END TERM EXAMINATION

SIXTH SEMESTER [BCA] MAY 2017

Paper Code: BCA-302	**Subject: Data warehouse and Data Mining**
Time: 3 Hours	**Maximum Marks: 75**

Note: Attempt any five questions including Q no.1 which is compulsory. Select one question from each unit.

Q1　Answer **any five** of the following questions briefly:-　　(5x5=25)
　　(a) How to classify various data mining systems?
　　(b) What do you mean by Association Rule Mining?
　　(c) What are data mining task primitives?
　　(d) Briefly explain OLAP.
　　(e) How to evaluate the accuracy of a classifier?
　　(f) What are important social impacts of data mining?

UNIT-I

Q2　What are the major issues in Data Mining? Explain in detail.　(12.5)

Q3　What is data preprocessing? Write and explain all the steps of data preprocessing.　(12.5)

UNIT-II

Q4　What is Multidimensional Data Model? Explain in detail the architecture of data warehouse.　(12.5)

Q5　What are frequent patterns, association and correlation? Explain with the help of a suitable example the advantages of frequent pattern mining.　(12.5)

UNIT-III

Q6　What is Classification? Write and explain the decision tree induction method.　(12.5)

Q7　What do you understand by Cluster Analysis? Explain Partitioning method in detail.　(12.5)

UNIT-IV

Q8　Write the major applications of Data mining in today's world.　(12.5)

Q9　Write the steps to mine spatial and multimedia databases.　(12.5)

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END TERM EXAMINATION

SIXTH SEMESTER [BCA] MAY 2017

Paper Code: BCA-304	Subject: Mobile Computing
Time: 3 Hours	Maximum Marks: 75

Note: Attempt any five questions including Q no.1 which is compulsory. Select one question from each unit.

Q1　Answer **any five** of the following questions briefly:-　**(2.5x5=12.5)**
(a) What is WAP push protocol?
(b) What do you mean by CDMA?
(c) Write the attributes of <template> tag in WML.
(d) What is unified messaging?
(e) Define the term Bluetooth.
(f) What is rendering?
(g) Write logical operators in WML script.

UNIT-I

Q2　(a) Describe the multiplexing techniques with suitable diagrams.　**(8)**
(b) What are the factors that enable the Convergence of Wired with Wireless media? Explain each of them.　**(4.5)**

Q3　(a) Discuss FSK, PSK, AFSK and APSK.　**(8)**
(b) With an example, explain the direct sequence spread spectrum.　**(4.5)**

UNIT-II

Q4　(a) Explain the MAC mechanism used in WLAN.　**(4.5)**
(b) Explain the term and their functionalities of GSM architecture.　**(8)**

Q5　(a) Differentiate between FDMA, TDMA and CDMA.　**(6)**
(b) Discus in detail location management in mobile networks.　**(6.5)**

UNIT-III

Q6　(a) What are the various types of WML tasks? Discuss their attributes and usage with the help of a program.　**(7.5)**
(b) What are all services available for mobile internet?　**(5)**

Q7　(a) Write a program to add, subtract and multiply in WML.　**(6)**
(b) What are WML decks? Explain.　**(6.5)**

UNIT-IV

Q8　(a) Create a function to check whether a number is prime or not using WML script.　**(5)**
(b) Explain all WML script operators with example.　**(7.5)**

Q9　(a) Explain the access pragma and meta pragma with the help of example.　**(6)**
(b) Explain the structure of Wireless Application Protocol.　**(6.5)**

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END TERM EXAMINATION

SIXTH SEMESTER [BCA] MAY-JUNE 2017

Paper Code: BCA-306	**Subject: Linux Environment**
Time: 3 Hours	**Maximum Marks: 75**

Note: Attempt any five questions including Q.no.1 which is compulsory.

Q1 Answer following in brief **(any five)**:   **(5x5=25)**

(a) Linux initially was developed for intel X86 architecture but has been ported to other hardware platform than any other Operating System. Elaborate this statement.

(b) Why Linux Operating system is Virus free? Explain with reason.

(c) What is BASH? What is the basic difference between BASH and DOS?

(d) What is an MX record? What is a zombie?

(e) Does the Ctrl+Alt+Del key combination work on Linux? Justify.

(f) In Linux, what names are assigned to the different serial ports? Give example.

Q2 (a) What is the core of Linux Operating System?   **(6)**

(b) What is the basic difference between UNIX and Linux Operating System?   **(6.5)**

Q3 (a) What is LILO?   **(6)**

(b) What is an INODE? Make a block diagram of I-node and explain various fields.   **(6.5)**

Q4 (a) What is a swap space? Why it is used?   **(6)**

(b) What is the advantages of open source? What is the importance of the GNU project?   **(6.5)**

Q5 (a) Describe the root account. What is CLI?   **(6)**

(b) How can you find out how much memory Linux is using? What is an MX record? Describe the Linux boot-up sequence.   **(6.5)**

Q6 (a) What are the various permission types for accessing a file? How it can be examined. Explain symbolic method and numeric method for changing permissions.   **(6)**

(b) Explain the functioning of following commands with example:
     cd, mv, copy, rm, cat, ps, top, pstree, nice, renice.   **(6.5)**

Q7 (a) Differentiate between following in brief: **(6.5)**
     (i) symbolic links and hard links
     (ii) mount and umount command

(b) Explain in brief following shell scripts commands:
     grep, sed, awk.   **(6)**

Q8 (a) Explain the various environment variables in brief. What do you understand by sticky bit for a directory? Explain.   **(6)**

(b) Explain linux Kernel in brief. How the kernel is installed? Explain the kernel process management in brief.   **(6.5)**

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END TERM EXAMINATION

SIXTH SEMESTER [BCA] MAY 2017

Paper Code: BCA-308	Subject: Multimedia & Its Applications
Time : 3 Hours	Maximum Marks :75

Note: Attempt any five questions including Q.no.1 which is compulsory.

Q1   Attempt **any ten**:   **(10x2.5=25)**
   (a) Explain the Application and System Quality of service (QoS) parameters for MPEG video systems.
   (b) Discuss the challenges/issues involved with multimedia communication.
   (c) An audio signal is digitized at a sample rate of 44.1 KHz, a bit depth of 16 and in mono mode. Calculate the space occupied by a 10 minutes of the audio in MB.
   (d) What are the criteria/factors to classify the multimedia (media)?
   (e) Mention some of the important properties of Multimedia Systems.
   (f) Write down challenges faced during the development of multimedia system.
   (g) Explain the technical demands and constraints for real time multimedia systems?
   (h) Discuss the purpose of Real Time Streaming Protocol (RTSP) in streaming stored audio/video?
   (i) Differentiate between the Asynchronous Transmission and Synchronous Transmission Mode.
   (j) What are the limitation of CD-ROM technology?
   (k) Write down the advantages of Digital CD-DA technology.

Q2   What was the goal of developing CD-ROM? How many modes are there in CD-ROM? Explain the CD-ROM modes with the help of block layout for both of them.   **(12.5)**

Q3   What is the role of MIDI in context to music and computer? How many components are there in MIDI interface? Discuss all the four reception modes for MIDI device.   **(12.5)**

Q4   Write down the Multimedia Applications in context to following domains: **(12.5)**
   (a) Application of Multimedia in Education Sector
   (b) Application of Multimedia in IT Industry
   (c) Application of Multimedia in Research and Development
   (d) Application of Multimedia in Music Industry

Q5   Explain the Image Recognition Steps in detail with the help of a diagram.   **(12.5)**

Q6   Differentiate between the JPEG and MPEG compression. Explain the steps involved in JPEG compression process with the help of a figure. Write down the basic properties of Lossless and Lossy data Compression techniques.   **(12.5)**

[P.T.O]

BCA-308
P1/2

Q7 (a) Why multimedia databases are important? Distinguish between the low level features and textual annotations. **(6.5)**

(b) A CD-ROM contains the 300,000 blocks to be played back in 100 minutes. Calculate the data rate and capacity of CD-ROM when operating in (i) Mode-1 (ii) Mode-2 **(6)**

Q8 Consider the following symbols and their probability of occurrence: **(12.5)**

A	B	C	D	E	F
0.55	0.20	0.07	0.08	0.06	0.04

Computing the following:-

(i) Hffman Codes
(ii) Shannon Fano Code
(iii) Calculate the Entrophy
(iv) Calculate the redundancy in Shannon Fano Code and Huffman Code

Q9 (a) Define SGML and ODA. Show the steps of processing of an SGML document. Mention some of the differences between the SGML and ODA. **(6)**

(b) Why video on demand is so popular now-a-days? Show the working of video on demand using schematic diagram and mention the role of each component used in video on demand service. **(6.5)**

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BCA-308
P2/2

END TERM EXAMINATION

SIXTH SEMESTER [BCA] MAY JUNE 2017

Paper Code: BCA-312	Subject: Artificial Intelligence

Time: 3 Hours	Maximum Marks: 75

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each unit.

Q1 (a) What is Artificial Intelligence (AI)? Enumerate its popular definitions comment upon each.
(b) Compare Depth-First and Breadth-First Search.
(c) Write short note on concept of uncertainty in Expert system.
(d) What are the merits and demerits of semantic net over semantic frames?
(e) Write short note on Rote learning. **(5x5=25)**

UNIT-I

Q2 (a) What is a State Space Search? Give any example of a game which happens to be a problem of state space search and justify your answer properly. **(6.5)**
(b) What is production system? Discuss requirements of good control strategy. **(6)**

Q3 (a) Write algorithm for "Hill Climbing" and explain the terms Local maximum, Plateau and ridge. **(6)**
(b) Explain A * algorithm in detail with an example. **(6.5)**

UNIT-II

Q4 Consider the following sentences:- **(12.5)**
(a) John likes all kinds of food.
(b) Apples are food.
(c) Chicken is food.
(d) Anything anyone eats and isn't killed by is food.
(e) Bill eats peanuts and is still alive.
(f) Sue eats everything Bill eats.
Based on above, do the following:
1. Translate these sentences into formulas in predicate logic.
2. Prove that John likes peanuts using backward chaining.
3. Convert the formulas of part 1 into clause form.
4. Prove that John likes peanuts using resolution.

Q5 (a) What is knowledge representation? What are various techniques used for knowledge representation? Discuss significance of each. **(7)**
(b) Differentiate between forward and backward reasoning. **(5.5)**

UNIT-III

Q6 (a) Write short notes on Learning by Parameter Adjustment and Explanation based Learning. **(7)**
(b) Differentiate between syntactic processing and semantic processing. **(5.5)**

P.T.O.

BCA-312
P1/2

Q7   (a) What do you understand by Natural Language Processing? Discuss with details various steps involved in Natural Language understanding. **(6)**

      (b) Differentiate between Context Free Language (CFL) and Context Sensitive Language. (CSL) **(6.5)**

UNIT-IV

Q8   (a) What is LISP? Explain the basic building blocks of LISP with valid and invalid examples in detail. **(6)**

      (b) Write a LISP program to find average of four numbers. **(6.5)**

Q9   (a) What are the various steps for the development of Expert Systems? Discuss in detail. **(8)**

      (b) What is the role of Expert system tools in developing expert system? Give one example of such tool and its usability. **(4.5)**

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BCA-312
P2/2

END TERM EXAMINATION

SIXTH SEMESTER [BCA] MAY-JUNE 2017

Paper Code: BCA 314	**Subject: Computer Network & Information Security**
Time : 3 Hours	**Maximum Marks :75**

Note: Attempt any five questions including Q.No.1 which is compulsory.

Q1.
a) Explain Confidentiality, Integrity, availability in respect to Information Security. **(5)**
b) Differentiate between Symmetric and Asymmetric Key Cryptography. **(5)**
c) Explain IP spoofing and Mail spoofing. **(5)**
d) Explain the sue of proxy server and Firewall. **(5)**
e) Define Virus, Worms and Trojan Horses. **(5)**

Q2.
a) Using RSA public key cryptosystem with a=1, b=2, etc., if p=13 and q=31 and d=7, find e. **(6.25)**
b) Differentiate between Digital Signature and Cryptography. Explain the use of Digital Signature. **(6.25)**

Q3. Explain the following attacks in detail. **(12.5)**
a) Dos
b) Malware Attack
c) Logic Bob Attack

Q4. What is Hash function and its significance. Explain any two algorithms used for evaluating Hash value. **(12.5)**

Q5. Explain the following problems of Network Security. **(12.5)**
a) TCP Session Hijacking
b) Sequence Guessing
c) Smurf Attack

Q6.
a) Describe the TCP/IP security architecture with neat diagram. **(6.25)**
b) How VPN is more secured than any other Network Infrastructure. Explain in detail. **(6.25)**

Q7.
a) What is Firewall? Explain the various types of Firewall configuration with relevant diagram. **(6.25)**
b) Differentiate between Router, Bridge and Gateway. **(6.25)**

Q8. Write short notes on **any two**: **(6.25x2=12.5)**
a) Block and Stream Ciphers
b) Network Scanning
c) Bastion Host

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