COMSATS UNIVERSITY ISLAMABAD (CUI)

DEPARTMENT OF COMPUTER SCIENCE
FINAL EXAMINATION FALL-2023
BS (CS)A,B– I SEMESTER

Course: CSC101-Applications of ICT **Instructor: Zahid Anwar**
Maximum Marks: 50 **Dated:** Jan 06, 2024 **Time Allowed:**180 Minutes

- *All questions are self-explanatory and require no further explanations during exam time.*
- *Return the question paper along with the answer sheet.*
- *Attempt all questions.*

(CLO – 1: Explain the basic computing models and its related hardware)

Q.# 1. Provide short answers to the following: **[1+2+2=5 Marks]**

(a) How many machine cycles are required to execute the addition instruction of A+B. Write steps of each cycle.

(b) Explain the concept of bus width and its impact on data transfer rates with example. Describe the different buses available and recommend a bus that would be suitable to connect different devices.

(c) A computer program requires fast and efficient access to frequently used data during its execution. Explain how the use of CPU registers can contribute to improving the performance of the program.

(CLO –2: Work out with different number systems and codes)

Q.# 2. ASCII codes are alphanumeric codes that represent numbers, alphabets (uppercase and lowercase), symbols, and special computer characters. ASCII has 128 characters that can be represented using 7 bits (00 to 7F in hexadecimal). Consider, the key 'A' on the keyboard represented in ASCII as 1000001, then: **[1+2+1+1=5 Marks]**

(a) What is the representation of the key 'A' in hexadecimal?

(b) What is the ASCII code for the letter 'S' if it comes after 19 letters from the letter 'A' in the ASCII table?

(c) What is the representation of the key 'S' in octal?

(d) What is the ASCII code for key '@' if it comes right before the key 'A'?

(CLO –3: Describe the fundamental concepts of ICT domains)

Q.# 3. Provide answers to the following **[2+3=5 Marks]**

(a) For a scenario where customers can place orders for a product. Associate the entities in the form of relational database showing attributes, primary and foreign keys.

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(b) Sarah is an aspiring artist who creates unique, hand-painted artworks. She decides to sell her paintings online through a platform that connects her with potential buyers. The platform handles the transaction process and provides a space for Sarah to showcase her art. Buyers can browse through Sarah's portfolio, make purchases, and leave reviews. Identifying E-commerce Business Model.

Based on the scenario provided, identify the most suitable e-commerce business model that aligns with Sarah's approach to selling her paintings. Justify your choice by explaining how the characteristics of the selected business model align with Sarah's online art sales.

(CLO –4: Solve computing problems using problem-solving process)

Q.# 4. Construct the flowchart for the following **[7 Marks]**

You are a software developer and tasked with developing software where software performs following tasks:

(a) Takes input from the users in digits i.e. at least 5 digits.
(b) Reverses the number and shows the reversed number to the user.
(c) Cheque if the entered number is palindrome or not. (palindrome refers to a word whose spelling is unchanged when its letters are reversed e.g. noon when read backwards is noon)

Q.# 5. Write a Pseudocode for the following: **[5 Marks]**

A program to take a number from the user and allow user to perform following tasks on his choice:

a) Convert into Binary: write a function that returns the binary number of the given decimal number.
b) Find the Factorial: write a function that finds factorial of the given number and returns the result.
c) Allow user to perform these actions **N** number of times, and exit the program when user wants to exit.

Q.# 6. Write the python program for the following: **[5+8=13 Marks]**

(a) You Write a Python program that takes user's full name as an input and splits it into first name and last name. Change the order of the name from "First + Last" name into "Last + First" name and show it to the user. Moreover, if the user's name is more than 5 characters, show the last 5 characters of the name on screen in such a way that every character appears on new line, otherwise say "Good Luck" to the user.

(b) You are tasked with developing a TODO-App in Python. The app should give the user the options to perform basic functions with the app. You have decided to implement the program using functions to ensure modularity and code reusability. Write a Python program that fulfills the following requirements:

1. App must have a function, named "**add_task()**", that takes three parameters: **title (string), description (string),** and **status (string)**. This should add a task to the tasks pool.
2. App must have a function, named "**view_incomplete_tasks()**". This function should give all those tasks whose status is "**incomplete**".
3. App must have a function, named "**delete_task()**", that takes a parameter: **keyword (string)**. This function should delete a task where keyword matches.
4. Write a main function that acts as the program's entry point. Inside the main function, prompt the user to perform the following actions:
   i. Add a task by providing title and description.
   ii. View incomplete tasks by providing a keyword from the title.
   iii. Delete any task by providing a keyword from the title.
   iv. Exit the program.

(CLO –5: Describe the concepts of variables, conditionals, repetitive structure and functions using a programming language)

Q.# 7. Write the output of the following Python code chunks. In case of an error, explain the error. Marks will not be given without explaining the error. **[10 Marks]**

a) [1]

```
count=1
while count<=5
    print(count)
    count+=1
    if count ==3:
     break
else :
    print(in else block )
print ("Stay happy")
```

b) [1]

```
count=1
while count<=5
    print(count)
    count+=1
    if count ==3:
     break
else :
    print(in else block )
print ("Stay happy")
```

c) [0.5]

```
1=[2,3,4,-5,7]
for i in list1:
    print(i,end=' ')
else:
    print(" Sucessfull ")
```

d) [0.5]

```
for i in range(20, 21):
    for j in range(i+1,22 ):
        print(j);
    print(i);
```

e) [1]

```
n=4
for i in range(n):
    for j in range(i+1):
        print(n-i, end=" ")
    print()
```

f) [1]

```
def getMax(value1, value2; max):
    if value1 > value2:
        max = value1
    else:
        max = value2
    return max
main()
max = 0
print(getMax(1, 2, max))
```

g) [0.5]	str1= "Com-sat" str2= str1[: :-2] print(str2);	h) [0.5]	p=10 q=20 p=p*q//4 q=p+q**3 print(p,q)
i) [1]	str1= " Com-sat " print(str1) print(str1.strip())	j) [1]	cars = ['Ford'; 'Mitsubishi'; 'BMW';'VW'] cars.sort(reverse= True) print(''cars'')
k) [0.5]	print("value:", round(5.4666, 3))	l) [0.5]	print("value:", round(5.4666, 3))
m) [1]	a = "Hello" b = "World" e = 1 c = a + " " + b +" "+ e d= a + b + e print(c) print(d)		