MID-TERMEXAMINATION
(CBCS)
MCA , Semester:3rd
(Oct, 2022)

Subject Code: MCA-223

Subject: Web Based Programming

Time : 1 ½ Hours

Maximum Marks : 30

Note:Q. 1 is compulsory. Attempt any two questions from the rest.

Q1 Explain the following in the brief: **(2.5*4)**
- (a) Web Server
- (b) Asynchronous
- (c) Flex property
- (d) Java Script

Q2 (a) Explain the box model with diagram.   **(5,5)**
(b) Explain JS callbacks in Java Script

Q3 (a) What are the different event handling function in java   **(5,5)**
script
(b) Explain media Elements in html with example.

Q4 Explain the following with example: **(5,5)**
(a)DOM Model
(b) CSS Responsive

MID-TERMEXAMINATION
(CBCS)
MCA, Semester: 3ʳᵈ
(Oct, 2022)

Subject Code: MCA-225   **Subject: Front End Design Techniques**
Time : 1 ½ Hours   **Maximum Marks : 30**
Note: Q. 1 is compulsory. Attempt any two questions from the rest.

1. Consider yourself as Abeni, a software Developer. You are required to Builda registration   10
   form for entry to Annual Diwali Fest JHILMIL-2022. You will be designing a full-fledged
   registration form that includes relevant questions in the form of text field, dropdown, check
   boxes, file upload etc.
   a). Text box for entering Name, Univ, Mobile, Emai, Programme, Branch, semester
       along with Validations and error message
   b). Pop up for instructions for uploading photograph and ID Card, validations and error.
   c). Image Gallery with images of Prime Events, Schedule, Posters, Videos on the home
       page
2. Write short note on: 10
   a). Properties of Border available in HTML and CSS
   b). Page Break properties in CSS
3. Explain in detail CSS Box Model   10
4. How can you use CSS border properties to specify the style, width, and color of an   10
   element's border. Explain with an Example.

MID-TERMEXAMINATION
(CBCS)
MCA, Semester: 3rd
(Oct, 2022)

Subject Code: HMC-203

Subject: Financial Reporting and Analysis (FRS)

Time : 1 ½ Hours

Maximum Marks : 30

Note: Q. 1 is compulsory. Attempt any two questions from the rest.

Q1 (2.5*4)

a) For Investors, creditors and employees, what is meant by financial information?

b) Explain the need for adoption or convergence of accounting standards with IFRS in short.

c) Distinguish between trade discount and cash discount? (Any 4 points)

d) Classify the following into real, personal and nominal account:
a) sales
b) Outstanding rent
c) Bank
d) Cash
e) Purchases

Q2 (5,5)

A) Explain any 5 qualitative characteristics of financial statements.

B) Record the following journal entries in the books of B

Jan 1 Nitin started business with cash rs 100,000

Jan 8 goods costing rs 8000 given as charity

Jan 10 goods worth rs 10,000 were damaged by fire and insurance company accepted claim of rs 8000 and cash is received from the insurance company.

Jan 25 cash deposited into bank rs 3000

Jan 30 received cash for a bad debt written off last year rs 600.

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Q3   (5,5)

A) Explain Money Measurement concept with its limitations.

B) Record the following journal entries in the books of A

Jan 1 goods worth rs 500 were used by proprietor for personal use.

Jan 3 goods sold to Rajani rs 6000

Jan 5 purchased goods from Anuj of rs 40,000 at trade discount 10% and cash discount of 5%. The amount was paid at the time of purchase

Jan 15 received rs 9500 from Shyam on account for rs 10,000

Jan 25 paid rent rs 3000

Q4   (5,5)

A) Briefly explain matching concept.

B) Record the following journal entries in the books of C

Jan 1 commenced business with cash rs 60,000

Jan 8 paid rs 3800 to Mohan in full settlement of his account for rs 4000

Jan 9 cash sales of rs 2000

Jan 20 received commission of rs 500 in cash

Jan 30 Rahul is declared insolvent. Received from his official receiver 60 paisa in a rupee on a debt of rs 5000

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MID-TERMEXAMINATION
(CBCS)
Course Name: MCA, Semester:3rd
(Oct, 2022)

Subject Code:MCA203	Subject: Big Data and NoSQL
Time : 1 ½ Hours	Maximum Marks : 30

Note: Q. 1 is compulsory. Attempt any two questions from the rest.

Q1			(2.5*4)	
	(a)	Give reason for the increased popularity of Map-Reduce paradigm in big data management.		
	(b)	Why pipes are important in Hadoop?		
	(c)	Briefly describe the components of GFS.		
	(d)	Justify the importance of big data over RDB.		

Q2		(5,5)	
	(a)Explain in brief the CAP theorem. Justify how CAP theorem and ACID property of traditional database are different from each other.		
	(b)Explain the architecture of HDFS with a neat diagram		

Q3			(5,5)	
	(a)	Discuss the file formats accepted in Hadoop. Justify the advantages of HDFS over network file system.		
	(b)	What is the bloom filter? Explain its working with a suitable example.		

Q4		(5,5)	
	(a) Explain how chubby is implemented over a database. How it is providing benefits to the database?		
	(b)Give a comparison study over Pig and Hive.		

MID-TERMEXAMINATION
(CBCS)
Course Name: MCA, Semester: 3rd
(Oct,2022)

Subject Code: MCA 201   **Subject: Design and Analysis of Algorithms**
Time : 1 ½ Hours   **Maximum Marks : 30**
Note:Q. 1 is compulsory. Attempt any two questions from the rest.

Q1   **(2.5*4)**

Q1: Suppose the letters a,b,c,d,e have probabilities 1/2,1/4, 1/8, 1/16,1/32 respectively.
- (a) Create the Huffman code for the letters a,b,c,d,e.
- (b) What is the average length of the code.

(b) Find the Time complexity of the following code snippets (Show Step wise illustration)

```
int main()
{
for(int i=n;i>0;i/=2)
{
for(int j=0;j<i;j++)
{
//O(1) constant work
}
}
}
```

(c) Compare and arrange in increasing order of asymptotic complexity of functions:

$$f_1 = n^{n+1} + n!$$
$$f_2 = n^{7\sqrt{n}}$$
$$f_3 = 4^{3n \log n}$$
$$f_4 = 7^{n^2}$$
$$f_5 = n^{12+1/n}$$

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(d) Solve the recurrence using master theorem-
$$T(n)=4T(n/2)+n^3 \log n$$

Q2 Both parts are compulsory: **(5,5)**

(a) Assume size of array unknown(infinite). First few elements of array are in sorted order, remaining elements are infinite. Write binary search to find the last position of the defined number (i.e., after which infinite elements start) and find the time complexity of the proposed algorithm (Use only binary search).

(a)Solve the following knapsack problem using Greedy Approach. P= [11,21,31,33] w= [2,11,22,15], c=40.

Q3 Both parts are compulsory: **(5,5)**

(a)   Describe the algorithm for Heap Sort. Find the time complexity of the algorithm and show step wise calculation of the analysis.

(b)   Consider the 9 jobs from 1 to 9. The execution of each job takes 1 unit of time. One job can be executed at a time. Each job is related with a

profit and a deadline. If the job is completed before deadline, then the corresponding profit is earned. Find the maximum profit earned.

Index	1	2	3	4	5	6	7	8	9
Job	J1	J2	J3	J4	J5	J6	J7	J8	J9
Deadline	7	2	5	3	4	5	2	7	3
Profit	15	20	30	18	18	10	23	16	25

(5,5)

Q4 Both parts are compulsory:

(a) Explain general method of Dynamic Programming. Compare dynamic programming and Greedy Approach. Further, compare dynamic programming and Divide & Conquer approach.

(b) Use the dynamic programming approach to determine the sequence to perform multiplication of given chain of matrices so as to minimize the number of scalar multiplications. The order of matrices is written along with the matrices:

A (10,5)x B(5,7)x C(7,10)x D(10,15)

MID-TERM EXAMINATION
(CBCS)
MCA, Semester: 5th
(Oct, 2022)

Subject Code: MCA 205   Subject: Software Testing & Quality Assurance
Time : 1 ½ Hours   Maximum Marks: 30
Note: Q. 1 is compulsory. Attempt any two questions from the rest.

Q1   (2.5*4)

(a) Illustrate with an example on Contract Acceptance testing and Regulations Acceptance Testing.

(b) What can be the key factors in deciding whether we need a performance testing for any application before going live?

(c) Define code complexity. How to measure and reduce the code-complexity?

(d) What are the techniques performed under white-box testing? Differentiate between Mutation Analysis and Structure testing.

Q2   (5,5)

(a) Consider a day in the format of day-month-year (Select your choice date), you need to find the next date for the given date.
   1. Perform Boundary value analysis, Equivalence class testing and design decision table for the same.
   2. Briefly define the number of test cases in each case.

(b) Briefly differentiate among Load testing, Acceptance testing and Stress testing with suitable example.

Q3   (5,5)

(a) Consider the following program of binary search for ordered list: -

```
Static int find (int list [], int n, int key)
{
int a=0, mid;
int b=x-1;
int r=-1
while((b>=a) && (result == -1))
{
mid = (a+b)/2;
If (list[mid] == key)
  r = mid;
else if (list[mid] > key)
  b = mid-1;
Else // if list[mid] < key
  a = mid + 1;
}
return r;
}
```
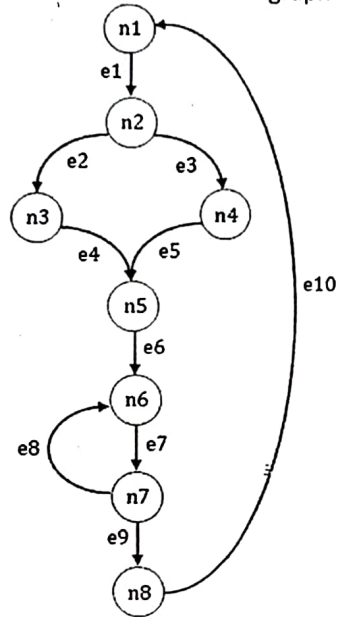
1. Construct the flow graph corresponding to this program.
2. For each variable, write down the < D, U > pairs
3. Define the tests that satisfies "All <D, U> pairs" coverage criteria

(b) How big-bang integration testing is performed? What are its disadvantages?

Q4

(a) Consider a control flow graph below

1. How many predicate nodes are there?
2. How many regions are there?
3. Calculate the cyclomatic complexity of the flow graph
4. Deduce the independent paths.
5. How many nodes define the longest independent path?

(b) How do we perform mutation testing for a given program code to identify the errors. Explain with suitable modified code for the same.

Original Code: -

```
int a = 6543;
int b = 12345;
int add = 9000;
int x = 1;
if (a > b)
add = add + a - b;
else
x++;
```

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