Sample Question Paper 2022-2023

Class : XI

Subject: Computer Science(Theory)

Max. Time: 3 Hours **Max. Marks: 70**

Note: This question paper contains five sections, Section A to E.

General Instructions:

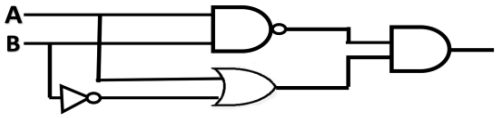
1. **This question paper contains five sections, Section A to E.**
2. **All questions of a particular section must be attempted in the correct order.**
3. **SECTION A has 18 Objective Type Questions of 1 mark each.**
4. **SECTION B has 07 Very Short Answer Type Questions carrying 02 marks each.**
5. **SECTION C has 05 Short Answer Type Questions carrying 03 marks each.**
6. **SECTION D has 03 Long Short Answer Type Questions carrying 05 marks each.**
7. **SECTION E has 02 Questions carrying 04 marks each. One Internal choice is given in Q35 against part c only.**
8. **All programming questions are to be answered using Python Language only.**

	Section A	
1.	_____ controls sequential instruction, execution and guides data flow through the computer memory a. ALU b. CU c. Processor d. Memory	1
2.	Raunak is working on a number of applications on his laptop. He is able to work on all the applications simultaneously. Select which among the given options manages memory for all the applications opened. a. Antivirus b. Language translator c. Operating system d. Compiler	1
3.	Identify secondary memory from the following. a. ROM b. EPROM c. Flash Drive d. Cache memory	1
4.	Srishti is facing a problem of storage space in her computer. Her teacher has suggested her to run Disk Compression software to reduce the size of files present in her system. Disk Compression software comes under which category? a. Proprietary b. OS c. Utility software d. Device Driver	1
5.	Consider the string s = "REAP" Which of the following will result in an error? a. print(s[: : 2]) b. print(s[3]) c. s[3] = "R" d. t = s[3]	1
6.	For which set of values the python code(eq=a**2+b**2+2*a*b) will not give the output given below: 100 a. a=8, b=2 b. a=6, b=4 c. a=5, b=5 d. a=3, b=4	1

7.	**Which of the following Python code will give different output from the others?** **A. for i in range(0,5):** **print(i)** **B. for j in [0,1,2,3,4]:** **print(j)** **C. for k in [0,1,2,3,4,5]:** **print(k)** **D. for l in range(0,5,1):** **print(l)**	**1**
8.	**Consider the following code and predict the output** **Cars=("Maruti","TATA","HYUNDAI","TOYOTA","MG")** **(m,n,k,p,q)=Cars** **print(m[0]+p)** **a. MTOYOTA** **b. MarutiTOYOTA** **c. TOYOTA** **d. ATOYOTA**	**1**
9.	**Predict the output.** **d1={1:"Mon",2:"Tue",3:"Wed",4:"Thur",5:"Fri",6:"Sat",7:"Sun"}** **d2=d1.copy()** **d3=d2** **d2[2]="TUE"** **print(d1[2],d2[2],d3[2])**	**1**
10.	**Give the output which will be generated on execution of the following statements?** **s=[5,3,2,1,0,1,1,2]** **print(s[s.pop(3)+s.pop(5)-2])**	**1**
11.	**Identify an invalid identifier** **a. Num1** **b._ Addr** **c. Count#** **d. P123_abc**	**1**
12.	**Select which among the following is not a Net Etiquette related to the use of Digital Technology?** **a. Be ethical** **b. Be respectful** **c. Be responsible** **d. Be independent**	**1**
13.	**Akriti is looking for a bag on Amazon. She thought of comparing the price of the same on different websites. Meanwhile, she visited other websites as well. But, she is getting her searches for bags made on Amazon every time on the window she is visiting. Interpret what is reflecting in this scenario.** **a. Digital Footprint** **b. Stalking** **c. Plagiarism** **d. Phishing**	**1**

14.	**Many people create videos on YouTube by using content from other's videos. Infer which Intellectual Property Right is being violated in this case?** **a. Copyright Infringement** **b. Trademark** **c. Copyright** **d. Patent**	**1**

15.	**Categorize points given below under Ethical and Non-Ethical Hackers and choose the correct option.** **i. White Hat hacker** **ii. Black Hat hacker** **iii. Are specialists in exploring any vulnerability or loophole during testing of the software.** **iv. Tries to gain unauthorized access to computers or networks in order to steal sensitive data.** **a. Ethical- i,iv and Non-Ethical- ii, iii** **b. Ethical- i,iii and Non-Ethical- ii, iv** **c. Ethical- i,ii and Non-Ethical- iii, iv** **d. Ethical- ii,iv and Non-Ethical- i, iii**	**1**
16.	**Read the words given below:** **Social engineering** | **Malvertising** | **Adware** | **Spyware** **Shareware** | **Malware** | **Ransomware** | **Stalking** **Choose the most appropriate words to fill the blanks.** **_____ is used legitimately in free versions of applications to display advertisements while a program is running but can be classified as _____ if the code records users' information or browsing habits without their consent and authorization.**	**1**
	Q17 and 18 are ASSERTION AND REASONING based questions. Make the correct choice as **a. Both A and R are true and R is the correct explanation of A** **b. Both A and R are true and R is not the correct explanation of A** **c. A is True but R is False** **d. A is False but R is True**	
17.	**Assertion(A) : Dictionary is a mapping data type.** **Reason(R) : it is an ordered collection of key value pairs.**	**1**
18.	**Assertion(A) : Logical errors are hard to find** **Reason(R) : Logical error produces an undesired output without abrupt termination of the execution of the program.**	**1**

<table>
<tr><td></td><td>Section B</td><td></td></tr>
<tr><td>19.</td><td>Akash and Sara both have their own laptops. Akash is able to work in all languages like German, Hindi, English, etc. in his laptop whereas Sara's laptop supports only English language. Identify and explain the difference in encoding schemes of their computers.</td><td>2</td></tr>
<tr><td>20.</td><td>Do the following conversions:
i. $(11011.101)_2$=( )$_8$
ii. $(A73)_{16}$=( )$_2$
or
Differentiate between compiler and interpreter.</td><td>2</td></tr>
<tr><td>21.</td><td>Write the appropriate Boolean expression for the Logic circuit given below:
 
</td><td>2</td></tr>
<tr><td>22.</td><td>Select the possible output for the given code in Python. Write the minimum value 'e' and maximum value 's' can have.
import random
num = ["one", "two","three", "four", "five", "six", "seven","eight", "nine"]
s=random.randint(2,5)
e=random.randint(4,5)
for k in range(s,e+2):
print (num[k], end="@")

a) two@three@four@ b) three@four@five@six@
c) five@six@seven@eight d) four@five@six</td><td>2</td></tr>
<tr><td>23.</td><td>Match the following :
<table><tr><th>Column A</th><th>Column B</th></tr><tr><td>a. for</td><td>i. punctuator</td></tr><tr><td>b. +</td><td>ii. literal</td></tr><tr><td>c. :</td><td>iii. operator</td></tr><tr><td>d. 5</td><td>iv. Keyword</td></tr></table></td><td>2</td></tr>
</table>

24.	**Rewrite the following code after correcting the errors and underline the corrections:** **n=input('Enter a number')** **For k in range (2,20)** **print(n/2)** **print('Bye')** **OR** **WAP to generate five random integers between 50 and 75 and display the sum of random numbers generated.**	**2**
25.	**Many children had health issues during lockdown. Among all, most of the issues are related to eyes. Infer the reason behind this.** **OR** **With the growth of the Internet, many cases of cyber crimes, frauds, cyber attacks and cyber bullying are reported. Elaborate the reason behind the establishment of Cyber Appellate Tribunal.**	**2**
	Section C	
26	**Draw a flowchart to count and display multiples of 5 in a given list of integers.**	**3**
27	**WAP to accept a string and replace all occurrences of digits present in the string by '#'.** **or** **Consider the code given below:** **import string** **name='Computer2@myWorld3#'** **n=''** **for x in name:** **if x.isalpha():** **n=n+x.upper()** **elif x.isdigit():** **n=n+x** **elif x.isupper():** **n=n+x.lower()** **else:** **print('all the best')** **print(n)** **Answer the following questions based on the code above:** **a. Identify the number of times the message "all the best" will be printed** **b. Give the final value of string n.**	**3**

28.	**Write a program to accept sales of n (accept value of n from user)employees of a company. Calculate the incentive to be given based on the following criteria.** **Incentive Sales** **10 % of sales > 100000** **7 % of sales 75000 to 100000** **5 % of sales <75000** **or** **On the occasion of Diwali festival, Big Store gives the following offers:** **sales>=5000, the discount will be 20% of the sales** **1000<sales<5000 the discount is 10%** **500<sales<1000 the discount is 5%** **sales <500 no discount** **Write a program in Python that accepts sales and customer number from the user and calculate the net amount which the customer has to pay after availing discount (if any). The company gives an extra 2 % discount on the net amount to every 100th customer.**	**3**
29.	**WAP to create a list L3 from two given lists L1 and L2 such that the elements of L1 are placed at even index and elements of list L2 are placed at odd index of L3.** **For example :** **if L1= [1,2,3,4,5] and L2 =[7,8,9,10,11]** **then L3 should be [1,7,2,8,3,9,4,10,5,11]**	**3**
30.	**a. Match the columns** **1. Phishing a. visual symbol, word, name, design, etc** **2. Cyber crime b.use of digital technology along with the Internet.** **3. Trademark c. fake websites or emails look authentic or Original** **4. Digital Society d. computers are used as a tool to commit crime.** **b. Give one word.** **i. A _____ works on a unique digital ID issued by a Certified Authority (CA) to the user.** **ii. Biometric information, health information, financial information, or other personal documents, images or audios or videos are examples of _____ data.**	**3**

	Section D	
31.	Sumit phones old and inventory shows and wants to maintain the record of his inventory in the form of a dictionary in Python The dictionary should Store item name as the key and its quantity as the value. Write code snippet for the following i) create the dictionary with name inventory containing following items and quantity Item quantity Pencil 50 Notebook 100 Clip 700 ii) To display number of items in the above dictionary iii) Add a new item eraser with quantity 200 iv) to increase the quantity off notebook by 50 v) to display the item with maximum quantity	**5**
32.	Question consider the following string S1= " Azadi ka Amrit Mahotsav" (i) Compare the outputs of statement 1 and statement 2 statement 1 : print(S1[-len(S1[3:8]):-len(S1[-3:-1])].upper()) statement 2 : print(S1[- len(S1[3:8].upper()) :- len(S1[-3:-1].upper())]) (ii) Give the output print(S1.endswith("sav") and S1.startswith("azadi")) (iii) Formulate the code to display five letter words in the string S1.	**5**

33.	**In a leading cybercrime case, the Joint Academic Network (JANET) was hacked by the accused, after which he denied access to the authorized users by changing passwords along with deleting and adding files. Making it look like he was authorized personnel, he made changes in the BSNL computer database in their internet users' accounts. When the CBI carried out investigations after registering a cybercrime case against the accused, they found that the broadband Internet was being used without any authorization. The accused used to hack into the server from various cities like Chennai and Bangalore, amongst others. This investigation was carried out after the Press Information Bureau, Chennai, filed a complaint. In the verdict by the Additional Chief Metropolitan Magistrate, Egmore, Chennai, the accused from Bangalore would be sent to prison for a year and will have to pay a fine of Rs 5,000 under Section 420 IPC and Section 66 of the IT Act. (1+1+1+1+1)** **Referring to the above case, answer the following questions:** **a. Determine the type of hacker in the case.** **b. Is the crime committed by a group or an individual?** **c. Identify how the hacker entered the JANET.** **d. Why did the hacker change passwords, added and deleted files?** **e. What is The Government of India's IT Act, 2000?** **OR** **Rakesh asked his friend Akash to suggest him software for Image editing. Akash asked Rakesh whether he wanted to buy the software or use it freely. Rakesh is not interested in buying. Help Akash to find a solution for his friend by answering the following questions. (1+1+2+1)** **a. State the difference between License and Open Source License.** **b. Name two popular categories of Public Licenses.** **c. Name a FOSS for** **i. Image editing software** **ii. Browser** **d. Explain Software Piracy**	**5**

	Section E	
34.	**a) Rewrite the following code using the while loop:** **for a in range(20,2,-2): # statement1** **if a%2==0:** **print (a*2)** **else:** **print (a*3)** **b) Analyze the number of times the loop will run if statement 1 is replaced by the following statement in above code in (a)** **for a in range (-2,2,20):**	**4**
35.	**a) Rahul is working on a project in which he needs to see the constant pi and trigonometric function tan. Suggest a suitable code in Python to:** **i) import only pi and tan function from appropriate module** **ii) to print value of an expression given below using appropriate import function :** $e^x + 10$ **b) Raman is writing a Python code in which he needs to add values and sublists within a list. His friend has suggested two functions - append and insert. Differentiate between these two functions with an example.**	**4**

Marking Scheme
Computer Science
2022-23

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SECTION A

1.	**b. CU**	**1**
2.	**c. Operating system**	**1**
3.	**c. Flash Drive**	**1**
4.	**c.Utility software**	**1**
5.	**c. s[3] = "R"**	**1**
6.	**d. a=3, b=4**	**1**
7.	**c. for k in [0,1,2,3,4,5]:** **print(k)**	**1**

8.	**a. MTOYOTA**	**1**
9.	**Tue TUE TUE**	**1**
10.	**5**	**1**
11.	**c. Count#**	**1**
12.	**d. Be independent**	**1**
13.	**a. Digital Footprint**	**1**
14.	**a. Copyright Infringement**	**1**

<table>
<tr><td>15.</td><td>b. Ethical- i,iii and Non-Ethical- ii, iv</td><td>1</td></tr>
<tr><td>16.</td><td>Adware,Malvertising

Adware may collect user or browsing information to display customized banners or popup advertisements while the program is running. However, if this data is collected or sold to third parties without the user's knowledge and authorization, it is classified as spyware, also known as malvertising.</td><td>1</td></tr>
<tr><td></td><td>Q17 and 18 are ASSERTION AND REASONING based questions. Make the correct choice as
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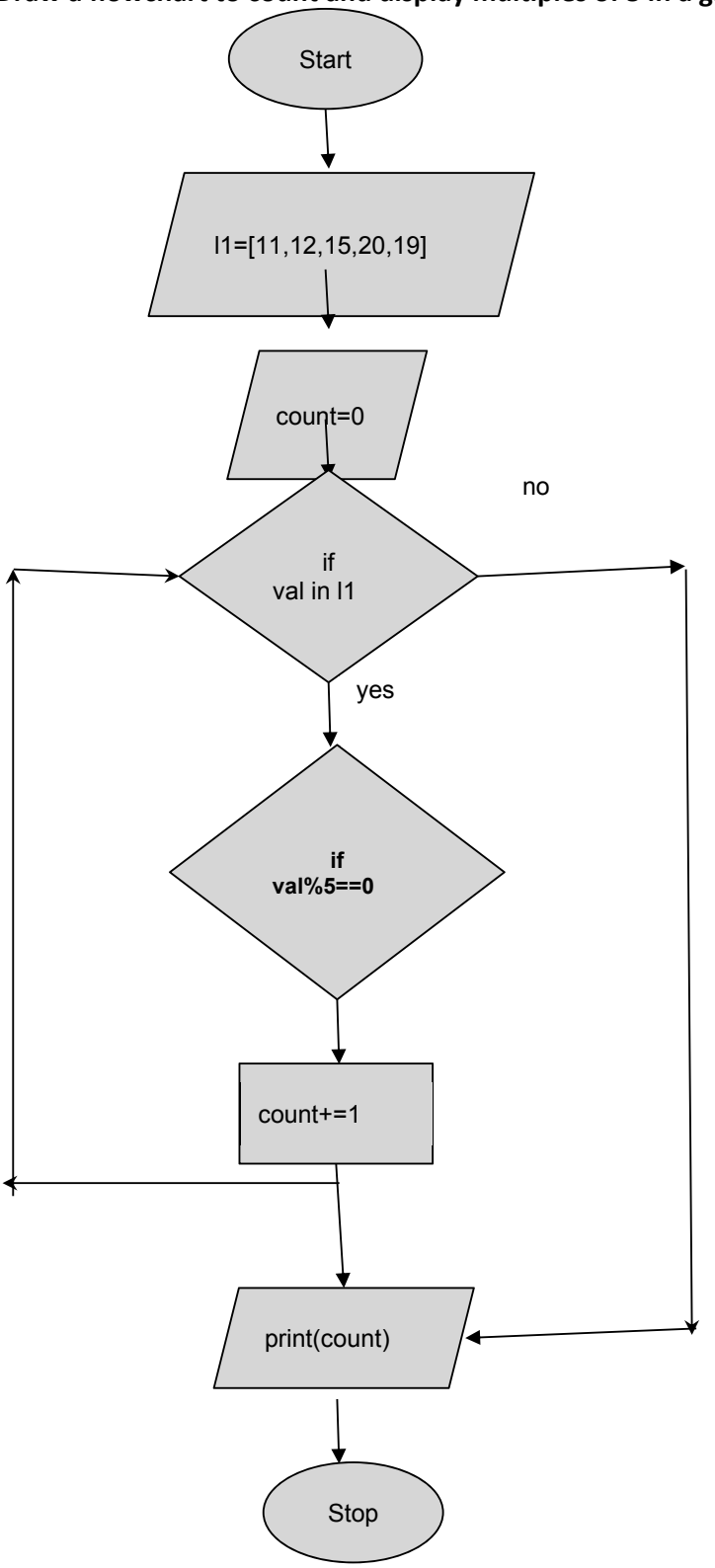
b. Both A and R are true and R is not the correct explanation of A
c. A is True but R is False
d. A is False but R is True</td><td></td></tr>
<tr><td>17.</td><td>c. A is True but R is False</td><td>1</td></tr>
<tr><td>18.</td><td>a. Both A and R are true and R is the correct explanation of A</td><td>1</td></tr>
<tr><td></td><td>SECTION B</td><td></td></tr>
<tr><td>19.</td><td>Akash’s laptop uses Unicode encoding scheme and it incorporates all the characters of every written language of the world irrespective of device, operating system and software application.
Sara’s laptop uses the ASCII encoding scheme that mainly supports characters from the English language.</td><td>2</td></tr>
<tr><td>20.</td><td>i. $(11011.101)_2=(33.5)_8$
ii. $(A73)_{16}=(101001110011)_2$

or
<table><tr><td>Compiler</td><td>Interpreter</td></tr><tr><td>Compiler converts source code into machine code in one go</td><td>Interpreter translates one line at a time instead of the whole program at one go.</td></tr><tr><td>once translated the compiler is not needed</td><td>interpreter is always needed whenever a source code is to be executed.</td></tr></table></td><td>2</td></tr>
<tr><td>21.</td><td>Ans : (AB)’.(A+B’)</td><td>2</td></tr>
</table>

22.	**b) three@four@five@six@** **min value of e = 4 Max value of s = 5**	**2**

23.	**Match the following :** **a(iv) b(iii) c(i) d(ii)**	**2**
24.	**n=int(input('Enter a number'))** **for k in range (2,20):** **print(n/2)** **print('Bye')** **OR** **import random** **s=0** **for i in range(5):** **s=s+random.randint(50,70)** **print (s)**	**2**
25.	**When we continuously look at the screen for watching, typing, chatting or playing games, our eyes are continuously exposed to the glare coming from the screen. This is why increased screen time is a common complaint by the childrens.** **OR** **Cyber Appellate Tribunal has been established to resolve disputes arising from cyber crime, such as tampering with computer source documents, hacking the computer system, using the password of another person, publishing sensitive personal data of others without their consent, etc. OR The act is needed so that people can perform transactions over the Internet through credit cards without fear of misuse. Not only people, the act empowers government departments also to accept filing, creation and storage of official documents in the digital format.**	**2**

	Section C	
26.	**Draw a flowchart to count and display multiples of 5 in a given list of integers.** 	**3**

27.	**WAP to accept a string and replace all occurrences of digits present in the string by '#'.** **st1=input('Enter a string')** **st2=' '** **for i in st1:** **if i in '0123456789':** **st2=st2+'#'** **else:** **st2=st2+i** **print (st2)** **or** **Consider the code given below:** **import string** **name='computer2@myworld3#'** **n=''** **for x in name:** **if x.isalpha():** **n=n+x.upper()** **elif x.isdigit():** **n=n+x** **elif x.isupper():** **n=n+x.lower()** **else:** **print('all the best')** **print(n)** **Answer the following questions based on the code above:** **a. 2 times** **b. COMPUTER2MYWORLD3**	**3**

28.	**n= int(input('Enter number of employees '))** **for i in range(n):** **ns=int(input('Enter sales in region 1'))** **if ns >100000:** **inc = ns*.10** **elif ns >75000 :** **inc = ns*.07** **else:** **inc=ns*0.05** **print (inc)** **or** **amt= int(input('Enter total bill '))** **custnum=int (input('Enter customer number '))** **if amt >=5000:** **netamt=amt- amt*0.2** **elif amt> 1000 :** **netamt=amt- amt*0.1** **elif amt> 500 :** **netamt=amt- amt*0.05** **else:** **netamt=amt** **if custnum%100==0:** **netamt=netamt- netamt*0.02** **print (netamt)**	**½** **½** **½** **1** **½** **½** **1** **½** **½** **½**
29.	**import statistics as s** **L1=[12,14,16,18,20]** **L2=[13,15,17,19,21]** **L3=[]** **for i in range (len(L1)):** **L3.append(L1[i])** **L3.append(L2[i])** **print (L3)**	**3**
30.	**1-c, 2-d, 3-a, 4-b** **b. Give one word.** **i. Digital Signature** **ii. Sensitive data.**	**½+½+½+½** **½+½**

Section D

31.	**i) inventory={'Pencil':5,'Notebook':100,'Clip':700}** **ii) print(len(inventory))** **iii) inventory['Eraser']=200** **iv) inventory['Notebook']=inventory['Notebook']+50** **v) print(max(inventory.items()))**	**5**
32.	**Question consider the following string** **S1= " Azadi ka Amrit Mahotsav"** **(i) statement 1 : OTS** **statement 2 : ots** **(ii) False** **(iii)** **S1= 'Azadi ka Amrit Mahotsav'** **w=S1.split()** **for i in w:** **if len(i)==5:** **print(i)**	**5**
33.	**(1+1+1+1+1)** **a. Non-ethical hacker** **b. individual** **c. When the CBI carried out investigations after registering a cybercrime case against the accused, they found that the broadband Internet was being used without any authorization. The accused used to hack into the server from various cities like Chennai and Bangalore, amongst others.** **d. The attacker changed passwords along with deleting and adding files so that he can blackmail the victim to pay for getting access to the data.** **e. The act provides a legal framework for electronic governance by giving recognition to electronic records and digital signatures. The act outlines cyber crimes and penalties for them.** **OR** **(1+1+2+1)** **a. Licenses are provided by the author by sharing their copyrighted work with others whereas Open Source Licenses does not need special permission from the author.** **b. GPL-General Public License, CC-Creative Common** **c. i. Image editing-GIMP, etc ii. Browser-Netscape Navigator etc** **d. Software Piracy is the unauthorized use or distribution of the software.**	**5**

SECTION E

34. **4**

a)

```
a=20
while a>2:
    if a%2==0:
        print (a*2)
    else:
        print (a*3)
    a-=2
```

b) 1

35. **4**

a)

i) from math import pi,tan

ii) pow(e,10)+10

b)

	append()	insert()
def	adds an item at the end of the list	insert an item at defined index
eg	L1=[‘Hello’,’and’] L2 = ['Good', 'Morning'] L1.append(L2) print(L1) Output: [[‘Hello’,’and’,['Good', ‘Morning']]	L1=[‘Hello’,’and’] L2 = ['Good', 'Morning'] L1.insert(0,L2) print(L1) Output: [['Good', 'Morning'],‘Hello’,’and’]