AIKTC/KRRC/SoET/ACKN/QUES/2017-18/ **Date:** _____

School: SoET-CBSGS **Branch:** COMP. ENGG. **SEM:** VII

To,
Exam Controller,
AIKTC, New Panvel.

Dear Sir/Madam,

Received with thanks the following **Semester/Unit Test-I/Unit Test-II (Reg./ATKT)** question papers from your exam cell:

Sr. No.	Subject Name	Subject Code	Format		No. of Copies
			SC	HC	
1	Digital Signal Processing	CPC701		✓	
2	Cryptography and System Security	CPC702		✓	
3	Artificial Intelligence	CPC703		✓	
4	Elective-II ERP & SCM	CPE7042X		✓	
5					
6					

Note: SC – Softcopy, HC - Hardcopy

(Shaheen Ansari)
Librarian, AIKTC

02 BE-sem-VII-CBGS-comps- DSP 11/5/18

QP CODE : 22975

(3 hours) **Total Marks: 80**

N.B. 1. Question **No. 1** is compulsory
2. Attempt any **three** out of remaining
3. Assume suitable data if **necessary** and justify the assumptions
4. Figures to the **right** indicate full marks

Q1 A Evaluate DFT of $x(n)=\cos(0.25\pi n)$. 05

B Determine the energy and power of signal given by $x(n) = (1/3)^n u(n)$. 05

C Find the circular Convolution of the following causal signals 05
$x_1(n)= \{ 3, 2, 4, 1\}$ and $x_2(n)=\{ 2, 1, 3 \}$

D Define BIBO Stable system. 05

Q2 A State the following DFT properties: 10
1.Linearity
2.Periodicity
3.Scaling
4.Convolution
5.Time Reversal

B Consider the following analog signal 10
$x(t)=5 \cos 2\pi (1000 t) + 10 \cos 2\pi(5000t)$ to be sampled.
I) Evaluate the Nyquist rate for this signal.
II) If the signal is sampled at 4 kHz , will the signal be recovered from its samples?

Q3 A For the causal LTI digital filter with impulse response given by 10
$h(n) = \delta(n) - 2\delta(n-1) + \delta(n-2) +2\delta(n-3)$ sketch the magnitude response of the filter.

B Design radix 2FFT flow graph for $x(n)=\{2, 1, 3, 1\}$ 10

Q4 A Check whether the system $y[n] = x[n] + 2x[n-2]$ is: 10
i)Static or Dynamic
ii)Linear or Non-linear
iii)Causal or Non-Casual
iv) Shift variant or Shift Invariant

B Compute linear convolution of the causal sequences $x[n]= \{3, 4, 2, 1, 2, 2, 1, 1\}$ 10
and $h[n]=\{1, -1\}$ using overlap add method.

[TURN OVER]

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Q5 A For $x(n) = \{3, \underset{\uparrow}{2}, 1, 6, 4, 5\}$, plot the following Discrete Time signals: 10

1.) x(n+1) 2.) x(-n)u(-n) 3.) x(n-1)u(-n-1)

4.) x(n-1)u(n) 5.) x(n-2)

B Perform Cross correlation of the causal sequences 10
x(n)= {3, 3, 1, 1 } y(n) = { 1, 2, 1}

Q6 A Write a detailed note on TMS 320 10

B Explain the significance of Carl's Correlation Coefficient Algorithm in digital signal processing. Evaluate Carl's Coefficient for two causal sequences x[n]={1, 3, 4, 2} and y[n]={1, 2, 2, 1}. 10

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09 B.E-sem-VII -computer- CBSGS- C&SS 17/5/12

Q. P. Code: 24643

(3 Hours) **[Total Marks:80]**

1. **Question No. 1 is compulsory.**
2. **Attempt any three out of the remaining five questions.**
3. **Assume suitable data if necessary**
4. **Figures to right indicate full marks.**

Q.1	**(a)**	What is the purpose of S-boxes in DES? Explain the avalanche effect?	**[05]**
	(b)	Give examples of replay attacks. List three general approaches for dealing with replay attacks.	**[05]**
	(c)	Why is the segmentation and reassembly function in PGP(Pretty Good Privacy) needed?	**[05]**
	(d)	List and explain various types of attacks on encrypted message.	**[05]**
Q.2	**(a)**	What is the need for message authentication? List various techniques used for message authentication. Explain any one.	**[10]**
	(b)	Explain Kerberos protocol that supports authentication in distributed system.	**[10]**
Q.3	**(a)**	What characteristics are needed in secure hash function? Explain the operation of secure hash algorithm on 512 bit block.	**[10]**
	(b)	What is a nonce in key distribution scenario? Explain the key distribution scenario if A wishes to establish logical connection with B. A and B both have a master key which they share with itself and key distribution center.	**[10]**
Q.4	**(a)**	Why E-commerce transactions need security? Which tasks are performed by payment gateway in E-commerce transaction? Explain the SET (Secure Electronic Transaction) protocol.	**[10]**
	(b)	In RSA system the public key of a given user e=7 & n=187.	**[10]**

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1) What is the private key of this user?
2) If the intercepted CT=11 and sent to a user whose public key e=7 & n=187. What is the PT?
3) Elaborate various kinds of attacks on RSA algorithm?

Q.5	(a)	How can we achieve web security? Explain with example.	[10]
	(b)	Use Hill cipher to encrypt the text "short". The key to be used is "hill".	[10]
Q.6	(a)	Explain IPSec protocol in detail. Also write applications and advantages of IPSec.	[10]
	(b)	Differentiate between i) MD-5 and SHA ii) Firewall and IDS.	[10]

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4 BE-sem-VII - CBSGS - CO - AI

23/5/18

Q. P. Code: 24612

(3 Hours) **[Total Marks: 80]**

Note:

(i) Each question carries 20 marks
(ii) Question 1 is compulsory
(iii) Attempt any three (3) from the remaining questions
(iv) Assume suitable data wherever required

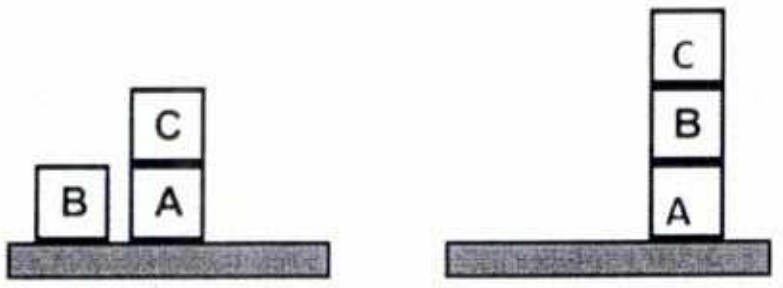
Q.1. Attempt any four (4) questions from the following. [20]
a) Define Intelligent Agent. What are the characteristics of Intelligent Agent?
b) Give State space representation for 8 puzzle Problem. What are possible Heuristic functions for it?
c) What is FOPL? Represent the following sentences using FOPL
i) John has at least two friends
ii) If two people are friends then they are not enemies.
d) Differentiate between forward and backward chaining.
e) Define Belief Network. Explain conditional Independence relation in Belief Network with example.

Q.2 a) Draw and Describe the Architecture of Utility based agent. How is it different from Model based agent? [10]

b) Explain A* Algorithm with example. [10]

Q.3 a) Explain Resolution by Refutation with suitable example [10]

b) Give the partial order plan for the following blocks-world-problem [10]



Start State Goal State

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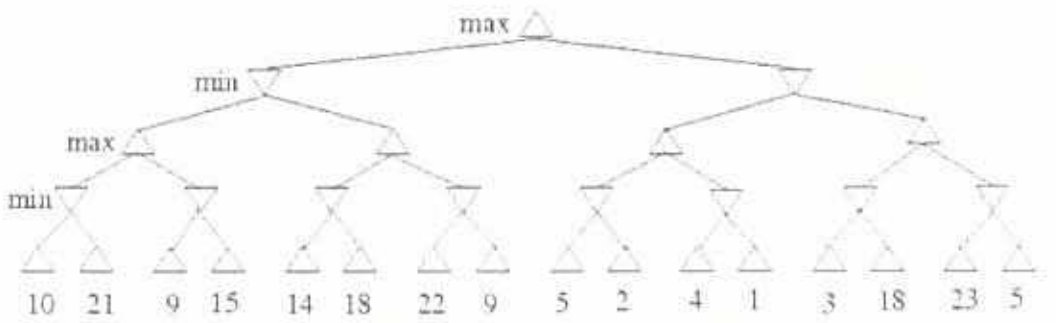
Q.4 a) Apply Alpha-Beta pruning on following example considering first node as MAX [10]



b) Explain different Inference Rules for First Order Predicate Logic. [10]

Q.5 a) Define the terms chromosome, fitness function, crossover and mutation as used in Genetic algorithms. Explain how Genetic algorithms work. [10]

b) What are steps involved in natural language processing (NLP) of an English sentence? Explain with an example sentence. [10]

Q. 6 Write short note on any two of the following [20]

a) Expert System Architecture and Applications

b) Local Search Algorithms

c) Decision Tree learning

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(6) BE - sem- VII - computer - CBSGS - ERP & SCM

29/5/18

Q. P. Code: 39053

Duration: 3 Hours 80 Marks

NB: Question no 01 is compulsory.
: Solve any 03 of remaining

Q1 A	Explain the various business modules of an ERP system	10
B	How ERP can improve using business intelligence	10
C	Explain the structure of ERP system	
D	Explain the generic types of SCM	
Q2 A	Explain the key elements of SCM	10
B	Explain what do you mean by bill of material with an example	10
Q3 A	Explain Electronic Data Interchange along with its benefits	10
B	Explain CRM in detail.	10
Q4 A	How will SCM benefit in disaster management OR organic food business scenarios .	10
B	Explain the SCOR model	10
Q5 A	Discuss the importance of post implementation phase of ERP implementation	10
B	Explain E-Procurement model with example	10
Q6 A	Write short notes on any two (Any 02) a) Cloud ERP b) Agile supply chain c) Enterprise Application Integration (EIA) d) E-commerce and E business	20