

FACULTY OF INFORMATICS
B.E. 4/4 (IT) I – Semester (Old) Examination, July 2014

Subject : Digital Image Processing (Elective – III)

Time : 3 hours

Max. Marks : 75

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

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|----|--------------------------------------------------------------------------------------------------------------------------------------|---|
| 1 | Discuss briefly about general purpose image processing system and its components. | 3 |
| 2 | Give basic steps for filtering in the frequency domain. | 2 |
| 3 | Give the transfer function for two-dimensional ideal low pass filter and explain the terms therein. | 2 |
| 4 | How can the illumination-reflectance model be used to develop a frequency domain procedure for improving the appearance of an image? | 3 |
| 5 | State the sources of noise in digital images. Present impulse noise PDF. | 3 |
| 6 | Explain object matching using correlation coefficient. | 3 |
| 7 | What are chain codes? Give an example. | 2 |
| 8 | Explain RGB model using a neat sketch. | 3 |
| 9 | What are inter pixel redundancies. | 2 |
| 10 | What Histogram statistics can be used for image enhancement? | 2 |

PART – B (50 Marks)

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|----|---------------------------------------------------------------------------------------------------------------------|----|
| 11 | a) Describe Histogram processing. | 6 |
| | b) Explain how response is obtained by a linear spatial filter with the filter mask at a point (x, y) in the image. | 4 |
| 12 | Explain blurring and ringing properties of ideal low pass filter with reference to convolution theorem. | 10 |
| 13 | Explain restoration process in the presence of noise. | 10 |
| 14 | Illustrate the morphological operations, dilation and erosion with A and B as sets in z^2 . | 10 |
| 15 | Describe Region-based segmentation. | 10 |
| 16 | Describe error-free compression along with relevant applications. | 10 |
| 17 | Write short notes on : | |
| | a) Visual perception | 3 |
| | b) Spatial and Frequency domain filtering | 4 |
| | c) Object recognition | 3 |

FACULTY OF INFORMATICS

B.E. 4/4 (IT) I – Semester (New) (Supplementary) Examination, July 2014

Subject : Digital Image Processing (Elective – III)**Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

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|----|-----------------------------------------------------------|---|
| 1 | What is Image sampling? | 3 |
| 2 | Write one basic intensity transformation function. | 2 |
| 3 | Distinguish between smoothing and sharpening. | 3 |
| 4 | Write one frequency domain filter for image sampling. | 2 |
| 5 | Define Wiener filter and explain the terms briefly. | 3 |
| 6 | What is Erosion? | 2 |
| 7 | Describe briefly the basis for one edge-detection method. | 3 |
| 8 | Define shape number. | 2 |
| 9 | Distinguish between Lossy and Lossless compression. | 3 |
| 10 | Describe one compression technique in brief. | 2 |

PART – B (50 Marks)

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|----|--------------------------------------------------------------------------------------|-----------|
| 11 | Explain in detail the steps involved in Image Processing. | 10 |
| 12 | Explain the significance of spatial filtering and frequency filtering. | 10 |
| 13 | Describe Morphological image processing. | 10 |
| 14 | Explain segmentation using watershed algorithm. | 10 |
| 15 | Explain Huffman encoding. | 10 |
| 16 | Give a model of image restoration process and explain how noise affects restoration. | 10 |
| 17 | Write short notes on : | 4 + 3 + 3 |
| | a) Sampling and Quantization | |
| | b) Histogram processing | |
| | c) Object recognition | |

FACULTY OF INFORMATICS
B.E. 4/4 (IT) I – Semester (Old) Examination, July 2014

Subject: Software Reuse Techniques (Elective – III)

Time: 3 Hours

Max.Marks: 75

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

- 1 Define feature and variation point. (2)
- 2 Write how Facades control access to component system internals. (3)
- 3 What is Design Pattern? List different categories of Design Patterns. (3)
- 4 Write the intent and advantages of Adapter Pattern. (2)
- 5 Define creational Patterns? List the creational patterns. (3)
- 6 Write the applications of Decorator Pattern. (2)
- 7 What are the consequences of State Pattern? (3)
- 8 Write about the motivation of template method pattern. (2)
- 9 Write any two known uses of Presentation Abstraction-Control Pattern. (2)
- 10 Define Architectural Patterns? List them. (3)

PART – B (50 Marks)

- 11 a) Describe about how reuse requires changes in process. (7)
 b) Write a short note on “Software Reuse is a simple idea”. (3)
- 12 a) Write the different ways in which design pattern is selected. (5)
 b) How do we describe a design pattern? (5)
- 13 a) Explain the intent, structure, motivation and applicability of prototype pattern. (5)
 b) Explain the structure and motivation of Abstract Factory pattern. (5)
- 14 Describe in detail about the Façade pattern. (10)
- 15 Write the intent, motivation, structure and known uses of the following patterns. (5 + 5)
 (a) Whole-Part (b) Publisher-Subscriber
- 16 Write the intent, structure, motivation and applicability of the following pattern. (5 + 5)
 (a) Forward-Receiver (b) Client – Dispatcher Server
- 17 Describe in detail about the pipes and filters architectural pattern. (10)

FACULTY OF INFORMATICS**B.E. 4/4 (IT) I – Semester (New) (Supplementary) Examination, July 2014****Subject : Grid Computing (Elective – III)****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

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|----|--------------------------------------------------------------------|---|
| 1 | What is virtual organization? | 2 |
| 2 | What is the difference between grid computing and cloud computing? | 3 |
| 3 | Explain the role of certificate authorities. | 3 |
| 4 | What is the difference between static and dynamic scheduling? | 2 |
| 5 | Define service-oriented architecture. | 3 |
| 6 | What is workflow in grid computing? | 2 |
| 7 | What is grid enabling? | 3 |
| 8 | What is xpath? | 2 |
| 9 | What is glite? | 3 |
| 10 | Write about MPI-Scatter () and MPI-Gather () functions. | 2 |

PART – B (50 Marks)

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|----|--------------------------------------------------------------------------------|---|
| 11 | a) Explain the computational grid applications. | 5 |
| | b) What is Grid Resource Allocation management (GRAM)? Explain. | 5 |
| 12 | a) Explain about the grid computing Meta-schedulers. | 5 |
| | b) Discuss secure-socket layer protocol in detail. | 5 |
| 13 | a) What is Open Grid Service Architecture (OGSA)? Explain. | 5 |
| | b) Describe briefly about the services provided by grid portals. | 5 |
| 14 | a) What is parameter sweep? How to implement it? | 5 |
| | b) Explain briefly about Message-Passing Interface (MPI). | 5 |
| 15 | a) Discuss the securing mechanism using glite. | 5 |
| | b) Describe briefly how resource management is done using Gridway and Gridbus. | 5 |
| 16 | a) Discuss some of the features of schedulers. | 5 |
| | b) What is WSDL? Explain. | 5 |
| 17 | Write short notes on the following : | |
| | a) Symmetric key cryptography | 5 |
| | b) History of distributed computing | 5 |

FACULTY OF INFORMATICS**B.E. 4/4 (IT) I – Semester (New) (Supplementary) Examination, July 2014****Subject : Semantic Web (Elective – III)****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

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|----|-----------------------------------------------------------------------------------------------------------------|---|
| 1 | Draw the architecture of Semantic Web. | 2 |
| 2 | Write the Maedche proposed ontology description. | 3 |
| 3 | Illustrate RDF triple. | 3 |
| 4 | “Concepts of URI, URI Ref, namespace and qualified name are fundamental for structuring semantic web”. Justify. | 3 |
| 5 | Define OWL Lite, OWL DL, OWL Full. | 3 |
| 6 | What is a Datalog? | 2 |
| 7 | Mention the purpose of service grounding. | 2 |
| 8 | What is the role of UDI registry in providing web services? | 2 |
| 9 | What constitutes ontology interaction? | 2 |
| 10 | List the major steps in SUMO construction process. | 3 |

PART – B (50 Marks)

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|----|---------------------------------------------------------------------------------------|----|
| 11 | a) Identify and discuss what is not semantic web. | 5 |
| | b) Distinguish between semantic web and syntactic web. | 5 |
| 12 | Exemplify family of attributive languages. | 10 |
| 13 | List and explain the requirements of ontology description languages for semantic web. | 10 |
| 14 | a) Discuss in detail about Methontology development process. | 5 |
| | b) Compare any three techniques in software requirement elicitation. | 5 |
| 15 | Explain the semantic web solution to the horizontal information products at Elsevier. | 10 |
| 16 | a) Discuss about Rule Markup language. | 5 |
| | b) Write about the basic components of Web Service. | 5 |
| 17 | a) Describe RDF Vocabulary. | 5 |
| | b) How do Ontologies and Taxonomies differ? | 5 |

FACULTY OF INFORMATICS
B.E. 4/4 (IT) I – Semester (Old) Examination, July 2014

Subject : Information Security (Elective – III)

Time : 3 hours

Max. Marks : 75

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

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|----|-------------------------------------------------------------------------------|---|
| 1 | What is Secure SDLC? | 2 |
| 2 | Write about spoofing. | 2 |
| 3 | Describe risk mitigation. | 3 |
| 4 | What is the role of Computer Security Division (CSD) in Information Security. | 2 |
| 5 | State the purpose of a content filter. | 2 |
| 6 | Distinguish between a policy and a standard. | 2 |
| 7 | What is public key cryptography? | 3 |
| 8 | Mention the strengths and weaknesses of DES. | 3 |
| 9 | Give the over view of SSL. | 3 |
| 10 | List the basic steps of SHA. | 3 |

PART – B (50 Marks)

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|----|-----------------------------------------------------------------|----|
| 11 | Discuss in detail the critical characteristics of information. | 10 |
| 12 | Write about various risk control strategies in an organization. | 10 |
| 13 | a) Briefly explain the intrusion detection system. | 7 |
| | b) Write about post scanner and packet sniffer. | 3 |
| 14 | a) Describe the process of generating a digital signature. | 5 |
| | b) Explain how AES addresses the vulnerabilities of DES. | 5 |
| 15 | Explain in detail the working of RSA algorithm. | 10 |
| 16 | a) How are internet transactions executed using SET? | 6 |
| | b) Explain about SSL in detail. | 4 |
| 17 | Write about the following : | |
| | a) Any five threats for information | 5 |
| | b) Architectures of firewalls | 5 |
