NEW

2018

BCA

6th Semester Examination

ELECTIVE – II

PAPER—3202

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Image Processing and Pattern Recognition

Answer any *five* questions. 5×14

1. Describe DFT in image processing. What are the properties and application of DFT in image processing. 10+4

2. What is image scaling ? Describe different classification and clustering technique used in Image processing. 2+6+6

3. (a) Describe three basic gray level Image transformation used in Image processing.

   (b) What is enhancement ? Define histogram used in image processing. 10+4

4. What do you mean by filtering ? Describe different image filtering technique. 4+10

5. (a) Explain CMY color model.

   (b) Describe Human Eye structure. 7+7

6. What is pattern recognition ? What is pattern class ? Explain different object recognition methods ? Discuss any edge detection algorithm in detail. 2+3+5+4

7. What is meant by Pixel ? Explain the properties of 2D Fourier transformation. Define fourier transform and its reverse. 2+3+9

[Internal Assessment : 30]

PHP / MYSQL

Answer Q. No. *1* and any *four* from the rest.

1. Answer any *five* questions : 5×2

(a) What is a Cookie ?

(b) Explain the use of each ( ) ?

(c) Difference between = = and = = =.

(d) Define PHP.

(e) What is sequence in PHP ?

(f) State the difference between http and https.

(g) What is the use of phpinfo ( ) ?

2. (a) Define Array in PHP. How can we declare one dimensional and two dimensional array in PHP ?

(b) Write a short note on Session.

(c) What is Apache ?

(d) "Whole PHP code (script) is case sensitive", Justify. 6+5+2+2

3. (a) What are PHP tags ?

(b) Explain some important features of PHP.

(c) Is PHP a Loosely Typed Language ? What is the difference between strongly typed and loosely typed language ?

(d) Write a PHP code to demonstrate the use of cascading dropdown list. 4+3+3+5

4. (a) Explain how to send email through PHP with example.

(b) Write a PHP script to accept user name and password from user. Create a function check ( ) if username and password is present or not and assign default value to user as superuser and return those values.

(c) What is difference between Echo and Print Statement. 5+7+3

5. (a) Differentiate between include ( ) and require ( ) function.

(b) Explain the differences between $-GET and $-POST.

(c) What are the benefits of using PHP ?

(d) Explain date ( ) function in PHP. 4+6+3+2

6. (a) Write a short note on for loop in PHP.

(b) Write an HTML code that will display a table of student name, roll number, total mark.

(c) Give three examples of tags used in HTML form.

(d) Give the syntax of for each loop.

(e) "HTTP is stateful Protocol", Justify. 4+4+3+2+2

7. (a) Write a short note on $-FILE.

(b) Explain parse error and fatal error in PHP.

(c) Write a PHP code to insert the name and gender of a student in a mysql database and also give its HTML code. 3+5+7

[***Internal Assessment : 30***]

Advanced OS

Answer Q. No. *1* and any *four* from the rest.

1. Answer any *five* questions : 5×2

(a) What is inode ?

(b) Give the use of fork.

(c) List the advantages of distributed shared memory.

(d) What is the difference between a network operating system and a distributed operating system ?

(e) State the functions of agreement protocol in distributed operating system.

(f) Define Process Synchronization. What is critical section ?

(g) How does a micro kernel design differ from other designs like layered design ?

2. (a) Explain the algorithm for wait.

(b) Explain the file accessing models of a distributed file system. 7+8

3. (a) What are the potential benefits of the replication of data in a distributed system ?

(b) Explain about mutexes. 10+5

4. (a) How are the semaphores used to solve producer-consumer problem ?

(b) Discuss the issues related to message passing systems. 9+6

5. What are the different types of resources ? Discuss different types of access methods of resources. Explain in detail about method of handling distributed resources sharing. 4+7+4

6. What is RPC ? Discuss few design issues of Remote procedure calling. How exception handling is used in RPC system ? 2+7+6

7. (a) Explain the read replication and full replication algorithm for distributed shared memory.

   (b) State and explain the various issues in load distributing algorithms. 7+8

[*Internal Assessment : 30*]

Advanced Networking

Answer any *five* questions. 5×14

1. (a) What is the difference between network layer delivery and transport layer delivery ?

   (b) What do you mean by peer to peer process ? Give example.

   (c) Briefly describe the responsibilities of session layer in ISO/OSI model.

   (d) What is a low pass channel ? How a band pass channel differs with it ? 4+(2+1)+3+(2+2)

2. (a) List the classes in classful addressing with their range and define the application of each class.

   (b) Explain why most of the addresses in class A are wasted.

   (c) What is a subnet mask in IPv4 addressing ? Describe with a suitable example. (4+2)+3+5

3. (a) What is NAT ? How can NAT help in address depletion ?

   (b) Compare and contrast the fields in the headers of IPv4 and IPv6.

   (c) "IGMP is a companion to the IP protocol." — Explain. 5+4+5

4. (a) Compare between pure ALOHA and slotted ALOHA.

   (b) Explain the dynamic model of ARP.

   (c) What are the functions of gateway and repeater ? Mention the advantage of parallel transmission over serial transmission. 4+4+(2+2+2)

5. (a) What is an advantage of a hierarchical name space over a flat name space for a system as large as the size of the internet ?

   (b) What is the purpose of the inverse domain ?

(c) Describe the addressing system used by SMTP. What are the tasks of a user agent in SMTP ?

(d) What is the purpose of using MIME ? 3+3+(3+2)+3

6. (a) With a suitable example, briefly describe how OSPF protocol can be used to update the routing table inside an autonomous system.

(b) Construct the Hamming case for the bit sequence : 11001101. 7+7

7. (a) Define protocol. Distinguish between OSI model and TCP/IP protocol suite.

(b) Distinguish between Address Resolution Protocol (ARP) and Reverse Address Resolution Protocol (RARP). What do you mean by 'Physical addresses' and 'Logical addresses' ?

(c) What is socket ? What do you mean by byte ordering ? (2+3)+(2+2)+(2+3)

8. Write short notes (any *four*) : $4 \times 3\frac{1}{2}$

(a) ICMP,

(b) BOOTP,

(c) BGP,

(d) UDP,

(e) HDLC.

[*Internal Assessment : 30*]

Data Warehousing & Data Mining

Answer any *five* questions. 5×14

1. (a) What are the different tiers in a typical 3-tier data warehousing architecture ?

(b) What is data mining ? How is data mining related to KDD ?

(c) Why do we need to have separate data warehouse for OLAP applications ?

(d) Write down various functions of tools used in backend process of data warehouse. 2+(2+3)+3+4

2. (a) Discuss the different techniques for dimensionality reduction of text.

   (b) Describe the application of DBminer. 7+7

3. (a) Define Data Marts. Mention the different types of Data Marts.

   (b) What are the reasons for creating data marts ?

   (c) Explain multidimensional data model with example. 4+5+5

4. (a) What is spatial database ?

   (b) Explain the method of mining spatial database. 4+10

5. (a) What do we need to preprocess data ?

   (b) What are the different forms of preprocessing ? 4+10

6. (a) What are the different ways to select an optimal set of attributes in a dataset ?

   (b) Discuss

   (i) Various methods for data cleaning.

   (ii) Various strategies for data reduction. 4+(5+5)

7. (a) How is web usage mining different from web structure mining and web content mining ?

   (b) Discuss about the social impacts and various trends in data mining.

   (c) Give three advantages of web mining. 7+4+3

8. Write short notes (any *four*) : $4 \times 3\frac{1}{2}$

   (a) OLTP,

   (b) Temporal mining,

   (c) Decision tree constructing principles,

   (d) PAM Clustering technique,

   (e) Data cube,

   (f) WUM,

   (g) Issues and Challenges of data mining.

[*Internal Assessment : 30*]

Advanced DBMS

Answer Q. No. *1* and any *four* from the rest.

1. Answer any *five* questions : 5×2

(a) What is trigger ?

(b) What is data replication ?

(c) What do you mean by data warehousing ?

(d) What do you mean by query optimization ?

(e) What is binary lock ?

(f) Define data transperency.

(g) What is functional dependency ?

2. (a) What is transaction ? What are the ACID properties of transaction ?

(b) Describe different states of transaction.

(c) What do you mean by Query Processor. (2+4)+6+3

3. (a) Discuss locking approaches to concurrency control.

(b) Explain the concept and relevance of serializability.

(c) Why B+ tree is advantageous over B tree.

(d) What is referential integrity ? 4+6+3=12

4. (a) Discuss "insertion anomalies" with an example. Suggest a method to overcome it.

   (b) Given a relational schema : Supply (sno, city, status, pno, qty) with FD set F = { sno→city, city→status, {sno, pno}→qty}

   Find the primary key of the schema. Also reduce it into 3NF.

   (c) Define Multi Valued Dependancy (MVD) with suitable example. 4+7+4

5. (a) Briefly describe "entity integrity" and "referential integrity" constraints. Why these are considered important ? Explain with suitable example.

   (b) Define the concept of generalization, specialization and aggregation.

   (c) What is closure and minimum cover ? 6+6+3

6. (a) Define primary index, secondary index and clustering index.

   (b) What are the main characteristics of functional dependencies ?

   (c) Write a short note on Armstrong's axioms.

   (3×2)+5+4

7. Write short notes (any *three*) : 3×5

(a) Time-stamp based protocol for concurrency control ;

(b) Wait-die and wound-wait protocol for dead lock prevention ;

(c) Theta-join ;

(d) Security features in DBMS ;

(e) Spurious tuples and Dangling tuples.

[*Internal Assessment : 30*]

E-Commerce & ERP

Answer any *five* questions. 5×14

1. (a) Write the advantage of E-Commerce.

(b) Define Rules and Regulations for controlling E-Commerce. 7+7

2. (a) Write short notes on :

(i) C2C,

(ii) C2B.

(b) Discuss "Web Security". $3\frac{1}{2}+3\frac{1}{2}+7$

3. (a) Write short notes on :

(i) E-Signature,

(ii) E-banking.

(b) What is the function of ERP ? $3\frac{1}{2}+3\frac{1}{2}+7$

4. (a) What is the Future Directions in ERP ?

(b) Discuss the present status of ERP. 7+7

5. (a) Write a short note on "Supply Chain Execution".

(b) What is "Customer Premises Equipment" ? 7+7

6. (a) Write a short note on "Web Traffic".

(b) Discuss the relation of ERP and E-Commerce. 7+7

7. (a) What is EDI ?

(b) What strategic methods would you adopted for developing E-Commerce ? 4+10

[*Internal Assessment : 30*]