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21CS61

Sixth Semester B.E. Degree Examination, June/July 2024
Software Engineering and Project Management

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Define software process. Explain generic software process framework. **(10 Marks)**
b. Define process patterns. Explain the means of describing the patterns. **(10 Marks)**

OR

2 a. Explain the different types of evolutionary process models. **(10 Marks)**
b. Explain waterfall model. **(10 Marks)**

Module-2

3 a. Define requirements engineering. Explain its distinct tasks. **(10 Marks)**
b. Explain various approaches in requirements modeling. **(10 Marks)**

OR

4 a. Explain requirements elicitation. **(10 Marks)**
b. Explain preliminary use case diagram for the Safe Home system. **(10 Marks)**

Module-3

5 a. Explain principles of agility. **(10 Marks)**
b. Explain the process of extreme programming. **(10 Marks)**

OR

6 a. Explain scrum process model. **(10 Marks)**
b. Explain Feature Driven Development (FDD). **(10 Marks)**

Module-4

7 a. Explain the significance of efficient project management. **(10 Marks)**
b. Define project. Explain the characteristics of a project. **(10 Marks)**

OR

8 a. Explain the different ways of categorizing software projects. **(10 Marks)**
b. Explain the activities of management in doing management control. **(10 Marks)**

Module-5

9 a. Define software quality. Explain quality specification in detail. **(10 Marks)**
b. Why do we need software quality models? Explain Garvin's quality dimension. **(10 Marks)**

OR

10 a. Explain McCall's model. **(10 Marks)**
b. Explain ISO 9126's major external software quality characteristics. **(10 Marks)**

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21CS62

Sixth Semester B.E. Degree Examination, June/July 2024
Full Stack Development

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. What is web framework? Explain django-admin command with example. **(06 Marks)**
b. Explain the history of django. **(07 Marks)**
c. Explain view function in django with an example. **(07 Marks)**

OR

2 a. Illustrate how django processes request. **(08 Marks)**
b. Identify the key philosophy behind URL confs and loose coupling. **(06 Marks)**
c. Describe the process of mapping URLs to views. **(06 Marks)**

Module-2

3 a. What is template? Explain basics of template systems with example. **(10 Marks)**
b. Explain template inheritance. **(10 Marks)**

OR

4 a. Identify the different types of tags and filters in djang template system. **(12 Marks)**
b. Explain the models in django with example. **(08 Marks)**

Module-3

5 a. How to activate and configure the admin interface in django for managing application data? **(08 Marks)**
b. Explain the process of handling and processing forms in a web application using django. **(12 Marks)**

OR

6 a. Develop a django program to create feedback forms. **(08 Marks)**
b. Discuss the usage of the admin interface. **(06 Marks)**
c. How to create form in django? What this class can do in python interpreter? **(06 Marks)**

Module-4

7 a. Discuss the concept of generic views of objects in django. **(10 Marks)**
b. Explain cookies with example. **(10 Marks)**

OR

8 a. How does user authentication works in django? **(10 Marks)**
b. Discuss the role of site map frame work. **(10 Marks)**

Module-5

9 a. Explain technologies on which AJAX overlaid. **(10 Marks)**
b. Discuss about jQuery and basic Ajax. **(10 Marks)**

OR

10 a. Write a note on java script and XMIHHP response. **(10 Marks)**
b. Illustrate the following : i) CSS ii) JSON iii) HTML iv) Iframe **(10 Marks)**

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21CS63

Sixth Semester B.E. Degree Examination, June/July 2024
Computer Graphics and Fundamentals of Image Processing

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. What is computer graphics illustrate the application of computer graphics. **(10 Marks)**

b. Illustrate display window management system using GLUT. **(10 Marks)**

OR

2 a. Using Bresenham's line drawing algorithm digitize the line with end points (20, 10) to (30, 18). **(10 Marks)**

b. With a simple OpenGL program demonstrate the different OpenGL functions. **(10 Marks)**

Module-2

3 a. Illustrate the need of homogeneous co-ordinate system and demonstrate translation, rotation, scaling in 2D homogeneous co-ordinate system with matrix representation. **(10 Marks)**

b. Obtain a matrix representation for rotation and scalling of a object about a specified pivot point in 2D. **(10 Marks)**

OR

4 a. Illustrate the raster method for geometric transformation. **(10 Marks)**

b. List and explain all 3-D geometric transformation. **(10 Marks)**

Module-3

5 a. Illustrate the logical classification of input devices. **(08 Marks)**

b. Elaborate the following with the suitable OpenGL function using code snippet:

i) GLUT mouse function

ii) GLUT keyboard function. **(12 Marks)**

OR

6 a. Demonstrate the steps in design of animation. **(08 Marks)**

b. Illustrate the use of morphing with edge equalization and vertex equalization. **(12 Marks)**

Module-4

7 a. What is image processing? List some of the fields of I_P. **(04 Marks)**

b. List the types of images based on nature, attribute and colour. **(06 Marks)**

c. Let V = {0, 1}, compute the D_e, D_4, D_8 and D_m distance between 2 pixel p and q. Let the pixel coordinates of p and q be (3, 0) and (2, 3). **(10 Marks)**

0	1	1	1
1	0	0	1
1	1	1	1(q)
1	1	1	1
(p)			

OR

8	a.	Describe image interpolation technique.	**(10 Marks)**
	b.	List and explain arithmetic operations by considering an example.	**(10 Marks)**

Module-5

9	a.	What is image segmentation? Describe the types of segmentation algorithm.	**(10 Marks)**
	b.	With the help of flow chart. Explain the stages of edge detection.	**(10 Marks)**

OR

10	a.	Write a brief note on: i) Canny edge detection ii) Graph theoretic algorithm	**(10 Marks)**
	b.	Explain the basic type of grey level discontinuities in a digital image.	**(10 Marks)**

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21CD641

Sixth Semester B.E. Degree Examination, June/July 2024
Design of IOT System

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Explain IPV6 role in IOT. **(10 Marks)**

b. Explain the classification of objects with neat diagram. **(10 Marks)**

OR

2 a. Explain IOT framework for high level M2M system architecture (HLSA) with neat diagram. **(10 Marks)**

b. Explain the various applications of IOT. **(10 Marks)**

Module-2

3 a. Explain CoAP (Constrained Application Protocol) with suitable and neat diagram. **(10 Marks)**

b. Explain the structural aspects of IOT. **(10 Marks)**

OR

4 a. Write short notes on: (i) IPSO (ii) IPV6 over low power WPAN **(10 Marks)**

b. Explain IPV6 routing protocol for RPL ROLL with neat diagram. **(10 Marks)**

Module-3

5 a. Explain third generation partnership project service (3GPP) **(10 Marks)**

b. Briefly explain the following:
(i) NFC in IOT (M2M application) (ii) Bluetooth **(10 Marks)**

OR

6 a. Explain Zigbee technology with neat diagram. **(10 Marks)**

b. Explain IPV6 tunneling. **(05 Marks)**

c. Explain LTE technologies in IOT/M2M application. **(05 Marks)**

Module-4

7 a. List and explain the data types of python with examples. **(10 Marks)**

b. Write short notes on: (i) seek (ii) tell (iii) readlines (iv) open (v) close **(10 Marks)**

OR

8 a. Write the output for the following, given a = [1, 2, 'axe', 'scissor']
(i) a[−1] [:3] (ii) a.append ('hammer') (iii) a[: :]
(iv) a[−2] [:] (v) a.insert (2, 'driver') **(10 Marks)**

b. Write the python program to find the average of marks and print the student records using module concepts. **(10 Marks)**

Module-5

9 a. Explain the apache hadoop with neat diagrams. **(10 Marks)**

b. Explain the Apache OOZie with neat diagrams. **(10 Marks)**

OR

10 a. Explain apache storm with neat diagram. **(10 Marks)**

b. Explain apache spark with neat diagram. **(10 Marks)**

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21CS651

Sixth Semester B.E. Degree Examination, June/July 2024
Introduction to Data Structures

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Define an array. How to declare and initialize one dimensional, two dimensional and multi-dimensional array? **(10 Marks)**

b. Write a C program to multiply 2 matrix A and B and display the resultant matrix C. **(10 Marks)**

OR

2 a. Explain the nested structure with example. Give differences between Union and Structure. **(10 Marks)**

b. List out the dynamic memory allocation function with its syntax. Write a C program to swap two numbers. **(10 Marks)**

Module-2

3 a. Define stack. Write a C program to implement the different operations of stack. **(10 Marks)**

b. List out the applications of stack. Convert the following infix expression into its equivalent postfix expression.

((A + B) – C * (D / E)) + F **(05 Marks)**

c. Deduce the contents of empty stack after the execution of following operations in sequence. push(6), push(8), push(-1), pop( ), push(7), pop( ), pop( ) **(05 Marks)**

OR

4 a. What is Queue? Explain primitive operations and types of Queue using logical representation. **(10 Marks)**

b. Write a C function to insert, delete and display an element in a Linear Queue. **(10 Marks)**

Module-3

5 a. Define self-referential structure. Give its C declaration. Explain the different types of linked list with logical representation. **(10 Marks)**

b. Write a C function for the following operation on singly linked list:

i) Insert node ii) Delete node iii) Display node **(10 Marks)**

OR

6 a. What are the drawbacks of singly linked list? How to overcome it? List out the applications of linked list. **(07 Marks)**

b. Write a C function for the following operations on circular linked list:

i) Insert node at front ii) Delete node at rear **(08 Marks)**

c. Write a C function to count numbers of elements present in singly linked list. **(05 Marks)**

Module-4

7 a. Explain the binary tree concepts with examples:
i) Strictly binary tree ii) Complete Binary tree
iii) Almost Complete Binary tree iv) Binary search tree **(10 Marks)**

b. Construct a Binary Search Tree and find the 3 order traversal of tree.
15, 20, 8, 27, 11, 2, 12, 6, 3, 10, 7, 22, 30 **(10 Marks)**

OR

8 a. Write a C function to find the maximum item in Binary search tree. **(05 Marks)**

b. Define Expression Tree. Construct the expression tree
$((6 + (3 - 2) * 5) \wedge (2 + 3)$ **(07 Marks)**

c. Write iterative functions for preorder, postorder and inorder traversals. **(08 Marks)**

Module-5

9 a. Write a C program to array numbers in ascending order using Bubble Sort. **(10 Marks)**

b. Design an algorithm for insertion sort. Trace the sorting elements using insertion sort.
20, 10, 30, 15, 25, 5 **(10 Marks)**

OR

10 a. Write a C code to search an item using linear search. **(10 Marks)**

b. Define searching. List out the advantages and disadvantages of Binary Search. Discuss the difference between Binary search and Linear search. **(10 Marks)**

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21CS653

Sixth Semester B.E. Degree Examination, June/July 2024
Introduction to Cyber Security

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Who are Cyber Criminals? Discuss the three groups of Cyber Criminals. (10 Marks)
b. Define Cyber Crime. Explain any four classifications of cyber crimes. (10 Marks)

OR

2 a. Write a short notes on :
i) Spamming ii) Cyber defamation iii) Salami Attacks
iv) Online Frauds v) Software piracy. (10 Marks)
b. Discuss the key provisions under the ITA2000 for cyber crimes. (10 Marks)

Module-2

3 a. With neat sample network, explain the categories of vulnerabilities that hackers typically search. (10 Marks)
b. What are the five phases involved in planning cyber crime and discuss. (10 Marks)

OR

4 a. What is social engineering? Discuss Human based social engineering with a suitable example. (10 Marks)
b. What are the different attacks launched with attack vector and explain in detail. (10 Marks)

Module-3

5 a. Discuss the proxy server and anonymizers in cyber security. (10 Marks)
b. How keyloggers can be used to commit a cybercrime? (10 Marks)

OR

6 a. Define Dos Attack. Discuss the types of Dos attacks. (10 Marks)
b. How to secure the wireless Networks in the cyber security? (10 Marks)

Module-4

7 a. What is criminal profiling? Explain its types of profiling methods. (10 Marks)
b. List any five common categories victims of cyber crime. (10 Marks)

OR

8 a. Explain the characteristics or qualities of Good Cyber investigator. (10 Marks)
b. List and explain three securing data with cryptographic algorithms. (10 Marks)

Module-5

9 a. What is IDS? Explain the monitoring techniques of IDS. (10 Marks)
b. Write a short notes on :
i) Alarms ii) Alerts iii) Firewall logs iv) Reports. (10 Marks)

OR

10 a. How are the role of understanding of Evidence in a criminal case. (10 Marks)
b. Briefly explain the document Evidence in the cyber crime cases. (10 Marks)

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