[3818] – 405

T.Y. B.Sc. (Computer Science) (Semester – IV) Examination, 2010
CS-345 : PROGRAMMING IN ADVANCED JAVA – II
(2004 Pattern)

Time: 2 Hours Max. Marks: 40

***Instructions**: 1) **All** questions carry **equal** marks.*
*2) Figures to **right** indicate **full** marks.*
*3) **All** questions are **compulsory**.*

1. Attempt **all** of the following : **(10×1=10)**

   a) Which are the methods used for Inter-Thread communication ?

   b) State any two differences between yield() and sleep() method.

   c) State any two differences between Iterator and List Iterator interface.

   d) List the constructors of Hashset class.

   e) What is use of class in class. forName() ?

   f) List any two advantages of servlet.

   g) How to set life of the cookie ? State proper syntax.

   h) What is the purpose of setAutoCommit () method ?

   i) What is the use of comparator ?

   j) What is Beans ?

2. Attempt **any two** of the following : **(2×5=10)**

   a) What are classes and interfaces you have to extend or implement by utilizing RMI ? Describe the registry service provided by RMI runtime.

   b) Write a note on JSP directive.

   c) What is the purpose of object Input Stream class ? State its syntax and also explain any four methods of objectInputStream class.

P.T.O.

3. Attempt **any two** of the following : **(2×5=10)**

   a) Write a JDBC program to perform following operation on Telephone database which contains (tno, cust-name, addr, bill)
      i) insert
      ii) delete
      iii) search
      iv) exit

   b) Write a program to create link list of integer objects. Do the following :
      i) add element at the first position.
      ii) delete last element
      iii) display the size of the linklist.

   c) Explain two mechanism of creating a thread with proper example.

4. Attempt **any two** of the following : **(2×5=10)**

   a) Write a servlet program to accept user name and password from Html page and store it in a cookie and display all previous cookies.

   b) Explain how servlet handles HTTP requests with an example.

   c) Explain the significance of the following :
      i) DriverManager
      ii) execute ()
      iii) execute Update ()
      iv) Resultset
      v) prepared statement.

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T.Y. B.Sc. Comp. Sci. (Semester – IV) Examination, 2010
COMPUTER SCIENCE (Paper – I)
CS – 341 : System Programming – II
(2004 Pattern)

Time : 2 Hours Max. Marks : 40

N.B. : *1)* ***All*** *questions are* ***compulsory****.*
2) ***All*** *questions carry* ***equal*** *marks.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*
4) Write ***readable*** *answers.*

1. Attempt **all** of the following : **(1×10=10)**

a) Modern Operating Systems are interrupt driven. Justify.

b) What are the two common models of interprocess communication ?

c) What will happen if all processes are I/O bound in system ?

d) What is Aging ?

e) Which two standard atomic operations can access semaphore value ?

f) List the sequence of operations in which process can utilize a resource under normal mode of operations.

g) What is dynamic loading ?

h) What is the main difference between global and local page replacement ?

i) What information is stored in open-file table when file is opened ?

j) List the registers contained in I/O port.

P.T.O.

2. Attempt **any two** of the following : **(2×5=10)**

a) What is critical section of problem ? Give Peterson's solution to solve critical section problem.

b) What is thrashing ? What is the main cause of thrashing and suggest different methods to avoid thrashing ?

c) Consider the following snapshot of a system :

Process	CPU Burst Time	Arrival Time
P1	5	3
P2	2	0
P3	2	4
P4	3	5

Draw the Gantt chart and find average waiting time for the following scheduling algorithms :

i) Preemptive SJF.

ii) Round Robin (time quantum = 2).

3. Attempt **any two** of the following : **(2×5=10)**

a) Discuss the various techniques of free space management in File System.

b) Consider the following page reference string :

8, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2.

How many page faults would occur for the following page replacement algorithms, assuming three frames ?

All frames are initially empty.

i) Optimal replacement.

ii) LRU replacement.

c) Consider the following snapshot of a system :

Process	Allocation	Max	Available
	ABC	ABC	ABC
P0	2 3 2	9 7 5	3 3 2
P1	4 0 0	5 2 2	
P2	5 0 4	11 0 4	
P3	4 3 3	4 4 4	
P4	2 2 4	6 5 5	

Answer the following questions using Banker's algorithm :

i) What is the content of Need Matrix ?

ii) Is the system in a safe state ? If yes, give the safe sequence.

4. Attempt **any one** of the following (**A** or **B**) : **(1×10=10)**

A) i) Write note on DMA. **4**

ii) Explain copy-on-write technique. **4**

iii) Which are different events in which process switches from running state to waiting state ? **2**

OR

B) i) Explain in brief different services provided by Kernel related to I/O. **4**

ii) Write note on recovery from deadlock. **4**

iii) Which system calls are used by operating system in copying data from File A to File B ? **2**

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T.Y. B.Sc. Computer Science (Semester – IV) Examination, 2010
COMPUTER SCIENCE (Paper – II)
CS 342 : Theoretical Computer Science and Compiler Construction – II
(2004 Pattern)

Time: 2 Hours Max. Marks: 40

Instructions *:1)* ***All*** *questions are* ***compulsory****.*
2) ***All*** *questions carry* ***equal*** *marks.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. Attempt **all** of the following : **(10×1=10)**

a) Every language accepted by turing machine is regular justify true or false.

b) State any two functions of Lexical Analyser.

c) Define goto (I, X).

d) Construct LR(O) set of items for $A \rightarrow \in$.

e) Give l-value and r-value of int * (&z).

f) State any two operations under which CFL is closed.

g) List different types of conflicts that occur in LR parser.

h) Write any two drawbacks of top down parsing.

i) Which phases of the compiler, interact with every phase of compiler ?

j) What is cross compiler ?

2. Attempt **any two** of the following : **(2×5=10)**

a) Construct a turning machine for a language $L = \{a^m\ b^n / n > m, m \geq o\}$.

b) Draw transition diagram and write pseudocode to recognise integer.

c) Consider the grammar : $s \rightarrow a / \wedge / (R)$

$T \rightarrow s, T / S$

$R \rightarrow T$

Parse the string (((a, a), $\wedge$, (a)),a) using shift Reduce Parser.

P.T.O.

3. Attempt **any two** of the following : **(2×5=10)**

a) Compute FIRST and follow of the following grammar :

$S \rightarrow aABbCD / \in$

$A \rightarrow ASD / \in$

$B \rightarrow SAe / hc / \in$

$C \rightarrow Sf / Cg$

$D \rightarrow aBD / \in$

b) Check whether following grammar is SLR (1) or not

$S \rightarrow P / E$

$P \rightarrow bQAe$

$Q \rightarrow Qdm / \in$

$A \rightarrow Amd / b$

$E \rightarrow p / a$

c) Check whether following grammar is LR (1) or not

$S \rightarrow aAd / bBd / aBe / bAe$

$A \rightarrow c$

$B \rightarrow c$

4. a) Generate operator precedence relation for the following grammar. **6**

bexpr $\rightarrow$ bexpr or bterm/bterm

bterm $\rightarrow$ bterm and bfactor/bfactor

bfactor $\rightarrow$ not bfactor/(bexpr)/true/false

Parse the string ((false and true) or true) using operator precedence relation.

b) Check whether given language is CFL. **4**

$L = \{a^n b^n c^n d^n / n \geq 1\}$

OR

b) Explain any two code optimization techniques with appropriate example. **4**

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T.Y. B.Sc. Computer Science (Semester – IV) Examination, 2010
COMPUTER SCIENCE
CS – 343 : Computer Networks and Network Administration – II
(2004 Pattern)

Time : 2 Hours Max. Marks : 40

N.B.: *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) ***Draw*** *neat and well labelled diagram* ***wherever*** *necessary.*

1. Attempt **all** of the following : **(10×1=10)**

a) List the control flags used in TCP.

b) Define domain name space.

c) 'Hub is multiport repeater' – Justify.

d) What is built in group ?

e) Why IP is called as best effort delivery protocol ?

f) What is Failover traffic ?

g) Explain offline backup.

h) How IP address is represented ?

i) What is use of remote bridge ?

j) What is encryption ?

2. Attempt **any two** of the following : **(2×5=10)**

a) Discuss how network layer implement connectionless service.

b) Why network resource management is important ? List different resources managed by network administrator. Explain any two.

c) How network traffic issues are going to affect network performance ?

P.T.O.

3. Attempt **any two** of the following : **(2×5=10)**

   a) What is routing ? Explain the types of routing algorithm. Discuss any two properties of routing algorithm.

   b) Explain FTP protocol in detail.

   c) Explain all RAID level with its features.

4. Attempt **any one** (**I** or **II**) : **(1×10=10)**

   I) a) Write a short note on :

      i) Gateways

      ii) Router.

   b) Explain the two methods of address mapping.

   II) a) Explain request and response messages used in HTTP.

   b) Explain the role of network administrator.

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T.Y.B.Sc. (Computer Science) (Semester – IV) Examination, 2010
CS-344 : SERVER DATABASES AND APPLICATION DEVELOPMENT – II
(Paper – IV) (2004 Pattern)

Time: 2 Hours Max. Marks: 40

***Instructions** : 1) **Neat** diagrams must be drawn **wherever** necessary.*
*2) Black figures to the **right** indicate **full** marks.*
*3) **All** questions are **compulsory**.*

1. Attempt **all** of the following : **(10×1=10)**

a) List the features on which Php is more popular.

b) Explain variable variables with example.

c) What is difference between the functions unlink and unset ?

d) What is session ?

e) What is use of move-uploaded-file ( ) ?

f) State the purpose of getrow ( ).

g) Give any two functions for checking approximate equality.

h) What is an array iterator ?

i) How to remove trailing white spaces ?

j) How to sort an array in ascending order by key ?

2. Attempt **any two** of the following : **(2×5=10)**

a) What is an introspection ? Explain two functions of each class and object.

b) Explain regular expression in Php.

c) What is sticky form ? Explain with suitable example.

P.T.O.

3. Attempt **any two** of the following : **(2×5=10)**

   a) Write Php script to select your hobbies (Use multivalued parameter) display on next page.

   b) Write Php script to create file abc.txt which contain array-union ( ) function, return union of two array. Call the same function in Php program.

   c) What is form validation ? Explain with suitable example.

4. Attempt **any two** of the following : **(2×5=10)**

   a) Consider the following relational database.

   customer (cust_no., cust_name, cust_city)

   branch (b_no., b_name, b_city)

   Account (Acc_no., type, balance, cust_no., b_no.)

   Write Php script accept branch name from user and display all customer of that branch.

   b) Write Php script to read directory name from user and display sub directory names starting with ‘a’ or ‘A’ character.

   c) Write a Php script to accept a string from user with “,” as a separator character, separate each word and then print reverse of each word.

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T.Y. B.Sc. (Computer Science) (Semester – IV) Examination, 2010
(2004 Pattern)
CS – 346 : SOFTWARE ENGINEERING – II

Time : 2 Hours Max. Marks : 40

***Insturctions**: 1) Neat **diagrams** must be drawn **wherever** necessary.*
*2) Black figures to the **right** indicate **full** marks.*
*3) **All** questions are **compulsory**.*

1. Attempt **all** of the following : **(1×10=10)**
   a) What is data stores ?
   b) Give any four requirements of ISO standards.
   c) Explain structured maintenance.
   d) Which are the objectives of testing ?
   e) What is stub ?
   f) Give some drawbacks of case tools.
   g) What is Hot spot ?
   h) Define Re-engineering.
   i) Define Beta testing.
   j) Explain Direct conversion.

2. Attempt **any two** of the following : **(2×5=10)**
   a) What is on-line implementation and explain its features.
   b) Explain the side-effects of maintenance.
   c) Write a note on McCall's Software Quality.

3. Attempt **any two** of the following : **(2×5=10)**
   a) Write a note on classification of CASE Tools.
   b) What is Incremental approach ? Discuss the benefits of it.
   c) Explain Test data Generator.

P.T.O.

4. Attempt the following :

a) A well established college has 5000 students studing in different courses. There are 500 working staff including lecturers, non-teaching staff etc. College provides different courses and other facilities like Lab, Internet , Distance Learning, Library etc. to students.

Now Management wants to implement computerized automated system to keep track of all activities like Admission, Examination, Result, Accounts and Time-table of college.

Consider above case and suggest any three implementation activities and testing techniques. Also explain the importance of each activities. **6**

b) Set the system boundaries for a “Pay-Roll System”. **4**

Show which part is done manually, in batch, on-line and Real time.

OR

b) Explain the features and benefits of Win Runner. **4**
