Total number of printed pages – 4

2019

BCA

6th Semester Examination

Advanced Networking (Elective – II)

Paper – 3202

Full Marks – 100

Time : 3 Hours

The questions are of equal value for any group / half.

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.

1. Answer any **five** questions : 14×5

   (a) How does FDDI differ from 802.5 token ring network ? 5

   (b) Differentiate between bit stuffing and bit *padding.* 4

P.T.O.

(c) Briefly describe TCP three way handshaking technique. 5

2. (a) Explain how Pulse Amplitude Modulation (PAM) and Pulse Code Modulation (PCM) are used to convert analog signal into digital format. 6

(b) Explain the basic differences between ISO/OSI and TCP/IP reference models. 4

(c) Briefly describe how differential Manchester encoding technique works with an example. 4

3. (a) Explain how CSMA/CA is used for access control. 8

(b) Explain the concept of framing with respect to data link layer. 6

4. (a) "ATM is connection oriented scalable and flexible with guaranteed QoS and a virtual circuit packet switching technology that imposes no speed limitations and supports different types of data." Justify the statement. 6

(b) With a suitable example, briefly describe shortest path routing algorithm. 6

(c) Define port address. 2

5. (a) Compare IP addressing and MAC addressing. 5

(b) Mention two advantages and disadvantages of using satellite communications. 4

(c) What is Protocol Data Unit (PDU) and what does it contain ? 5

6. (a) What is congestion ? Why congestion occurs in a subnet ? How token bucket algorithm is used to control congestion ? 2+2+6

(b) Give the frame format of X.25. 4

7. (a) Explain the operation of Simple Network Management Protocol (SNMP). 5

(b) Find the CRC for the data 10110110 where the divisor is 1101. 5

(c) What is packet switched network ? How does it differ with circuit switched network? 2+2

8. Write short notes on any **four** : $3\frac{1}{2} \times 4 = 14$

(a) ARP

(b) Classless addressing

(c) Firewall

(d) Proxy server

(e) HDLC

(f) Token ring

[Internal Assessment – 30 marks]

Total number of printed pages – 4

2019

BCA

6th Semester Examination

Advanced DBMS (Elective – II)

Paper – 3202

Full Marks – 100

Time : 3 Hours

Answer question No. 1 and any four from the rest.
The questions are of equal value for any group / half.
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.

1. **Answer any five questions :** 2×5

   (a) Write importance of 2 PL.

   (b) What is MVD ? Give an example.

   (c) What is derived key ? Explain with example.

P.T.O.

(d) Write drawbacks of normalization.

(e) Why is the shared lock better than binary locking protocol ?

(f) What is Blocking Factor ?

(g) What is view ?

(h) Define indexing.

2. (a) Explain two-phase locking protocol. 4

(b) Consider the following two transactions : 7

T1 : read (A);
read (B);
if A = 0, then B: = B + 1;
write (B)

T2 : read (B);
read (A);
if B = 0, then A: = A + 1;
write (A)

Add lock and unlock instructions to transactions T1 and T2. So that they observe the two-phase locking protocol. Can the execution of these transactions result in a deadlock ?

(c) Distinguish between locking and timestamp protocols for concurrency controls. 4

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

(b) Given a relational schema Supply (sno, city, status,pno,qty) with FD set F = {sno-> city,city->status, {sno,pno} ->qty}.
Find the key of the schema.
Also reduce it into 3NF. 7

(c) Define MVD with suitable example. 4

4. (a) Write the difference between procedural and non-procedural DML. 3

(b) What do you mean by functional dependency? 2

(c) Explain the terms 'partial functional dependency' and 'non-transitive dependency' with example. 4

(d) With suitable examples show how recovery in a database system can be done using LOG file with : 6

(i) Immediate updation

(ii) Differed updation

5. (a) What are the differences between logical data independence and physical data independence ? 3

(b) What are the major functions of the database administrator ? 3

(c) Define the following terms – Primary Key, Composite Key and Unique Key. 2×3

(d) What is database recovery ? 3

6. (a) Describe the growing phase and shrinking phase with example of the two phase locking protocol. 5

(b) Describe different states of transaction. 5

(c) Define closure and minimum cover. $2\frac{1}{2} + 2\frac{1}{2}$

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

(a) Database security

(b) Recovery Management

(c) DKNF

(d) Armstrong's axioms

(e) Multivalued dependencies

[Internal Assessment – 30 marks]

Total number of printed pages – 2

2019

BCA

6th Semester Examination

E-Commerce & ERP

(Elective – II)

Paper – 3202

Full Marks – 100

Time : 3 Hours

The questions are of equal value for any group / half.

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.

Answer any five questions : 14×5

1. (a) Write the major threats of E-commerce. 5

   (b) Do you think that existing cyber laws are *sufficient to arrest* the major threats of E- Commerce ? 9

P.T.O.

2. (a) What is B2B model in E-commerce ? 7

(b) How does B2B model differ with B2C model ? 7

3. (a) Write the role of E-logistics in Supply Chain Management. 4

(b) Write notes on Supply Chain Planning tools. 10

4. (a) How the re-engineering work process run for IT application in Enterprise Resource Planning (ERP) ? 6

(b) Explain how human resources as well as materials are managed under ERP ? 4+4

5. (a) Write short notes : Four C'S 7

(b) Write the advantage of Cyber Laws. 7

6. (a) Write short notes of Web Security. 7

(b) Discuss "E-logistics". 7

7. (a) Write a short note on 'Content Management'. 7

(b) Write a short note on 'Customer Premises Equipment'. 7

[Internal Assessment – 30]

Total number of printed pages – 3

2019

BCA

6th Semester Examination

PHP / MYSQL (Elective – II)

Paper – 3202

Full Marks – 100

Time : 3 Hours

Answer question No. 1 and any four from the rest.

The questions are of equal values for any group / half.

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.

1. Answer any five questions : 2×5

   (a) What is an Open Source ?

   (b) State the use of function substr() in PHP ?

   (c) What is a scripting language ?

   (d) What role does DNS play in web communication ?

P.T.O.

(e) Define Bootstrap.

(f) List the differences between mysql and mysqli.

(g) What are Apache and WAMP ?

2. (a) What is a CSS ? Briefly explain different types of a CSS. 8

(b) Discuss about the global variables of PHP ? 7

3. (a) What roles does browser and a web server plays during communication with each other. Discuss. 8

(b) What are different types of buttons that you use in HTML / PHP ? 7

4. (a) Write a program in PHP to display the values of a one-dimensional and two-dimensional array. 7

(b) How can data be fetched from the database to a PHP page ? Give examples. 8

5. (a) Write down the connection string to connect PHP and MySQL database. Explain the parameters. 10

(b) What do you mean by web 2.0 and World Wide Web consortium ? 5

6. (a) What are the differences between session and cookie ? Give examples of both. 10

(b) What are the characteristics of PHP languages ? 5

7. (a) Differentiate between :

(i) include () and require () 3

(ii) mysql_real_escape_string() and stripslashes 3

(b) Write short notes on : (any **three**) 3 × 3

(i) Image or File uploading in PHP

(ii) Phpinfo and Phpmyadmin

(iii) Errors in PHP

(iv) Meta Elements

[Internal Assessment – 30 marks]

Total number of printed pages – 3

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BCA

6th Semester Examination

Data Warehousing & Mining (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.

1. Answer any **five** questions : 5×14

   (a) What is data classification ? How it is differ than prediction ? 7

   (b) Describe ID3 algorithm of the decision tree construction. 7

2. (a) How does clustering differ from classification ? 6

   (b) What is supervised and unsupervised learning ? 4

P.T.O.

(c) What is backpropagation ? 4

3. (a) Compare hierarchical clustering and non hierarchical clustering algorithm. 8

(b) Explain the various OLAP operation used on a data cube. 6

4. (a) Distinguish DBMS vs. Data Mining. 3

(b) Write the different steps of data mining task. 3

(c) Define data warehouse. What is the difference between OLAP and OLTP ? 4

(d) What are the salient features of data warehousing ? 4

5. (a) Explain the algorithm for constructing a decision tree from training samples. 8

(b) Write Bayesian classification theorem. 3

(c) Write advantages of fuzzy set approaches for classification. 3

6. (a) What are the salient features of data warehousing ? 3

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

(c) What is data mining ? How is data mining related to KDD ? 2+2

(d) What do you mean by warehouse schema ? Explain. 2

(e) Discuss Star schema with suitable example. 4

7. (a) Explain the need of data mining in retail industry. 7

(b) Discuss in details about any one data mining tool. 5

(c) Define privacy preserving data mining. 2

8. Write short note on the following topics :
(Any four) : $4 \times 3\frac{1}{2}$

(a) Text mining

(b) WUM

(c) K-Nearest Neighbor classifiers

(d) Multi-Dimensional data model

(e) Major issues in data mining

(f) DB miner

(g) Data mining query language

[Internal Assessment – 30 marks]

Total number of printed pages – 3

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BCA

6th Semester Examination

Advanced OS (Elective – II)

Paper – 3202

Full Marks – 100

Time : 3 Hours

Answer question No. 1 and any four from the rest.

The questions are of equal value for any group / half.

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.

1. Answer any five questions : 2×5

   (a) What is critical section ?

   (b) What is RPC ?

   (c) Define deadlock.

P.T.O.

(d) Write down the characteristics of real time system.

(e) What do you understand by mutual exclusion ?

(f) Define process.

(g) What is loosely coupled system ?

2. (a) What is resource ? 3

(b) Discuss about different types of resources. 4

(c) Explain resource sharing methods in distributed system. 8

3. (a) Differentiate between logical clock and physical clock. 4

(b) Compare reusable and consumable resources. 4

(c) How deadlock can be detected in distributed system. 7

4. (a) Discuss the Bully algorithm. 8

(b) Write a short note on distributed shared memory. 7

5. (a) Describe the algorithm for wait. 7

(b) Explain file accessing model in distributed system. 8

6. Write short notes on : $5 \times 3 = 15$

(a) Hybrid model

(b) Synchronization in distributed system

(c) Bus oriented system

[Internal Assessment – 30 marks]

Total number of printed pages – 3

2019
BCA

6th Semester Examination

Image Processing & Pattern Recognition
(Elective – II)

Paper – 3202

Full Marks –100

Time : 3 Hours

The questions are of equal value for any group / half.

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.

Answer any **five** questions : 14×5

1. (a) What is an image ? What do you mean by resolution and aspect ratio of an image ? What is sampling ? 2+2+2+2

   (b) *Define* 4-neighbor, 8-neighbor of an image pixel. Explain with example. 2+2

P.T.O.

(c) What is the distance between pixels ? 2

2. (a) Write a brief note on clustering algorithm used in pattern recognition. 7

(b) What do you mean by classification ? Differentiate between supervised and unsupervised learning ? 3+4

3. (a) Describe basic gray level image transformation used in image processing. 7

(b) Explain CMY color model. 7

4. (a) Explain the basic elements of digital Image processing. What is chromatic adaption ? 4+3

(b) Explain the basic color model and conversion from RGB to HSI & Vice-versa. 7

5. (a) What is pattern recognition ? 2

(b) What is pattern class ? 3

(c) Explain different object recognition method. 5

(d) Discuss any edge detection algorithm in detail. 4

6. (a) What is Histogram ? 2

(b) Explain histogram equalization. 3

(c) Explain the types of gray level transformation used for image enhancement. 4

(d) What are image sharpening filters ? Explain the various types of it. 5

7. Write short notes on : (Any **two**) 7+7

(a) Image enhancement

(b) Sampling and quantization

(c) Bayes' theory for classification

(d) FFT

[Internal Assessment – 30]