M.E. (Comp. Engg) Sem -II Advanced Operating System 18 Nov. 2015
(CBGS)

Q.P. Code : 29924

(3 Hours)　　　　**[Total Marks : 80**

NB: Solve any four

Q1　a)　Explain the Suzuki Kasami algorithm with example. Analyze the　10
　　　　best and worst case scenarios.

　　　b)　What are the limitations of distributed operating systems　　　　10

Q2　a)　Discuss multiprocessor operating system design issues　　　　　10

　　　b)　Describe the implementation of Process wait in multiprocessor CS　10

Q3　a)　What are the characteristics of RTOS　　　　　　　　　　　　10

　　　b)　Determine whether the following set of periodic real time tasks is　10
　　　　schedulable　under　RMS　for　a　uniprocessor　system
　　　　T1=(e1=40,p1=200),　T2: (e2=60,p2=300)　T3:(e3=120,p3=400)
　　　　.state the necessary and sufficient condition .

Q4　a)　Discuss scheduling in RTOS　　　　　　　　　　　　　　　　10

　　　b)　Explain Global State Detection based Algorithm　　　　　　　10

Q5　a)　What are the components of Load distributing algorithms　　　　10

　　　b)　Explain the Distributed Database System.What is the serializability　10
　　　　condition in DDBS.

Q6　　　Write short notes on (any two)　　　　　　　　　　　　　　　20
　　　　a) File systems on mobile phones.
　　　　b) Concurrency control in database operating systems.
　　　　c) Micro and monolithic kernels.
　　　　d) Kernel and virtual approach in design of OS.
　　　　e) Distributed shared memory.
　　　　f) Test-set instruction

BB-Con. 7283-15.

Q.P. Code : **29926**

(3 Hours) [Total Marks : 80

N.B. : 1. Q. No. 1 is compulsory.
2. Attempt any three questions from the five questions remaining.
3. Figures to the right indicate full marks
4. Assume data wherever required and mention it clearly

1. a) Explain in details cyber defamation. 5
   b) Explain how Botnet can be used as a fuel to cybercrime. 5
   c) Explain in details IT A 2000 along with its weakness. 10

2. a) What do you mean by cyber stalker? Discuss types of stalker and their mitigation technique. 10
   b) Discuss in details E-mail forensics analysis 10

3. a) Discuss impact of IT Act amendments on Information Technology Organization. 10
   b) What is buffer overflow problem? How NOPS are uses to cause buffer Overflow problem ? Discuss 3 tools used to defend buffer overflow problem. 10

4. a) Discuss various approaches used by attacker to launch phishing attack ? Discuss SPS algorithms to thwart phishing attacks? 10
   b) Explain business identity thefts and their countermeasures. 10

5. a) Discussed in details digital forensics life cycle. 10
   b) Explain following attacks on mobile cell along with their protection technique 10
      1) Mal ware attack
      2) Smishing.

6. Write a short notes on following ? Explain any four : 20
      a) Vishing
      b) Backdoor
      c) Public Key Certificate
      d) Digital evidence.
      e) Passive attack.

BB-Con. 7287-15.

M.E (Comp) CBGS

Sem II

Q.P. Code : 29929

(3 Hours)   [Total Marks : 80

Note:

1) Q:1 is compulsory.

2) Attempt any three questions from remaining five questions.

3) Figures on the right, indicate full marks.

4) Assume suitable data whenever required.

Q1) Answer the following   (20)

1) Explain any two characteristics of complex business problem in detail. Prove that car distribution problem is a complex business problem.

2) Explain the structure of Adaptive Business Intelligence System

3) Explain Constraint handling in optimization

4) Explain the steps in building a prediction model and explain the term Data preparation.

Q 2)

Seven companies are to be compared for different attributes like profitability(PR), productivity(PD), market position(MP) and debt ratio(DR).The weights of the attributes are PR-0.54,PD-0.13,MP-0.28 and DR-0.06.

Solve using SAW,WPM,AHP   (20)

Company	Profitability	Productivity	Market Position	Debt Ratio
A1	0.75	1.00	0.8823	0.7756
A2	0.50	0.924	0.8235	0.7885
A3	0.25	0.6618	0.5294	0.7179
A4	1.00	0.9022	0.6470	1.00
A5	0.5625	0.6701	0.7647	0.6987
A6	0.9375	0.6349	0.4118	0.8910
A7	0.8125	0.6197	1.00	0.7436

Q3   a) Explain factors to be considered while selecting best prediction method.   (10)

      b)Explain Hybrid system for car distribution problem   (10)

Q 4   a) Explain PSO algorithm and its flow chart with suitable example.   (10)

      b)Explain Ant colony optimization   (10)

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BB-Con. 7850-15.

Q 5   a) Explain different types of artificial neural networks in detail. Explain any one w.r.t

the car distribution problem.   (10)

b) Explain simulated Annealing in detail. How it is different from stochastic hill climbing (10)

Q 6)   Write short note on any two   (20)

1)Credit card Fraud

2)Agent based modeling

3)Mamdani Fuzzy System

QP Code : 29933

(3 Hours) [Max Marks 80

N.B.
(1) Question no. 1 is compulsory.
(2) Attempt any 3 from the remaining questions.
(3) Assume suitable data if necessary and justify.
(4) Figures to right indicate full marks.

Q1(a)	With reference to 2D transformation, Derive the matrix for scaling operation on an object, with reference to pivot point. Apply it on a triangle ABC , A(0,0),B(1,2) , C(3,2) to double its size. The point C (3, 2) should remain fixed.	10
Q1(b)	Specify the different steps involved in the design of Animation sequence and explain.	10
Q2(a)	Explain the midpoint subdivision line clipping algorithm for 2 dimensions.	10
Q2(b)	Generate at least 5 points on a 2D Bezier curve with control points A(1,1), B(5, 5) C(7,2) D(10,6)	10
Q3(a)	Explain in details the logical classification of input devices.	10
Q3(b)	With reference to 2D transformations, prove that the multiplication of transformation matrices for each of the following sequence of operations is commutative. i. Two successive rotations. ii. Two successive scaling.	10
Q4(a)	Compare the parallel and perspective projection.	10
Q4(b)	Write the matrices for rotation of a 3D object about X axis, Y axis and Z axis. Rotate a pyramid with base ABCD and apex E about Y axis by 90 degrees. A(0,0,0), B(10,0,0), C(10,0,10) D(0,0,10), E(5,20,5)	10
Q5(a)	Explain the Z buffer algorithm and Depth sort algorithm for hidden surface removal.	10
Q5(b)	Write a detailed note on octree and binary space partitioning trees.	10
Q6	Write short notes on i) Color Models. ii) Fractal curves	20

BB-Con. 8832 -15.

Time: 3 Hrs   Max Marks: 80

N.B.: (1) Question No. 1 is compulsory.
       (2) Attempt any **three** questions out of remaining **five**.

1. (a) Explain any five defuzzification techniques   5
    (b) Explain with neat diagram different types of learning.   5
    (c) Explain different activation functions.   5
    (d) Explain with example any two operators involved in simple GA.   5

2. (a) Consider two fuzzy sets given by   10
         A = {1/low + 0.2/medium + 0.5/high}
         B = {0.9/positive + 0.4/zero + 0.9/negative}
         C = {0.1/low + 0.2/medium + 0.7/high}
         R = A x B
         Find: C ∘ R
         C ● R
    (b) Explain the EBPTA with flowchart.   10

3. (a) Prove the following identities: 10
         i) For unipolar continuous activation function f'(net) = $O(1-O)$
         ii) For bipolar continuous activation function f'(net) = $(1-O^2)/2$
         where O is out
    (b) What is competitive learning? Explain winner take all learning rule and Kohonen   10
         self-organizing map with the help of example.

4.   Design a fuzzy logic controller for a train approaching or leaving a station. The   20
         inputs are the distance from the station and speed of the train. The output is the
         amount of brake power used. Use four descriptors for each variable. Specify five
         to six rules and prove that when the train is nearer to station and speed is
         medium, the brake power used is high.

5. (a) Explain the architecture of BAM. How is storage and retrieval performed in   10
         BAM?
    (b) Determine the weights after three iterations for Hebbian learning of a single   10
         neuron network starting with initial weights w = [1, -1], inputs as
         X1 = [1, -2], X2 = [2, 3], X3 = [1, -1] and c=1.
         Use bipolar continuous activation function.

6. (a) Explain Fuzzy Associative Memories.   10
    (b) What is SPD? Explain architecture and training algorithm for ART1 network.   10

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BB-Con. 8835 -15.

(3 Hours)   [Total Marks : 80

N.B.:1)Question No.1 is **compulsory**.
    2)Attempt **any three** from remaining 5 questions.
    3) Draw the **relevant** diagram neatly.

1.a) Compare DAS, NAS ,SAN technologies.   (05)
  b) What is zoning ?Explain types of zoning.   (05)
  c) An application have 2000 IOPS and the read-write ratio is 7:3. Compute the IOPS required for RAID3,RAID5 conclude which one is good configuration.   (05)
  d) Discuss SNIA storage virtualization taxonomy.   (05)

2.a) What is NAS? List the components of NAS? Explain various benefits of NAS.   (10)
  b) Define incremental and cumulative backup. Explain difference between them with respect to restoration process.   (10)

3.a) Explain in detail about Serverless backup as backup killer application.   (10)
  b) Explain FC-AL and FC-SW connectivity.   (10)

4. a) The average I/O size of an application is 64 KB. The following specifications are available from the disk manufacturer: average seek time = 5 ms, 7,200 rpm, transfer rate = 40 MB/s. Determine the maximum IOPS that could be performed with the disk for this application. Taking this case as an example, explain the relationship between disk utilization and IOPS.   (10)

  b) Explain in detail about Object Storage and Retrieval in CAS.   (10)

5.a) Explain Topologies for iSCCI connectivity.   (05)
  b) Discuss benefits of SAN.   (05)
  c) Explain Copy-on-Write Frozen Images.   (10)

6 . Write short note on (any two)   (20)
  a) Data Relication killer app for SAN technology
  b) Basic SAN Security Mechanism.
  c) Roll of Quality of I/O Performance Service in SAN Management.

BB-Con. 8834 -15.

QP Code : 29936

(3 HOURS)   [Total Marks: 80]

N.B.:   (1) Question no. 1 is compulsory.

       (2) Attempt any three questions from remaining.

       (3) Assume suitable data wherever necessary.

1. (a) Define information retrieval system. Explain functional overview of IR system.   10

     (b) Which are different classic IR models? Explain any one model.   10

2. (a) What is automatic indexing? Give the various classes of automatic indexing?   10

     (b) What is the relationship between vocabulary browse and thesauri/concept classes?   10

3. (a) Explain fuzzy set model used in searching.   10

     (b) Explain porter stemming algorithm in IR.   10

4. (a) Explain any software text searching algorithm.   10

     (b) List the steps and guidelines used for clustering.   10

5. (a) Explain the N-gram data structure in IR with example.   10

     (b) Explain any two multimedia information retrieval systems.   10

6. (a) Write about search and browse capabilities of an IR system.   10

     (b) Explain information visualization techniques.   10

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BB-Con. 8833 -15.

QP Code : 29762

(3 Hours) [Total Marks : 80]

Note: (1) Question No 1 is compulsory.
     (2) Solve any three from the remaining.
     (3) Assume suitable data if required.

Q1. (a) Write 4G features and challenges. (5)
    (b) What are the parameters required for Link Budget Analysis. (5)
    (c) Write the difference between ALOHA, SALOHA, and CSMA. (5)
    (d) Explain the terms Reflection, Diffraction and Scattering. (5)

Q2. (a) Explain IMS architecture in detail. (10)
    (b) Explain MIMO-MU System with block diagram. (10)

Q3. (a) Explain STBC and STTC in detail. (10)
    (b) Give an overview of 3G Technology and its migration to UMTS. (10)

Q4. (a) Explain Spacial Multiplexing and BLAST Architectures. (10)
    (b) Explain 3GPP Architecture in detail. (10)

Q5. (a) Compare Hata Model, Rayleigh, Rician and Nakagami Models. (10)
    (b) Explain the Flat and frequency fading channels in detail. (10)

Q6. Write short notes on followings
    (a) Random Access Multiple Access Protocol (5)
    (b) Diversity-Multiplexing Tradoffs (5)
    (c) NLOS Multiplepath Fading Channels (5)
    (d) WLAN-IEEE 802.11 (5)

BB-Con.9362-15.

QP Code : 29954

(3 Hours)   [Total Marks : 80

N.B.   (1)   Attempt any four questions.
        (2)   Assume suitable data, if necessary.

1. (a) What is 3GPP EPS? Explain the Architecture in detail.   10
    (b) Explain the different future network requirements of Mobile network.   10

2. (a) Explain the concept of WiMax with its different scheduling traffic classes. 10
    (b) Explain in detail MAC layer protocols used in wireless sensor network   10

3. (a) Explain AODV protocol. Compare advantages and limitations with DSR?   10
    (b) What is hybrid routing protocol? Explain one algorithm in detail   10

4. (a) What is VANET? Give different future applications of VANET.   10
    (b) Explain architecture of Cognitive Radio Network and its different layers.   10

5. (a) What are services and functions that are provided by MAC layer of LTE?   10
    (b) What are Opportunistic Network? Explain its architecture and applications.   10

6. Write a note on :-   20
    (a) UMB power saving option
    (b) Security Challenges of future wireless internet
    (c) Cross layer adaptive mechanism
    (d) Location based security services

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