

CBCS SCHEME

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18AI62

Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Digital 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 digital image processing? Explain its origin and applications in detail. (10 Marks)
b. Consider two images S_1 and S_2 shown in Fig.Q1(b), for $V = \{1\}$, determine whether there two subsets are: (i) 4-adjacent (ii) 8-adjacent (iii) m-adjacent. Mention suitable conditions for all the above given adjacency.

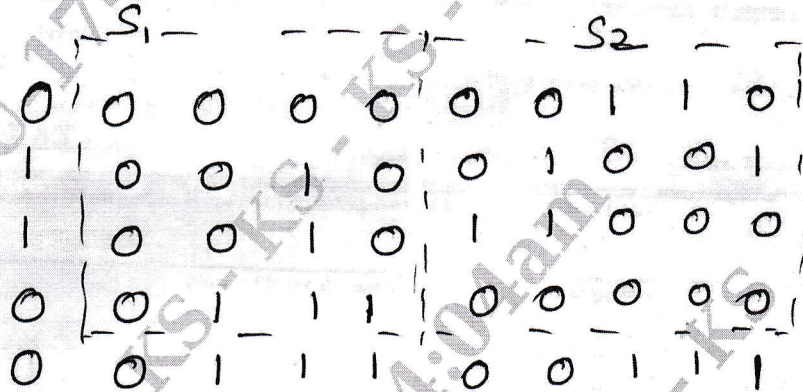


Fig.Q1(b)

(10 Marks)

OR

- 2 a. Illustrate fundamental steps in digital image processing. (10 Marks)
b. Explain the basic concept and representation of digital images in converting an analog to digital image with a neat diagram. (10 Marks)

Module-2

- 3 a. Explain the mechanics of spatial filtering using a 3×3 filter mask and write the generalized response R . (10 Marks)
b. Relate the concept of correlation and convolution with an example – zero padding of 1D function. (10 Marks)

OR

- 4 a. Report all high pass filters used in sharpening filters in frequency domain. (10 Marks)
b. Discuss histogram processing and equalization and conditions to obtain a flattened histogram. (10 Marks)

Module-3

- 5 a. Outline the concept of restoration process. Justify the usage of mean filters in restoration in the presence of noise in spatial domain. (10 Marks)
b. Discuss any five noise models along with their graph and PDF. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, $42+8=50$, will be treated as malpractice.

OR

- 6 a. Report different types of filters used in periodic noise reduction in frequency domain filtering. (10 Marks)
- b. Estimate the degradation function with respect to image observation, experimentation and modeling. (10 Marks)

Module-4

- 7 a. Explain different color models used in color image processing. (10 Marks)
- b. Describe different functions used in multi-resolution expansions. (10 Marks)

OR

- 8 a. Write notes on:
- | | | |
|---------------|---------------------------------|------------|
| (i) Erosin | (ii) Dilation | |
| (iii) Duality | (iv) Hit-or-Miss Transformation | (10 Marks) |
- b. Brief out any four morphologic algorithm. (10 Marks)

Module-5

- 9 a. What is the objective of segmentation? Explain edge detection segmentation. (10 Marks)
- b. Write short notes on:
- | | |
|--------------------------|------------|
| (i) Thresholding | |
| (ii) Fourier descriptors | (10 Marks) |

OR

- 10 a. Discuss various representation approaches in detail. (10 Marks)
- b. Explain Hough transforms and shape detections. (10 Marks)

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18AI643

Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Web Programming

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. What are the three aims of HTML5 and expand the following: HTML, XML, PHP, WHATWG, W3C, and DOCTYPE AND CSS? (10 Marks)
b. Discuss the structure of HTML documents and also explain HTML syntax with example. (10 Marks)

OR

- 2 a. What are Selectors? List and explain selectors with example. (10 Marks)
b. Define CSS and list out its benefits with explanation also illustrate the CSS box model. (10 Marks)

Module-2

- 3 a. What is responsive design? Why it's important? Explain in detail. (10 Marks)
b. Explain the following concerned with Forms (10 Marks)
i) Form structure
ii) Form control elements.

OR

- 4 a. Explain the different ways at positioning elements in CSS layout technique. (10 Marks)
b. Explain the basic table structure, create an HTML document for the Table

Diet

Breakfast	Lunch	Dinner
Apple	Rice	Cucumber
Watermelon	Rice	Papaya

(10 Marks)

Module-3

- 5 a. Compare the server side technologies in detail. (10 Marks)
b. What is Javascript and listener? Discuss the advantages and disadvantages of client side scripting. (10 Marks)

OR

- 6 a. Discuss arrays of javascript also explain with example PHP tags, PHP comments datatypes and constants. (10 Marks)
b. Briefly describe the document object model. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
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Module-4

- 7 a. Define constructor and discuss the concepts of inheritance, polymorphism and object interface with respect to OOP. (10 Marks)
b. Explain with the example, the two basic techniques for read/write files in PHP. (10 Marks)

OR

- 8 a. Explain the role of PHP's S_GET and S_POST arrays with data flow diagrams. (10 Marks)
b. Explain three approaches to restrict the file size in File upload with suitable code segments. (10 Marks)

Module-5

- 9 a. What are Cookies? What is the purpose of it? Demonstrate cookies with PHP program. (10 Marks)
b. What is Caching? Explain two basic strategies of caching web applications. (10 Marks)

OR

- 10 a. What is AJAX? Explain AJAX request by writing UML diagram. (10 Marks)
b. With a neat diagram, explain SOAP and RESET web service. (10 Marks)

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18CS654

Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Introduction to Operating 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 Storage device hierarchy with a neat diagram. (06 Marks)
- b. Discuss the working of modern computer system with a neat diagram. (06 Marks)
- c. Discuss (i) Traditional Computing (ii) Client – Server computing. (06 Marks)
- d. Define (i) Operating System (ii) Control program. (02 Marks)

OR

- 2 a. Discuss different functions provided by the operating system services. (06 Marks)
- b. Discuss about system programs in detail. (06 Marks)
- c. Discuss about the Java Virtual Machine with a neat diagram. (04 Marks)
- d. Discuss MS-DOS layered structure of an operating system with a neat diagram. (04 Marks)

Module-2

- 3 a. Discuss process control block with a neat diagram. (06 Marks)
- b. Explain Interprocess Communication model with respect to (i) Message passing (ii) Shared memory. (06 Marks)
- c. Discuss communication in Client-Server systems using sockets. (04 Marks)
- d. Discuss any four reasons for providing an environment that allow process co-operation. (04 Marks)

OR

- 4 a. Explain the benefits of a multithreaded programming. (04 Marks)
- b. Discuss different multithreaded models. (06 Marks)
- c. Explain (i) P-threads (ii) Win-32 threads (iii) Java threads. (06 Marks)
- d. Discuss any two threading issues with multithreaded programs. (04 Marks)

Module-3

- 5 a. Using priority scheduling, calculate the average waiting time for the process given below:

Process	Burst-Time	Priority
P ₁	10	3
P ₂	1	1
P ₃	2	4
P ₄	1	5
P ₅	5	2

- b. Explain Symmetric Multithreading architecture with a neat diagram. (04 Marks)
- c. Discuss (i) Multilevel Queue Scheduling (ii) Multilevel feedback queue scheduling with a neat diagram. (06 Marks)
- d. (i) Define Dispatch latency (ii) Discuss different criterias involved in scheduling an algorithm. (06 Marks)

OR

- 6 a. Explain about Semaphores. (04 Marks)
 b. Discuss (i) Readers - Writers problem (ii) Bounded - Buffer problem. (06 Marks)
 c. Differentiate between preemptive kernels and non-preemptive kernels. (06 Marks)
 d. Discuss about different types of Storage media. (04 Marks)

Module-4

- 7 a. Discuss different methods of handling deadlocks. (06 Marks)
 b. Define Deadlock. Discuss any three issues need to be addressed if preemption is required. (04 Marks)
 c. Discuss (i) Resource allocation graph algorithm. (ii) Bankers algorithm. (06 Marks)
 d. Discuss different methods of process termination. (04 Marks)

OR

- 8 a. Discuss Segmentation Hardware with an example and a neat diagram. (06 Marks)
 b. Discuss the structure of the page table. (06 Marks)
 c. Discuss (i) Memory allocation (ii) Fragmentation. (06 Marks)
 d. Define (i) Logical address (ii) Memory - Address Register. (02 Marks)

Module-5

- 9 a. Discuss the sequence for a page fault occurrence. (06 Marks)
 b. Discuss (i) FIFO page replacement (ii) Optimal page replacement. (06 Marks)
 c. Discuss basic mechanism of memory-mapped files with a neat diagram. (06 Marks)
 d. Discuss the benefits of a slab allocator. (02 Marks)

OR

- 10 a. Discuss file's attributes of an operating system. (07 Marks)
 b. Discuss basic file operations. (06 Marks)
 c. Discuss some of the operations associated with opening a file. (04 Marks)
 d. Discuss any 3 file types. (03 Marks)
