



ANJUMAN-I-ISLAM'S

AIKTC KALSEKAR TECHNICAL CAMPUS

INNOVATIVE TEACHING · EXUBERANT LEARNING

School of Architecture

School of Engineering & Technology

School of Pharmacy

Knowledge Resource & Relay Centre (KRRC)

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		✓	02
2	Cryptography and System Security	CPC702		✓	02
3	Artificial Intelligence	CPC703		✓	02
4	Elective-II ERP & supply chain mgmt.	CPE7042X		✓	02
5					
6					

Note: SC – Softcopy, HC - Hardcopy

(Shaheen Ansari)
Librarian, AIKTC

65

Total Marks 80

(3 Hours)

- N.B:** 1) Question **number 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.

- 1 a) State whether unit step sequence is energy or power signal. Calculate Corresponding energy or average power as the case may be. [05]
- b) Perform convolution operation between given function in time domain if [05]
 $x(n) = \begin{cases} 2^{-n} & -2 \leq n \leq 2 \\ 0 & \text{otherwise} \end{cases}$ and
 $h(n) = u(n+2) - u(n-2)$
- c) Find the auto-correlation of the causal sequence $x(n) = \{2, 4, 6, 8\}$ [05]
- d) State the condition for stability of LTI system and determine for the given discrete time system [05]
 $h(n) = (2)^n u(n) + (0.5)^n u(n)$ is stable or not.
- 2 a) Determine whether or not the following signals are periodic. If periodic specify its fundamental period. [10]
 i) $x_1(n) = \sin(0.2\pi n + 3)$
 ii) $x_2(n) = \sin(0.5\pi n) + 5\cos(0.25n)$
- b) i) If $x(n) = \{3, 4, 0, 6\}$ Find DFT $X[k]$ [10]
 ii) Using results obtained in i) and not otherwise find DFT of following sequences
 $x_1(n) = \{6, 3, 4, 0\}$
- 3 a) Check whether following systems are [10]
 i) Static or Dynamic
 ii) Linear or Nonlinear
 iii) Shift variant or Shift invariant
 iv) Causal or Noncausal
 i) $y(n) = n \cdot x^2(n)$
 ii) $y(n) = 3x(n) + 5$
- b) For $x(n) = \{1, 2, -1, 5, 0, 4\}$, Plot the following discrete time signals [10]
 \uparrow
 i) $x(n+3)$
 ii) $x(-n-2)$
 iii) $x(n) \cdot u(n-1)$
 iv) $x(n-2) \cdot \delta(n-2)$
 v) $x(2n)$
- 4 a) Find the DFT of the 8 point causal sequence using radix 2 DIT-FFT [10]
 $x(n) = \{2, 1, 2, 1, 1, 2, 1, 2\}$
- b) Find the circular convolution of following causal sequences in time domain [05]
 $x_1(n) = \{1, 2, 5\}$ and $x_2(n) = \{4, 7\}$
 so that result of linear and circular convolution will be same.

- c) Compare 128 point DFT and Radix 2- DIT-FFT with respect to the number of complex additions and multiplications required. [05]
- 5 a) In a LTI system the input $x(n)=\{1, 1, 3\}$ and impulse response is $h(n)=\{2, 3\}$. Determine the response of LTI system using radix-2 DIT-FFT method. [10]
- b) Consider the 8 point sequence defined as $0 \leq n \leq 7$
 $x(n)=\{1, 2, 3, 0, 1, 2, 5, 2\}$ with a 8 point DFT. Evaluate the following function $X[k]$ without computing DFT
 $\sum |X[k]|^2$ [05]
- c) Determine 4 point DFT and sketch the magnitude of DFT $x(n)=\{1, 1, 0, 0\}$ [05]
- 6 a) Find Linear Convolution of following causal signals using overlap add method. [10]
 $x(n)=\{1, 2, 0, 1, 2, 3, 1, 1, 2, 1, 0, 3\}$
 $h(n)=\{2, 2, 1\}$
- b) Write a detailed note on speech recognition. [05]
- c) Compare Microprocessor with Digital Signal Processor. [05]
-

67

27/11/18

Time: 3 Hours Marks: 80

N.B: Q.1 Compulsory. Solve any 4.

Q.1 Summaries and find Plain text by decrypting cipher text "XVWG" using Hill Cipher Substitution technique.

KEY matrix →

$$\begin{bmatrix} 3 & 7 \\ 5 & 12 \end{bmatrix}$$

10

Q. 1 b) Consider a scenario where an intruder wants to access some valuable information from an ongoing communication. What security services should be implemented in system and which mechanism can be used to achieve those security services?

Q. 2 a) Encrypt "academic committee will meet today" using Playfair Cipher with Keyword "ROYAL ENFIELD"

10

Q. 2 b) Discuss CBC and OFB Block cipher Modes with examples.

10

Q. 3 a) If generator $g=2$ and n or $p=11$, using diffie Hellman algorithm, solve the following:

10

- i) Show that 2 is primitive root of 11
- ii) If A has public key 9, What is A's Private Key
- iii) If B has public key 3, What is B's Private Key
- iv) Calculate shared secret Key

Q. 3 b) Elaborate International Data Encryption Algorithm (IDEA) and its key generation?

10

Q. 4 a) Explain Digital Signature and Digital Certificate used for authentication 10

Q. 4 b) Calculate Cipher Text using RSA Algorithm for following data: Prime Numbers $P=7$, $Q=17$. Plain Text Message $M=10$. Find pair of keys and Cipher text (D,C and P).

Q. 5 a) Explain Hash Based Message Authentication Code. Give Example also. 10

Q. 5 b) Describe various types of Intrusion Detection System (IDS). What are Active and Passive IDS?

Q. 6 a) Convert given PT = (CA)₁₆ with Key (1011001101) using S-DES Algorithm.

Given- P10 (3,5,2,7,4,10,1,9,8,6) P4 (2,4,3,1)
 P8 (6,3,7,4,8,5,10,9) IP (2,6,3,1,4,8,5,7)
 E/P (4,1,2,3,2,3,4,1) IP⁻¹ (4,1,3,5,7,2,8,6)

S0=

1	0	3	2
3	2	1	0
0	2	1	3
3	1	3	2

S1=

0	1	2	3
2	0	1	3
3	0	1	0
2	1	0	3

Q. 6 b) Explain concept of key management along with its distribution system.

Find messages, documents, photos or people

Controller

Home

Compose

Back, Archive, Move, Delete, Spam, icons


- Inbox 19
- Unread
- Starred
- Drafts 33
- Sent
- Archive
- Spam
- Deleted Items
- Less
- Views Hide
 - Photos
 - Documents
 - Travel
 - Tutorials
- Folders Hide
 - New folder
 - corrections
 - imp
 - inward login
 - Link
 - msg
 - online attendance l...
 - software

Correction in QP Code: 57241 Yahoo/Inbox

University of Mumbai <support@muaj> 27 Nov at 11:45 AM
To: controllerkct@yahoo.com

University of Mumbai

support@muapps.in
+91 22 2653 4263



University of Mumbai

Correction in 1T00717 - B.E.(COMPUTER)(Sem VII) (R-2012) (CBSGS) / 42102 - Cryptography and System Security **QP Code: 57241**

Instruction : Question 1 Compulsory, Solve Any Three Instead of Four

Q. 3 a) ii) If A has private key 9, What's A's Public Key
iii) If B has private key 3, what's B's Public Key

q.5 b) Marks 10
q.6 a) Marks 10
q.6 b) Marks 10

University of Mumbai
<https://muapps.in>
support@muapps.in
022-26534263 / 022-26534266
Mon-Fri, 10am - 5pm

You have received this email because you are registered with us.
To unsubscribe, please reply to this mail with subject "Unsubscribe"

Navigation arrows

Reply, Reply all or Forward

Rich text editor toolbar: Bold, Italic, Underline, Text color, Background color, Link, Unlink, Undo, Redo, Print

What don't you like about this ad?

- It's offensive
- It's distracting
- It's not relevant
- Something else

Why do I see ads? **Done**

What don't you like about this ad?

- It's not relevant
- It's distracting
- It's offensive
- Something else

Why do I see ads? **Done**

66

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

Q1 Attempt **any four (4)** questions from the following [20]

- (a) Give PEAS description for a **Self Driving Car** agent. Characterize its environment.
- (b) Give the initial state, goal test, successor function, and cost function for the **Travelling salesman problem**
- (c) What will be the job of each of the components (Performance element, Learning element, Critic and problem generator) of learning agent?
- (d) Consider an 8 puzzle problem with the following initial state and goal state.

7	2	4
5		6
8	3	1
Initial State		

	1	2
3	4	5
6	7	8
Goal State		

Generate successors at next two levels. Apply number of misplaced tiles as the heuristic function. Which successor nodes will be selected at each level if we apply Hill climbing algorithm?

- (e) Convert the following English sentence into predicate logic and then into CNF
"The culprit was tall and dark"

Q2 (a) Explain decision tree learning with an example. What are decision rules? How to use it for classifying new samples? [10]

- (b) Write first order logic equivalent of the following statements: [10]
 - (i) Anand likes only comedy films.
 - (ii) The culprit has to be one from Tinker, Tailor and Butler.
 - (iii) Whoever can read is literate.
 - (iv) Every child loves Santa.
 - (v) Some birds cannot fly.

Q3 (a) Design a classical planner for air cargo transportation problem using STRIPS. The problem involves loading, unloading cargo and flying it from place to place. Define three actions: Load, Unload and Fly. The actions affect two predicates: In(c, p) means that cargo c inside plane p, and At(x, a) means that object x (either plane or cargo) is at airport a. [10]

- (b) Give a formal definition of a Bayesian Belief Network (BBN). Illustrate the process of constructing a BBN with a suitable scenario. What type of inferences can be drawn from BBN network? [10]

Q4 (a) Compare **Breadth first search (BFS)**, **Depth first search (DFS)**, **Depth limited search (DLS)** and **Iterative Deepening search** algorithms based on performance measure with justification: Complete, Optimal, Time and Space complexity. [10]

- (b) Write a pseudo code for alpha-beta algorithm. Apply alpha-beta pruning on example [10]

given in Figure 1 considering first node as max.

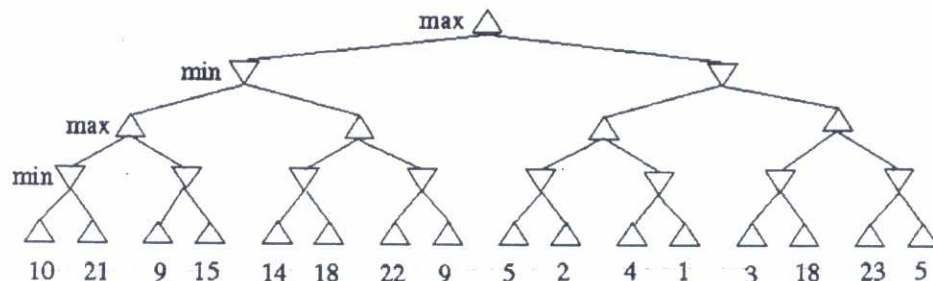


Figure 1

- Q5 (a) How will you convert the propositional logic statement into CNF? Give a suitable example at each step? [10]
- (b) Consider the graph given in Figure 2 below. Assume that the initial state is **S** and the goal state is **G**. Show how **A* Search** would create a search tree to find a path from the initial state to the goal state: [10]

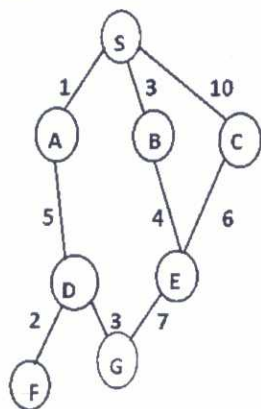


Figure 2

At each step of the search algorithm, show which node is being expanded, and the content of fringe (OPEN). Also report the eventual solution found by the algorithm, and the solution cost. Assuming the straight-line distance as the heuristics function: $h(S)=13$, $h(A)=7$, $h(B)=9$, $h(C)=11$, $h(D)=2$, $h(E)=4$, $h(F)=1$, and $h(G)=0$.

- Q6 Answer any two (2) of the following [20]
- (a) What are the steps involved in natural language processing (NLP) of an English sentence? Explain with an example sentence.
- (b) Draw and describe each component in the Architecture of Expert System with a suitable example
- (c) Explain how Genetic algorithms work. Define the terms chromosome, fitness function, crossover and mutation as used in Genetic algorithms

87

B.E. sem - VI - ERBSGS - Comps

Paper / Subject Code: 42109 / Elective- II 6)ERP and Supply Chain Management

10/12/18

Time: 3 Hours

Marks: 80

NB: Solve **any 04** of the following

- Q1 A Explain need and structure of ERP. 10
B Explain use of information technology in ERP 10
- Q2 A Discuss business process reengineering with an example. 10
B Explain ERP implementation life cycle. 10
- Q3 A What is E-procurement? 10
B Write a short note on Risks in ERP. 10
- Q4 A How will SCM benefit in News Paper distribution **OR** Fast Food supply .(exemplify only one scenario) 10
B How is agility achieved in supply chain? 10
- Q5 A Explain Travelling Salesman problem in SCM. 10
B What is SCOR model? 10
- Q6 Write short notes on **any 02** 20
a) Cloud and Open source ERP
b) Strategic decision making in SCM
c) Generic types of SCM
d) E-Business
-