Saraswati Education Society's Saraswati College of Engineering, Kharghar **Information Technology Department** Academic Year 2013-14 (Even Sem) Unit Test-1

Class/Sem: Second Year / IV	Duration: 1 Hr.	Date: 17.10.2014
Subject: Applied Mathamatics		Marks: 20

Q.1]: Attempt Any Five. State Cauchy's integral formula.

- 1]: Expand the functions $\frac{1}{1+z}$, $\frac{1}{1-z}$ in powers of z.
- 2]: Evaluate $\int_C \frac{e^{2Z}}{Z-1} dz$ where C is the circle $|z| = \frac{1}{2}$
- 3]: Two of the Eigen value of a 3 x 3 matrix whose determinant is 6 are 1, 3. Find the third Eigen value.
- 4]: Prove that Eigenvalues of a Skew-Hermitian matrix are either purely imaginary or zero.
- 5]: If $\lambda_1, \lambda_2, \dots, \lambda_n$ are the Eigenvalues of A then show that $\frac{1}{\lambda_1}, \frac{1}{\lambda_2}, \dots, \frac{1}{\lambda_n}$ are the Eigenvalues of A⁻¹
- Q.2]: Attempt Any One.

A]: Evaluate $\int_{0}^{1+i} (x - y + ix^2) dz$ along the line from z=0 to z=1+i

B]: Verify Cayley-Hamilton theorem for the matrix A and hence find A^{-1} and A^{4}

Where A=
$$\begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$$

Q.3]: Attempt Any One.

A]: Reduce the following matrix to diagonal form. A L1 -1 3J B]: Evaluate $\int_C \frac{z^{2+4}}{(z-2)(z+3i)} dz$ where C is the circle |z-2| = 2

$$A = \begin{bmatrix} 3 & -1 & 1 \\ -1 & 5 & -1 \\ 1 & 1 & 2 \end{bmatrix}$$

[10M]

[05M]

[05M]

Saraswati Education Society's

Saraswati College of Engineering, Kharghar Information Technology Department Academic Year 2013-14(Even Sem) <u>Unit Test-1</u>

Class/Sem: Second Year / IV	Duration: 1 Hr.	Date: 17.02.2014
Subject: Information Theory & Coding		Marks: 20
Q.1]: Attempt any 5.		
A]: What is the security principle?		[02M]
B]: Compare symmetric and Asymmetric	cryptography.	[02M]
C]: Write Definition's I] plaintext I	I] decryption	[02M]
D]: What is Entropy? At What condition	the entropy will max &min.	[02M]
E]: Define channel capacity? What is the	capacity of noise free channel.	[02M]
F]: What is the mutual information of ind	lependent I/P & O/P	[02M]
Q.2]: I]: Explain Defies Hellman algorithm in	short.	[05M]
OR II]: Explain RSA algorithm.		[05M]

Q.3]: I]: Find all the entropy for the channel shown in fig. [05M]



II]: An event has six possible outcomes with the probabilities $p_1 = 1/2$, $p_2 = 1/4$, $p_3 = 1/8$, $p_4 = 1/16$,

 $p_5 = 1/32$, $p_6 = 1/32$.find the entropy of the system also find the rate of information if there are 16 outcomes per second. [05M]

Saraswati Education Society's Saraswati College of Engineering, Kharghar Information Technology Department Academic Year 2013-14 (Even Sem) <u>Unit Test-1</u>

Class/Sem: Second Year / IV		Duration: 1 Hr.	Date: 18.02.2014
Subject: Web Programming			Marks: 20
Q.1]: Writes a note on follow	ving. (Attempt ar	y 5) Marks 2 for each question.	[10M]
1]: URL	2]: DNS	3]: DOM Objects	
4]: Anchor Tag	5]: Cookies	6]: JQuery	
Q.2]: Attempt any One.			[05M]
A]: What is the need of style	e sheet? Explain	different CSS with example?	
B]: Explain the types of po	sitioning using C	SS? And what is the Z-index.	
Q.3. Attempt any One.			[05M]

A]: Discuss the Event handlers in java script?

B]: WAP that changes the image based on downward & upward movement of mouse.

Saraswati Education Society's Saraswati College of Engineering, Kharghar Information Technology Department Academic Year 2013-14 (Even Sem) <u>Unit Test-1</u>

Class/Sem: Second Year/IV	Duration: 1Hr.	Date: 18.10.2014
Subject: Automata Theory		Marks: 20
Q.1]: Attempt any 5		
A]: What are the limitations of FSM	1.	[02M]
B]: Write formal definition of Meal	y Machine.	[02M]
C]: Write R.E for the language of al	ll string containing exactly 2 zeros.	[02M]
D]: Write R.E for the language of a	ll string in which occurrence of b is	in group of odd number [02M]
E]: Find R^+ and R^* for $R = \{(a,b), (a,b)\}$,c), (c,d), (a,a), (b,a)}	[02M]
F]: What is regular expression form	alization.	[02M]
Q.2]: (i) Construct DFA over alphabout OR	et {a,b} with string ending with abb	. [05M]
(ii) Convert the following NFA	to DFA	[05M]
$ \begin{array}{ccc} Q \setminus \epsilon & a \\ q 0 & q 0 \\ q 1 & \Phi \\ q 2 & q 3 \\ q 3 & \Phi \end{array} $	$ \begin{array}{c c} b\\ \hline 0q1 & q0\\ \hline q2\\ \hline 3 & \Phi\\ \hline \phi & \Phi\\ \end{array} $	
Q.3]: [i]: Convert the following NFA	with ϵ -move to NFA without ϵ -mov	ve. [05M]
$O \in 0$	1 2 ϵ	

Q∖€	0	1	2	E
q0	q0	Φ	Φ	q1
q1	Φ	q1	Φ	q2
q2	Φ	Φ	Φ	q2
	OR			

[ii] Prove using mathematical induction

[05M]

 $1+3+5+\dots+(2n-1) = n^2$

Saraswati Education Society's Saraswati College of Engineering, Kharghar Information Technology Department Academic Year 2013-14 (Even Sem) <u>Unit Test-1</u>

Class/Sem: Second Year / IV	Duration: 1Hr.	Date: 20.02.2014
Subject: Computer Organization and	Marks: 20	

Q.1]: Attempt Any 5.

[5*2] = [10 M]

[1*5] = [05 M]

- I]: Explain about Von-Neumann Model
- II]: Differences between Computer Organization and Computer Architecture
- III]: Define a bus and types of bus structures
- IV]: Explain types of fixed point representations with examples
- V]: Define Normalization with an example
- VI]: Define multi-processing and its types

Q.2]: Attempt any 1.

I]: Multiply -7 and 3 using Booth's Algorithm. Register size=5 bits

OR

II]: Represent (178.1875)₁₀ in single precision and double precision floating point format

- Q.3]: Attempt any 1. [1*5] = [05M]
 - I]: Perform Non Restore division for following Dividend=1000 and Divisor=0011

OR

II]: Explain about Flynn's classification.

Saraswati Education Society's

Saraswati College of Engineering, Kharghar Information Technology Department Academic Year 2013-14 (Even Sem) <u>Unit Test-1</u>

	Class /Sem: SE/ IV	Subject: Computer Networks	Marks: 20	Duration 1 Hrs Date:20/2/2014		
Note:	Q1 is compulsory. Solve	any one question from remaining t	wo.			
Q1:	Solve any five:-					
-	A) Explain Terms:	Connection Oriented and Connection	nectionless.	[2M]		
	B) Explain Networ	k Classification based on Scale	e (LAN, MAN,	, WAN). [2M]		
	C) Assume five devices are arranged in a mesh topology. How many cables are needed?					
	How many ports are needed for each device? [2M]					
	D) Give Classification of Transmission Media in detail.					
	E) Explain any two multiplexing techniques.					
	F) Explain different types of frames used in HDLC.					
Q2:	Explain ISO-OSI Co	ommunication Model.		[10M]		
Q3:	A) Given the datawe of the codeword at t	ord 1010011110 and t he sender site (using binary di	he divisor 101 1 vision).	1. Show the generation [7M]		
	 B) Using 3-bit sequence numbers, what is the maximum size of the send and receive Windows for each of the following protocols? a. Stop-and-Wait ARQ b. Go-Back-NARQ 					

c. Selective-Repeat ARQ [3M]