitive control statement is used to build more complicated control statements in languages that lack them ? Discuss with example.
- 8 Explain operator precedence and operator associativity with example.
- 9 What is an overloaded subprogram ? Give example.
- 10 Explain recursion with an example.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

- 11 Discuss the language evaluation criteria and the characteristics that affect them.

Or

- 12 Discuss the influence of computer architecture and programming design methodologies on language design.

Turn over

13 Discuss the specification and implementation of structured data types with example.

Or

14 What is a heap ? Why heap management can be a very complex run-time process ? Discuss with example.

15 (a) Explain implicit type conversion and explicit type conversion with example.

(6 marks)

(b) What are compound and unary assignment operators ? Discuss with example.

(6 marks)

Or

16 What is iteration ? How is the iteration controlled ? Where should the control mechanism appear in the loop statement ? Explain with examples.

17 (a) Discuss the issues related to variables that are defined within subprograms with example.

(8 marks)

(b) What are nested subprogram definitions ? Give example.

(4 marks)

Or

18 (a) What is parameter-passing ? Explain pass-by-reference with an example.

(6 marks)

(b) In what ways are coroutines different from conventional subprograms ? Discuss.

(6 marks)

19 How to implement static scoping in languages that allow nested subprograms ? Discuss with example.

Or

20 Explain exception handling in C++ with example.

[5 × 12 = 60 marks]

G 5649

(Pages : 2)

Reg. No.....

Name.....

B.TECH DEGREE EXAMINATION, APRIL/MAY 2016

Seventh Semester

Branch : Computer Science and Engineering

CS010 706L06 : CLIENT SERVER ARCHITECTURE AND APPLICATIONS
(Elective II) (CS)

(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 distributed computing ? Give example.
- 2 "Clients are often easier to build than servers" , why ?
- 3 Explain multitasking.
- 4 What is a semaphore ?
- 5 Define portability.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

- 6 List and explain the elements of client server computing.
- 7 Explain with diagrammatic illustration three tier architecture.
- 8 What is a thread ? Why threads ? Explain with an example.
- 9 Explain the critical section problem with an example.
- 10 What is a security flaw ? Give examples for security flaws in a client server environment.

(5 × 5 = 25 marks)

Turn over

Part C

Answer all questions.

Each full question carries 12 marks.

- 11 (a) List and explain the components of client/server architecture with diagrammatic illustration. (6 marks)
- (b) Explain the fat client model and the thin client model with example and diagrammatic illustrations. (6 marks)

Or

- 12 List and explain the steps to link external databases stored on a database server using open database connectivity (ODBC). Give example.
- 13 List and discuss the issues to be addressed while designing client server systems.

Or

- 14 What is remote procedure call (RPC) ? Explain with diagrammatic illustration the working of RPC.
- 15 What is a network operating system? Discuss the features of Novell NetWare operating system.

Or

- 16 Discuss the hardware roles, software roles and transaction roles in the client server model.
- 17 What is a race condition ? How to avoid race conditions and achieve mutual exclusion ? Discuss with example.

Or

- 18 Discuss semaphore implementation in Windows NT operating system.
- 19 What is interprocess communication ? List and explain the models of interprocess communication.

Or

- 20 How to ensure security in a client server environment ? Discuss.

(5 × 12 = 60 marks)

G 5732

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2017

Seventh Semester

Branch : Computer Science and Engineering/Information Technology

OBJECT ORIENTED MODELING AND DESIGN (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. Explain encapsulation with an example.
2. What is an abstract class ? Give example.
3. Outline how state chart diagrams describe the dynamic behavior of a single object.
4. Explain event, state and operation with an example.
5. How is object oriented analysis different from object oriented design ?
6. What is an operation ? Give example for query operation and update operation.
7. What is refactoring ? Give example.
8. Outline the need for adjustment of inheritance with an example.
9. Present an overview of Booch's methodology.
10. "Use case diagrams are closely connected to scenarios". Elucidate.

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each question carries 12 marks.

11. (a) Model a generalization specialization hierarchy for the following scenario :

A car-rental company maintains a vehicle database for all vehicles in its current fleet. For all vehicles, it includes the vehicle identification number, license number, manufacturer, model, date of purchase, and color. Special data are included for certain types of vehicles :

- Trucks : cargo capacity
- Sports cars : horsepower, renter age requirement.

Turn over

- Vans : number of passengers.
- Off-road vehicles : ground clearance, drive train (four- or two - wheel drive).

(6 marks)

(b) What is aggregation ? Explain with an example.

(6 marks)

Or

12. Model a class diagram the following scenario :

An international airport requires a system to keep track of flight details for customers. For each flight the system needs to store the flight number, destination, departure time, departure date, airline and flight cost. Some flights are direct flights, i.e. they fly non-stop to the destination and some fly via another airport to their destination. We will call these flights indirect flights. In this case the flight stops at an airport en route to its destination to refuel. In the case of indirect flights information regarding the transit airport must also be stored. The flight cost is calculated to be the cost charged by the airline per customer plus a percentage of this amount (the profit rate). In the case of indirect flights an additional levy must be added to this amount per customer in order to cover refueling levies at the transit airport. Furthermore, on some flights additional passengers can board the plane at the transit airport. The system needs to keep track of whether boarding will take place at the transit airport or not. The system also needs to store details of the aircraft used for a flight. The aircraft make, model and capacity (number of passengers that it can carry), must be stored for each aircraft.

13. Explain with an example the use of sequence diagrams for dynamic modeling.

Or

14. Model a data flow diagram for a "Banking System". State the functional requirements.

15. What is system design ? List and discuss the activities carried out during system design.

Or

16. How an analysis model can be mapped to a design model ? Discuss with an example.

17. What is object design ? How to optimize the design during object design phase ? Discuss with an example.

Or

18. Discuss the process of documenting design decisions with an example.

19. Model a use case diagram for a "Banking System". State the functional requirements you are considering.

Or

20. What is a test model ? How to develop a test model ? Discuss with an example.

(5 × 12 = 60 marks)

G 5741

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2017

Seventh Semester

Branch : Computer Science and Engineering/Information Technology

COMPUTER GRAPHICS (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. How can computer graphics be used in education and training ?
2. Define bitmap and pixmap. Brief the properties of video monitors.
3. Generate a line with endpoints (20, 10) and (30, 18) using digital differential analyzer line drawing algorithm.
4. Illustrate the 2D transformations translation and scaling with an example.
5. What is depth queing ? Give its applications.
6. How would the values for parameters A, B, C and D in the equation of a plane surface have to be altered if the co-ordinate reference is changed from a right-handed system to a left-handed system ?
7. Write the steps to convert modeling co-ordinates to device co-ordinates.
8. Summarise the steps of depth buffer method to detect visible surfaces.
9. Define Fractlals. State its uses.
10. How can raster images be animated ?

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each question carries 12 marks.

11. Explain the different architectures of a raster graphics system and present the importance of each component in the raster system.

Or

12. List the different input and output devices designed for interactive graphics and describe any *three* of them.

Turn over

13. Illustrate Bresenham's circle generating algorithm with an example. Present the steps in the algorithm.

Or

14. What is polygon clipping ? Demonstrate the steps of Sutherland-Hodgeman polygon clipping algorithm using an example.

15. List and describe the five different quadratic surfaces that are common elements of graphics scenes.

Or

16. Derive the blending functions of Bezier and Cubic Bezier curves and use them to generate both curves from four control points.

17. Explain parallel and perspective projections with examples. Also derive the transformation matrices required to perform projections.

Or

18. Describe scan line method to remove hidden surfaces by choosing an example of your choice. Construct an edge table and polygon table for the example chosen.

19. Discuss how Koch's curve can be generated using self similar fractals.

Or

20. Define Morphing. Explain how linear interpolation and curve fitting techniques are used to specify the animation paths.

(5 × 12 = 60 marks)

G 5579

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2017

Seventh Semester

Branch : Computer Science and Engineering

CS 010 702 – COMPILER CONSTRUCTION [CS]

(New Scheme – 2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. Draw syntax tree for position : Initial Trade.
2. What are pretty printers?
3. Differentiate top down parsing and bottom up parsing.
4. What is the need for semantic analysis?
5. Define runtime errors. Give example.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Illustrate the specification of tokens using regular expression.
7. Present the parsing action conflicts and the rules used by Yace to resolve them.
8. Illustrate type checking of functions.
9. Explain 3 Address code. Provide examples.
10. Explain generation of target code from expression tree with an example.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. Explain the phases of compiler in detail. Write down the output of each phase of compiler for the given expression, $p := q * r/15$.

Or

12. Describe in detail, implementation of lexical analyzer using finite automation.

Turn over

13. Discuss in detail, design of a recursive descent parser.

Or

14. What are lexical errors? Elaborate the possible error-recovery actions.

15. What is the necessity for heap allocation strategy? How does it handle? Explain in detail.

Or

16. Explain static allocation in detail. Discuss how stack allocation differs from static allocation.

17. Describe elimination of Global Common subexpression in detail.

Or

18. What do you mean by Copy propagation? Explain the algorithm in detail.

19. Write short notes on Cross compilers and Incremental compilers.

Or

20. Elaborate symbol table handling in detail.

(5 × 12 = 60 marks)

G 5594

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2017

Seventh Semester

Branch : Computer Science and Engineering

CS 010 703—COMPUTER GRAPHICS (CS)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. Compare the advantages of raster graphics over video monitors.
2. Write the transformation matrix for reflection and shear.
3. What are the available projections to view a 3D objects ?
4. Mention the properties of Bezier curves.
5. Define Fractals.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. What are flat panel displays ? Explain its different categories.
7. Explain 2D viewing transformation in brief.
8. Define B spline curves and explain its significance in graphics.
9. Explain the transformations to convert window to viewport co-ordinates.
10. Discuss any two problems associated with the display of calculated intensities in display devices.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. Explain the different physical interactive devices used in graphics.

Or

12. Explain refresh cathode ray tubes with a neat diagram.

Turn over

13. Elaborate Bresenham's circle drawing algorithm with an example.

Or

14. Demonstrate Cohen-Sutherland line clipping algorithm using an example.

15. (a) Explain the basic transformations in 3D and represent them in matrix form. (8 marks)

(b) What is concatenation? How does it affect the efficiency of transformations? (4 marks)

Or

16. Explain 3D objects are constructed using sweep representations.

17. Explain the Z-buffer algorithm to remove hidden surfaces with its pseudocode.

Or

18. Elaborate on perspective projection with necessary diagrams.

19. What are the different methods available for shading a polygon? Briefly discuss any *two* of them.

Or

20. Describe the concept of ray tracing and ray casting in detail.

[5 × 12 = 60 marks]

G 5749

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2017

Seventh Semester

Branch : Computer Science and Engineering

THEORY OF COMPUTATION (R)

(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. Compare and contrast computable and non-computable functions.
2. Give the diagonalization principle.
3. State the formal definition of DFA.
4. What is finite state automata ? Give its applications.
5. Differentiate deterministic and non-deterministic PDA.
6. Define Parsing.
7. What are universal Turing machines ?
8. What do you mean by Godelization in Turing machine ?
9. Distinguish between tractable and intractable problems.
10. What do you mean by complexity classes, class P and class NP.

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each full question carries 12 marks.

11. What are sets and subsets ? Explain the various ways of describing a set and its relations. Give example.

Or
12. What are functions ? Explain primitive recursive and partial recursive functions with an example.
13. Elaborate designing finite automata. Explain how regular operations are used to study properties of finite automata.

Or
14. Explain with an example conversion of NFA to DFA.

Turn over

15. State the formal definition of a context-free grammar. Describe design of context-free grammars with examples.

Or

16. (i) Define PDA and explain its equivalence with context-free grammars.
(ii) Give informal descriptions and state diagram of PDA for the language $\{w/w = w^R, \text{ that is, } w \text{ is a palindrome}\}$.
17. State and explain the church-Turing Thesis.

Or

18. Describe the halting problem and the diagonalization method used.
19. Explain class NP. Show NP is closed under union and concatenation.

Or

20. Write short notes on :
(i) Tractable and intractable problems.
(ii) NP Hard problems.

(5 × 12 = 60 marks)

G 5772

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2017

Seventh Semester

Branch : Computer Science and Engineering / Information Technology

WEB TECHNOLOGIES [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. Compare and contrast XML and HTML.
2. Present the benefits of XSL style sheets.
3. What do you mean by customization?
4. What is a DTD? Give example.
5. What are request and response objects?
6. Define Scriptlets. Demonstrate accessing beans via scriptlets.
7. Summarize the features of Java Beans.
8. How do you use Javabeans in JSPs?
9. Classify the bean types and define them.
10. Write the steps involved in packaging and deploying bean.

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each full question carries 12 marks.

11. What is a markup language and what is the relationship between XML, HTML and SGML? Explain in detail.

Or

12. What are CDATA sections? What they are intended for? Illustrate with an example, how CDATA section can be used to insert an XML example into an XML document.

Turn over

13. Classify the applications of XML and explain in detail using necessary illustrations.

Or

14. Explain Element type declaration and attribute list declaration with relevant examples.

15. What are Induced-bound and constrained properties? Explain creating and using events.

Or

16. Discuss creating and using BeanInfo clauses with an example.

17. Explain the life-cycle of a JSP page in detail.

Or

18. Describe serialized beans. With example, explain using a serialized bean.

19. Summarize the special characteristics of stateful session beans. Explain achieving the effect of pooling and Activation, Passivation callbacks.

Or

20. What are the features of Entity beans? Explain in detail.

(5 × 12 = 60 marks)

B.TECH. DEGREE EXAMINATION, MAY 2017**Seventh Semester**

Branch : Computer Science and Engineering / Information Technology

MOBILE COMPUTING (Elective I) [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. Explain handover in cellular systems.
2. Why frequency planning is essential in cellular systems ?
3. Present an overview of digital audio broadcasting.
4. Outline the primary goal of multi-media object transfer protocol.
5. What is Bluetooth piconet ? Give diagrammatic illustration.
6. Outline the main problem for wireless ATM during the handover.
7. List the entities of mobile IP.
8. How can DHCP be used for mobility and support of mobile IP ?
9. Outline the features of wireless markup language.
10. What advantages has the statelessness of HTTP ? In what situations is state useful.

(10 × 4 = 40 marks)**Part B***Answer all questions.**Each full question carries 12 marks.*

11. Present diagrammatically the basic reference model used to structure communication systems and explain the functions of each layer in a wireless and mobile environment.

Or

12. What is modulation ? Explain amplitude shift keying, frequency shift keying and phase shift keying with an example and diagrammatic illustration.

Turn over

13. Explain with diagrammatic illustration the functional architecture of a global system for mobile communications (GSM) system.

Or

14. Compare geostationary earth orbit, medium earth orbit and low earth orbit satellites.

15. Explain with diagrammatic illustration the architecture of IEEE 802.11 ad-hoc wireless LANs.

Or

16. Explain with diagrammatic illustration wireless ATM reference model with several access scenarios.

17. Explain destination sequence distance vector routing algorithm with an example.

Or

18. (a) Outline how tunneling works in general and especially for mobile IP. (4 marks)

(b) Present an overview of classical enhancements to TCP for supporting mobility. (8 marks)

19. Present an overview of the WAP architecture, its protocols and components with diagrammatic illustration.

Or

20. What discrepancies exist between the possibilities of HTML and the realities of wireless handheld devices? What are the proposed solutions? Discuss.

[5 × 12 = 60 marks]