ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: B. Tech/MCA — Semester: VI/IV
Stream: CSE
PAPER TITLE: ELECTIVE-II (Cryptography and Cyber Security) — PAPER CODE: ECS43110
Maximum Marks: 40 — Time duration: 3 Hours
Total No of questions: 08 — Total No of Pages: 02

Instruction to the Candidate:

1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.

Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. **a)** What is the difference between Tunnel mode and Transport mode?
b) When Padding is required in MD5?
c) Which malware is used in disguise in cyber attack?
d) Why in Hill Cipher Key matrix has to be invertible?
e) Why RSA uses large prime number?

GROUP –B

Answer *any three* of the following $3 \times 5 = 15$

2. Classify all type of cryptographic scheme. Compare Cryptography, Cryptology, Cryptanalysis, Steganography in your own words. Explain about different techniques of Steganography. [2+1+2]
3. Explain about the trusted third party authentication service in details. [5]
4. Explain about different types of devices which are used to implement VPN. [5]
5. Compare (both similarities and difference) between different Spoofing attacks in details. [5]

GROUP –C
(Long Answer Type Questions)

Answer *any two* of the following $2 \times 10 = 20$

6. a) Find the value of $7^{1000} \bmod 23$.
b) Find the value of $7^{547} \bmod 825$ using Modular exp.
c) Find the last two digit of 121^{562}. [3+4+3]
7. Find the value of X which leaves a remainder of 3, 2, 1 and 4 when divided by 5, 7, 9 and 11 respectively. [10]
8. The plaintext is
21
24
19

And key is

$$\begin{matrix} 6 & 5 & 1 \\ 3 & 2 & 3 \\ 4 & 3 & 2 \end{matrix}$$

Perform Hill cipher encryption and decryption.
[10]

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END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: MCA
Stream: CSE
PAPER TITLE: Web Technology
Maximum Marks: 40
Total No of questions: 08

Semester: IV
PAPER CODE: ECS52102
Time duration: 3 hours
Total No of Pages: 02

Instruction for the Candidate:

1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
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3. Assumptions made if any, should be stated clearly at the beginning of your answer.

Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. a) Which array method in JavaScript returns a sequence of elements from an array?
b) Consider the following code:

```
var a=[7,9];
var m=a.unshift(1,3,5);
```

What do the variables m and a contain after executing the above lines of code?
c) What is the use of console.log()?
d) What is XML Schema?
e) What is the difference between width=”100” and width=”100%”?

GROUP –B

(Short Answer Type Questions)

Answer *any three* of the following $3 \times 5 = 15$

2. a) How is the Date object created in JavaScript?
b) Define any three constructors used to create Date object? 2+3

3. a) What is the difference between ‘null’ and ‘undefined’?
b) Write a JavaScript function to find the area of a triangle whose lengths of the three of its sides are 4,5 and 6. 2+3

4. a) What is a well-formed XML document?
b) Consider the XML document fragment. A company has a number of employees. The element ‘employee’ contains information about an employee. The middle name of an employee is optional. Write a DTD for it.

```
<company>
    <employee>
        <firstname>Sanjay</firstname>
        <middlename>Chandra</middlename>
        <lastname>Dhara</lastname>
    </employee>
    <employee>
        <firstname>Parama</firstname>
        <lastname>Bhaumik</lastname>
    </employee>
</company>
```

2+3

5. Write HTML code to form a table to show the below values in a tabular form with heading as Roll No, Student name, Subject name and values as:- 5

1	John	Physics
2	Peter	Mathematics
3	Mary	Chemistry

GROUP –C
(**Long Answer Type Questions**)

Answer *any two* of the following $2 \times 10 = 20$

6. a) Why should you specify a background color if you are using an image for the actual background of your page?

b) Explain any two events related to mouse with suitable code.

c) Explain about the window event onload with an example. 2+4+4

7. a) Write JavaScript code to find all prime numbers from 2 to 50 and put them in an array named primes.

b) Which method in JavaScript is used to search for a substring? Explain with suitable code.

c) What is the difference between client-side and server-side script? 4+3+3

8. a) What does the term "Cascading" in CSS indicate?

b) What is the purpose of a class selector? Explain with suitable code.

c) Create an ordered list of items: Asia, Africa, Australia. Use capital roman numbers to order them. 2+(3+1)+4

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END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: MCA
Stream: CSE
PAPER TITLE: Compiler Design
Maximum Marks: 40
Total No of questions: 08

Semester: IV
PAPER CODE: ECS52104
Time duration: 3 hours
Total No of Pages: 02

Instruction for the Candidate:

1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.

Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. **a)** Define a finite automata which will accept the language; "{L= {w ∈ (0,1)*, second symbol of w is '0' and forth input is '1'}"
b) Write a grammar to generate a palindrome string.
c) Eliminate left recursion for the following grammar:
S -> S + E / E
E- > E * F / F
F-> (S) / id
d) What is parsing?
e) Given the following expression grammar:
E -> E * F | F+E | F
F -> F-F | id
From the above stated grammar find the precedence level and associativity rule of the operators present in this grammar rule.

GROUP –B
(Short Answer Type Questions)
Answer *any three* of the following $3 \times 5 = 15$

2. What are Static Scoping and Dynamic Scoping? Explain with example. **5**

3. Explain the Structure of Compiler in brief. **5**

4. What is a Handle? State the generalized working principle of LR parsers. **5**

5. Construct the LL(1) parsing table for the following grammar: $S \rightarrow aBDh; B \rightarrow cC; C \rightarrow bC/\epsilon; D \rightarrow EF; E \rightarrow g/\epsilon; F \rightarrow f/\epsilon$. **5**

GROUP –C
(**Long Answer Type Questions**)

Answer *any two* of the following **2 × 10 = 20**

6. A)Write short note on – i) Flow-Graph ii) Activation Record **5+5 = 10**

7. A) Generate three address code representation of the following code

i) c=0
do{
if (a<b) then
x++;
else
x--;
c++;
}while(c<5)

ii)
```
prod = 0 ;
i = 1 ;
do
{
   prod = prod + a[ i ] x b[ i ] ;
   i = i + 1 ;
 } while (i <= 10) ;
```

B) What do you understand by Loop Invariant and Dead Code? **(3+3)+4=10**

8. A) Explain with example how to construct NFA from a given Regular Grammar.

B) Construct a DFA that accepts all strings of 'a' and 'b'. Such that number of 'a's is divisible by 2 and number of 'b's is divisible by 3. **6+4=10**

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END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: M.C.A — Semester: IV
Stream: Computer Science and Engineering
PAPER TITLE: Elective – III (Information Retrieval) — PAPER CODE: ECS52112
Maximum Marks: 40 — Time duration: 3 hours
Total No of questions: 8 — Total No of Pages: 1

Instruction for the Candidate:

1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.

Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. **a)** "The technique to find material of an unstructured nature that satisfies an information need from within large collections". Name the technique and list some of its applications.
b) What do you mean by Search Engine?
c) List some advantages of open source software.
d) Mention the types of data available.
e) Define indexing.

GROUP –B

Answer *any three* of the following $3 \times 5 = 15$

2. Any search engine requires some process of searching. Can you mention some of these processes. Briefly explain the mentioned processes.

3. State soundex algorithm for phonetic correction with example.

4. State Rocchio's Classification Algorithm.

5. State the differences between dynamic and distributed indexing.

GROUP –C

Answer *any two* of the following $2 \times 10 = 20$

6. a) What is vector space model?
b) What is inverse document frequency & TF-IDF weighting.
c) Define stemming with the help of an example.

7. a) Name some clustering algorithms used in Information Retrieval? If possible, list down some application of clustering in any sector.
b) What are the two main problems with k-means and how they can be addressed?

8. a) What do you understand by precision and recall? b) What is dynamic Indexing? Explain the logarithmic merge Algorithm and its necessity.
c) Define Stemming with the help of an example.

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END-SEMESTER EXAMINATION: JULY 2020

Name of the Program:MCA
Stream:CSE
Semester: IV

PAPER TITLE: Microprocessor and Embedded System
PAPER CODE: EEC52102

Maximum Marks: 40
Time duration: 3 hours

Total No of questions:08
Total No of Pages: 01

Instruction for the Candidate:

1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page.
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Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. **a)** What is the addressing mode of this instruction MVI B,20 and explain.
b) In 8086, if Code segment address is 2008H, Offset Address by IP is 4328H, Then physical address is_____.
c) If DE register pair value is 34H and HL register pair value is 58H then after XCHG instruction execution what will be the result?
d) Why Brown out Reset circuit and watchdog timer both are important in Embedded systems design?
e) What is the difference between C and Embedded C?

GROUP –B

(Short Answer Type Questions)

Answer *any three* of the following $3 \times 5 = 15$

2. Explain the operation of these 8085 signals:$S_0$and S_1, $IO/\overline{M}$,SID and SOD. [5]
3. a) What is the function of the $\overline{S2}$, $\overline{S1}$,and $\overline{S0}$ signals in the maximum mode operation of the 8086 [2]
b) Explain about TCON and TMOD registers of 8051 microcontroller. [3]
4. Explain the FSM model for Automatic Tea/ coffee vending machine? [5]
5. Explain Operation of 8255 PPI with suitable diagram. [5]

GROUP –C

(Long Answer Type Questions)

Answer *any two* of the following $2 \times 10 = 20$

6. a) Explain Memory write time cycle for minimum mode operation of 8086 processor. [6]
b) Differentiate RISC and CISC structure . [4]
7. a) Explain Purpose of Embedded Systems. [5]
b) Explain Bluetooth and Wifi module of External interfacing Buses. [5]
8. a) Write different application of Embedded systems . [4]
b) What is odd and even memory bank in 8086 memory system. Explain about it. [6]

ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: BCA/ BTECH Semester: IV
Stream: CSE/ECE/EE/ME/CE
PAPER TITLE: HSS IV (Economics for Engineers)
PAPER CODE: HEC42180
Maximum Marks: 40 Time duration: 3 Hours
Total No of questions: 12 Total No of Pages: 02

Instruction to the Candidate:
1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.
2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page.
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Section A

(Answer any **FIVE** *of the following questions)* **Marks: 5*2=10**

1. State the Law of Demand.
2. What do you mean by Perfectly Elastic demand?
3. What do you mean by Opportunity Cost?
4. What do you mean by Income effect?
5. Explain two features of Perfectly Competitive market.
6. Why does an investor want to hold a portfolio?

Section B

(Answer any **TWO** *of the following questions)* **Marks: 2*5=10**

7. State and explain the features of Monopolistic Competition.
8. Distinguish between Cardinal and Ordinal utility theory. Mention any two exceptions to the law of demand. (2+3)

9. Suppose due to adequate rainfall, there has been a good harvest for mangoes. How will the equilibrium price and quantity demanded change under the new situation? Explain diagrammatically.

Section C

(Answer any **TWO** *of the following questions)* **Marks: 2*10=20**

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10. Discuss the common characteristics of infrastructure assets.
11. What do you mean by Own Price, Cross Price and Income Elasticity of demand? Explain with examples.
12. Distinguish between Increase in demand and Extension of demand. What do you mean by Giffen goods? (8+2)
