

Introduction to web Technology

QP Code : 24916

Introduction to Web Technology

Duration : 3 hours

Total Marks : 100

- N.B. (1) Question No.1 is compulsory
 (2) Answer any 4 of the remaining 6 questions
 (3) Figures to the right indicate full marks

1. (a) GET and POST method. (20)
 b) Explain how an ASP page is executed?
 c) String object in JavaScript
 d) Block level tags in HTML.
 e) Explain any four tags within <TABLE> tag.
2. (a) Explain types of lists in HTML. Write HTML code to demonstrate it. (10)
 (b) Write a JavaScript to accept a number from user and check whether the number given is a Fibonacci number or not. (10)
3. (a) What is Event and Event handlers in JavaScript? Write JavaScript to demonstrate event handling in JavaScript. (10)
 (b) Explain Array as object in JavaScript with atleast four methods. (10)
4. (a) How many types of dialog boxes can be created using JavaScript? Write how to create them and about their usage. (10)
 (b) Explain Date object initialization in java script. Explain any two methods of Date object with example.. (10)
5. (a) Explain user defined objects and user defined functions in JavaScript along with example. (10)
 (b) What is CSS? Explain different types of CSS with example and advantages and disadvantages. (10)
6. (a) Explain Request and Response object used in ASP. (10)
 (b) What is the difference between Application and Session object? Explain with example. (10)
7. (a) Explain linking between frames along with example. Explain the advantages and disadvantages of Frames. (10)
 (b) What are Cookies? Explain along with example. What are the advantages of Cookies? (10)

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Principles of Economics &
Management.

QP Code : 24915

Total Marks : 100

(3 Hours)

- N.B.:
- 1) Question No.1 is compulsory.
 - 2) Attempt any two from Question 2 to 4.
 - 3) Attempt any two from Question 5 to 7.

1. (a) What is the significant contribution of Fredrick Taylor to management science? Explain his principles of management. (10)
- (b) Define and explain elasticity of demand. What are the factors that affect it? (10)
2. (a) What are duopoly and oligopoly? What are the significant features of these? (10)
- (b) What is expert opinion method? Explain in detail. (10)
3. (a) How does 'supply' affect the market equilibrium? Explain with relevance to elasticity of supply (10)
- (b) How will you define perfect competition? Explain in detail. (10)
4. (a) Explain the significance of micro economics in the study of a nation's economy. (10)
- (b) What is Break Even Point? Explain with examples. (10)
5. (a) What are the various external methods of recruitment? Discuss in detail. (10)
- (b) Explain the various types of incentive plans that organisations employ. (10)
6. (a) How motivation helps an organisation and its employees? Explain Maslow's theory of motivation. (10)
- (b) What are the various leadership theories? Explain Theory X and Theory Y. (10)
7. Write Short Notes on any four :- (20)
 - a) Performance Appraisal.
 - b) On the Job Training
 - c) Planning
 - d) Organisation structure
 - e) Decision making

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KO-Con. 6066-15.

QP Code : 24910

[Duration :3 Hours]

[Total marks:100]

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

(2) Attempt any four questions from remaining six questions.

(3) Assume any necessary data but justify the same.

(4) Figures to right indicate marks.

Q1 (a)(i) show that following statement are equivalent.

$$(p \rightarrow (Q \vee R)) = (p \rightarrow Q) \vee (p \rightarrow R) \quad (5)$$

(ii) What is the solution of the recurrence relation $a_n = 3a_{n-1} - 2a_{n-2}$,

with initial condition $a_1 = 5, a_2 = 3$

(b)(i) Let $A = \{2, 8, 14, 18\}$. Define relation R on A by xRy if and only if $x - y > 5$.

a) Draw the digraph of R b) Give M_R (5)

(ii) Let T be set of even integers. Show that the semigroups $(Z, +)$ and $(T, +)$ are isomorphic, where Z is a set of integers. (5)

Q.2 (a)(i) Determine the validity of the following argument using deduction method:

"If I study then I will pass examination. If I do not go to picnic, then I will study. But I failed examination. Therefore, I went to picnic" (5)

(ii) Explain with suitable example:-

(a) Predicate (5)
(b) Proposition

(b) (i) Let $A = \{1, 2, 3, 6, 12, 18\}$ and relation R be defined on B by xRy if and only if " x divides y ". Show that R is a partial order relation
1. Draw the digraph and Hasse diagram of R
2. Determine all minimal & all maximal elements.
3. Find all least and greatest elements.
4. Give upper bounds and LUB of $A = \{2, 3, 6\}$
5. Give all lower bounds and the GLB = $\{2, 3, 6\}$ (10)

Q.3(a) Let $M = (S, I, O, \delta, \lambda, S_0)$ be the finite state machine with transition table appearing in the following table. Find the set S, I, O & initial state S_0 . Draw the transition state diagram. If $B = ababaabbab$ is an input word. Find the corresponding

sequence of state and output word.

(10)

I \ S	δ		λ	
	a	b	a	b
S ₀	S ₁	S ₂	x	y
S ₁	S ₃	S ₁	y	z
S ₂	S ₁	S ₀	z	x
S ₃	S ₀	S ₂	z	x

(b)(i) Let A={1,2,3,4}. For the relation R whose matrix is given, find the matrix of transitive closure by using Warshall's algorithm.

$$M_R = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

(5)

(ii) Show that the group G is abelian if and only if for a, b ∈ G,

(5)

$$(a * b)^2 = a^2 * b^2$$

Q4(a)(i) Show by mathematical induction, that for all n ≥ 1,

$$1+2+3+\dots+n = n(n+1)/2$$

(5)

(ii) find the particular solution of a_n + 5 a_{n-1} + 6 a_{n-2} + a_{n-3} = 42 * 4ⁿ

(5)

(b) Consider the group G = {1,2,3,4,5,6} under multiplication modulo 7.

(i) Find the multiplication table of G

(ii) Find 2⁻¹, 3⁻¹, 6⁻¹.

(iii) Find the order of the subgroups generated by 2 and 3.

(iv) Is G cyclic?

(10)

Q.5(a)(i) What is the solution of the recurrence relation a_n = 6a_{n-1} - 9a_{n-2}, with initial

condition a₀ = 1, a₁ = 6

(5)

(ii) consider (3,6) encoding function e as follows

$$e(000) = 000000, e(001) = 000110, e(010) = 010010, e(011) = 010100,$$

$$e(100) = 100101, e(101) = 100011, e(110) = 110111, e(111) = 110001$$

Decode the 101101 words with maximum likelihood technique.

(5)

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(b) perform the following

i) $0111 \times 1010 = ?$

ii) $(642)_8 = (?)_{10}$

iii) $10100 - 100 = ?$

iv) $(01011.11)_2 = (01001.1)_2 - ?$

v) $(49.25)_{10} = (?)_2$

(10)

Q6 (a) (i) Let

$$H = \begin{pmatrix} 1 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} \text{ be a parity check matrix.}$$

Determine the $(3,6)$ group code $e_H: B^3 \rightarrow B^6$. How many errors will the above group code detect. (5)

(ii) Determine whether the set $S = \{1, 2, 3, 6, 12\}$ with $a * b = \text{G.C.D.}(a, b)$ is a semigroup, a monoid or neither. If it is a monoid, specify the density. (5)

If it is a semigroup or monoid determine whether it is commutative. (5)

(b) Obtain the recurrence relation and initial conditions to find the maximum number of regions defined by n lines in a plane. Assume that the lines are not parallel and not intersecting at one point when $n > 2$.

Solve the recurrence relation. (10)

Q7 (a) (i) Determine whether the relation R on a set A is reflexive, irreflexive, asymmetric, antisymmetric or transitive. Give necessary explanation to your answer.

$A =$ set of all positive integers, $a R b$ iff $a \leq b + 1$

(10)

(b) (i) Show that $f = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\ 7 & 3 & 1 & 8 & 5 & 6 & 2 & 4 \end{pmatrix}$ is even permutation. (5)

(ii) Show that $a_{n+2} = a_n + 2\Delta a_n + \Delta^2 a_n$ where Δ denotes forward difference (5)

System Analysis and Design

QP Code : 24906

(3 Hours)

Total Marks: 100

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

(2) Answer any four questions out of remaining six questions.

(3) All questions carry equal marks.

- Q. 1 (a) Built an Online Shopping cart System. Draw CLD, DFD up to 2nd level, and data dictionary of 2 process, 2 flows, and 2 data stores. 10
- (b) Explain different phases of SDLC. What is the role of system analyst in SDLC? 10
- Q. 2 (a) Describe component of CASE tools, indicating the function performed by each. 10
- (b) What cost elements are considered in cost benefit analysis? What do u think is most difficult to estimate? Why? 10
- Q. 3 (a) Compare and contrast white box testing and black box testing?. 10
- (b) Explain different activities of implementation. How does it differ from conversion? 10
- Q. 4 (a) What design specifications are considered in preparing a test plan? Explain. 10
- (b) What is structured walkthrough? When it is conducted? What is the role of user in this stage? 10
- Q. 5 (a) What is Normalization? What is the purpose of normalization? Illustrate the method of normalization with example 10
- (b) Describe in-detail different fact finding techniques? 10
- Q. 6 (a) Explain the concept of decision tree and decision table with example? 10
- (b) What are coupling and cohesion? Explain different types of coupling and cohesion with example 10
- Q. 7 Write short notes on the following.(any 4) 20
- (a) Spiral Model
- (b) Hippo Chart
- (c) Unit testing
- (d) Debugging
- (e) Data Dictionary

Programming with 'C'

QP Code : 24901

(3 Hours)

Note:

[100 Marks]

Question No.1 is Compulsory

Attempt any four Question between Question No.2 to 7

- Q 1. A) Explain the different operator with suitable examples used in C programming language [10]
 B) Write a program in C with menu driven to simulate a simple arithmetic calculator [10]
- Q 2. A) What is Symbolic Constant? How is a symbolic constant defined? example [10]
 B) Write a program in C to count tabs number of line, characters and blank spaces in file. [10]
- Q 3. A) What is String? How to Arithmetic operator perform on string. write a program of reverse string such that if the input string is "Programming with C" [10]
 B) Write a program with C to demonstrate Reverse number by user given [10]
- Q 4. A) What is a File Structure? Explain the important of file Structure in C with suitable examples [10]
 B) What is union? Discuss with suitable example of union [10]
- Q 5. A) Write program to verify the number prime or not with user number. [10]
 B) What is Array? Explain the detail with suitable example. [10]
- Q 6. Write Short Notes(Any Four) [20]
 > Call By Value/ Call by reference > Operator in C
 > Array and Pointer > Binary file and Text file
 > Iteration and Recursion > Break and Continue
- Q 7: A) Write a C program with to compare 10 numbers and print minimum and maximum [10]
 B) Explain the different control Structure implementation in C programming [10]