ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION: JULY 2020

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

PAPER TITLE: Computer Organization and Architecture
PAPER CODE: ECS32102

Maximum Marks: 40
Time duration: 3 Hours

Total No of questions: 09
Total No of Pages: 01

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. **I)** What do you mean by the given instruction Add #45,R1.

ii) What is an Instruction?
iii) What is the necessity of cache memory?
iv) What is the length of each word in a system is 64 bit machine.
v)What do you understand by computer architecture?

Group B

(Answer any three questions)

$3 \times 5 = 15$

2. Explain the properties of memory hierarchy.

3. Generate the 3-Address, 2-Address, 1-Address and Zero address Instruction sequence for the following expression $X = \frac{(a+b)}{4} + \frac{(c+5)\times d}{2}$

4. State the working principle of division algorithm and show each and every step for dividing 4 by 2.

5. Discuss address assignment scheme. State five differences between computer organization and computer architecture

6. What do you understand by a fully associative cache explain with diagram. Calculate the hit ratio and miss ratio for LRU and FIFO replacement policy implemented on a fully associative cache with 8 cache blocks (0-7). The memory block requests are in the order-

4, 3, 25, 8, 19, 6, 25, 8, 16, 35, 45, 22, 8, 3, 16, 25, 7

If LRU replacement policy is used, which cache block will have memory block 7?

Group C

(Answer any two questions)

$2 \times 10 = 20$

7. What is Instruction Pipeline. What are the reasons for data hazard? Give a solution for data hazard.

A Pipelined processor has 4 stages, Fetch, Decode, Execute, Write Back. Fetch, Decode and Write Back stage takes 1 clock cycle for each and every instructions and for Execution stage it depends on the Instruction. Addition and Subtraction instruction takes 1 clock cycle and Multiplication Instruction takes 3 clock cycles. The Instructions are

$I_1: ADDR_2R_1R_0$

$I_2: MULR_4R_3R_2$

$I_3: SUBTR_1R_2R_4$

Calculate the total number of clock cycles required to complete the execution of above Instruction sequence in- *Case1:* Without data forwarding and *Case2:* With data forwarding. 10]

8. What is memory hierarchy? Explain the role of cache memory in memory hierarchy and its organization.

A computer has a 256 KB, 4-way set associative, write back data cache with block size of 32 bytes. The processor sends 32 bit addresses to the cache controller. Each cache tag directory entry contains in addition to address tag, 2 valid bits, 1 modified bit and 1 replacement bit. What do you mean by 4-way set associative cache(with diagram)? Calculate the number of bits in every required field in an address to access the cache memory and the size of the cache tag directory. [1+3+2+2+2]

9. Explain Flynn's Classification of Computer Architecture. Explain Indirect and Indexed Addressing modes and its necessity with example. Explain with diagram the working principle of Static-RAM & Dynamic-RAM cells. State the procedure to convert a virtual address to its respective physical address. [2.5 * 4]

ADAMAS UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: BCA
Stream: CSE
PAPER TITLE: Computer Graphics
Maximum Marks: 40
Total No of questions: 08

Semester: IV
PAPER CODE: ECS32104
Time duration: 3 hours
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.
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 two dimensional Rotation transformation.
b) What is viewport?
c) Mention the importance of color models.
d) Define the term vanishing point.
e) What is the importance of hidden lines/hidden surfaces removal?

GROUP –B
(Short Answer Type Questions)

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

2. a) Describe the Flood-fill algorithm. Write the flood fill function.
b) What are the limitations of DDA line drawing algorithm? 3+2

3. Mention any five properties of Bezier curve. 5

4. Compare parallel and perspective projection with reference to real life. Mention five points of difference. 5

5. A diamond with vertices A(10,0), B(0,10),C(-10,0) and D(0,-10) and origin at the mid-point is scaled twice uniformly with respect to O(0,0). Find the co-ordinates of transformed diamond and sketch the transformed diamond. 4+1

GROUP –C
(Long Answer Type Questions)

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

6. a) Prove that generally successive scaling transformation and rotation transformation are not commutative.
b) Plot straight line from (5,10) to (15,30) by DDA method. Mention the calculation steps. 5+5

7. a) Differentiate between RGB and CMYK color models. Provide four points of difference between them.
b) Apply the Cohen-Sutherland algorithm to clip line P1(70,20) and P2(100,10) against a window lower left hand corner (50,10) and upper right hand corner (80,40).
c) Describe the Back face detection algorithm. What are its drawbacks? 4+3+(2+1)

8. a) Explain the Raster scan display system.
b) Explain the differences between Impact printer and Non-Impact printer. 5+5

ADAMAS UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: BCA Semester: IV
Stream: CSE
PAPER TITLE: Web design PAPER CODE: ECS32106
Maximum Marks: 40 Time duration: 3 hours
Total No of questions:8 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)** What is Absolute URL?
b) Use of SMTP protocol in Web.
c) Purpose of Ipv6 is meant for extra Ip-address suggest your answer.
d) Give 3 example of server side javascript.
e) What is POP.

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

2. Describe type of List in HTML,Write HTML tag for the following Ordered list given below

Breakfast Menu
i)Tea and samosa
ii)Bread
iii)Puri

3. Explain Extranet with suitable example?
4. Explain Java string To-string(),and date() method with suitable example.
5. Explain four JavaScript event with suitable example.

GROUP –C
(Long Answer Type Questions)
Answer *any two* of the following $2 \times 10 = 20$

6. Write down HTML code to generate following output given as below.

Registration Form

Username
Password
Confirm Password
FirstName
LastName
Email
Phone No
Location
Save Reset

7. I)Write down HTML code to generate following out put given below.

II)Explain Javascript math operator?

8. Write down HTML code to generate following out given below List

- **Maharashtra**
  - **Pune**
    1. **Dighi**
    2. **Moshi**
    3. **Shivajinagar**
  - **Mumbai**
    1. **Santakruiz**
    2. **Vikroli**
    3. **Mumbra**

ADAMAS UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY
END-SEMESTER EXAMINATION: JULY 2020

Name of the Program: BCA
Stream: CSE
PAPER TITLE: Scripting language
Maximum Marks: 40
Total No of questions: 8

Semester: IV
PAPER CODE: ECS32108
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)** How will you create a new file as a text file in File handling?

b) Suppose you have two sets S1={1,2,3} and S2={3,4,5} . Write the statement gives us their union

c) How do you denote the end of a block in Pyton3?

d) In this list how you will access the letter 't' in "bat"?

list=[1, ['a' , 'b', ['kill', 'bat', 'cup'], 'c'] , 3]

e) Which operator is used to get accurate result (i.e. fraction part also) in case of division?

GROUP –B

(Short Answer Type Questions)

Answer *any three* of the following

$3 \times 5 = 15$

2. Explain the use of join () and split () string methods with examples. Describe why strings are immutable with an example.

3. Input "n" integers (+ve and −ve). Write Pythonic code to find the sum of negative numbers, positive numbers and print them. Also, find the average of all the numbers.

4. Explain the need for Unicode's. Discuss the relation between tuples and lists, tuples and dictionaries in detail.

5. Write Pythonic code to sort a sequence of names according to their alphabetical order without using sort() function?

GROUP –C
(**Long Answer Type Questions**)
Answer *any two* of the following $2 \times 10 = 20$

6.

a) Explain command line arguments and write a program to demonstrate command line arguments.

b) What do you understand by local and global scope of variables? How can you access a global variable inside the function, if function has a variable with same name?

7.

a) State the reasons to divide program into functions. Relate Strings and lists?

b) Write a python program to accept an integer number and use try/except to catch the exception if a floating point numbered is entered.

8.

a) How to relate discard () and remove () in Set. Write a python code to remove the duplicate items from a list.

b) Design a python code to count the number of words in a python file?

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.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.

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**

---

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)
