ZIEL Let's Learn ISO 9001:2015

CLASS-XII: COMPUTER SCIENCE Maximum Marks – 70 Time – 3 Hours

General Instructions:

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

All questions are compulsory.

Section A has 18 questions carrying 1 mark each.

Section B has 7 Very Short Answer type questions carrying 2 marks each.

Section C has 5 Short Answer type questions carrying 3 marks each.

Section D has 3 long Answer type questions carrying 5 marks each.

Section E has 2 questions carrying 4 marks each.

All programming questions are to be answered using Python Language only.

SECTION-A

1. Which of the following is an invalid variable? 1
   My_day_3 (b) 2nd_day (c) Day_two (d) _2
2. Which of the following is a valid keyword in python? 1
   true (b) return (c) none (d) non_local
3. What will be the output of the following python code: 1

```
tp=()
tp1=tp*2
print(len(tp1))
```

   0 (b) 2 (c) 1 (d) Error
4. Consider the given expression: 1
   not((True and False) or True)
   Which of the following will be the correct output if the given expression is evaluated?
   True (b) False (c) None (d) NULL
5. What will be the output of the following python code? 1

```
d1={'a':10,'b':2,'c':3}
str1=""
for a in d1:
    str1=str1+str1(d1[i])+" "
    str2=str1[:-1]
print(sr2[::-11])
```

   3,2 (b) 3,2,10 (c) 3,2,01 (d) Error
6. Which of the following mode keeps the file offset position at the end of the file? 1
   a)r+ (b) r (c) w (d) a
7. What is the value of this expression, 3**3**0 1
   1 (b) 3 (c) 27 (d) 9
8. What will be the output of the following snippet? 1

```
x,y=2,6
x,y=y,x+2
print(x,y)
```

   6 6 (b) 4 4 (c) 4 6 (d) 6 4
9. What will be the following expression be evaluated to in Python? 1
   print(round(200.0/4+(3+2.55),1))
   55.5 (b) 55.0 (c) 55 (d) 55.55
10. The keys of a dictionary must be of _____ types. 1
    Integer (b) mutable (c) immutable (d) any of these
11. Fill in the blank. 1
    _____ is a number of attributes in a relation.
    Tuples (b) Degree (c) Domain (d) Cardinality
12. Which statement will move file pointer 10 bytes backward from current position? 1
    f.seek(-10,0) (b) f.seek(10,0) (c) f.seek(-10.1) (d) None of these
13. Which declaration doesn't use the same number of bytes and consumption of bytes depends on the input data? 1
    Varchar (b) char (c) both char and varchar (d) None of these

Optical fibre cable (b) Radio wave (c) Bluetooth (d) Satellite

15. Which of the following statement(s) would give an error after executing the following code? 1

```
R={'rno':40,'name':'Raj','Subject':['phy','math','cs'],'marks':(85,65,89)} #S1
print(R) #S2
R['subject'][2]='IP' #S3
R['marks'][2]=80 #S4
print(R) #S5
```

S1 (b) S3 (c) S4 (d) S3 and S4

16. _____ is the table constraint used to stop null values to be entered in the field.
Unique (b) Not NULL (c) None (d) Not Empty

17. Assertion (A): CSV file is human readable text file where each line has a number of fields, separated by commas or some other delimiter. 1
Reason (R): writerow() function can be used for writing into writer object.
Both A and R are true and R is the correct explanation of A.
Both A and R are true and R is not the correct explanation of A.
A is true but R is false.
A is false but R is true.
Both A and R are false.

18. Assertion (A): A stack is a LIFO structure. 1
Reason (R): Any new element pushed into the stack always gets positioned at the index after the last existing element in the stack.
Both A and R are true and R is the correct explanation of A.
Both A and R are true and R is not the correct explanation of A.
A is true but R is false.
A is false but R is true.
Both A and R are false.

SECTION-B

19. Shreya has written a Python program to add even numbers of a list. Her code is having errors. Rewrite the correct code and underline the corrections made. 2

```
define sum(numbers):
    total=0
    for x in numbers
    total+=x
returns total
print(sum([4,6,3,5,6])
```

20. Write two points of difference between Star topology and Mesh topology. 2

21. (a) Given is a python string declaration: 2
S="Farnkfin Classes of Air Hostess"
Write the output of : print(s[-26:-10:2])
Write the output of the code given below:

```
>>>a=[10,20,30,40,50,60,70]
>>>a[3:5]=[100,1000]
>>>a[3:5]=[10000]
>>>print(a)
```

22. What is the difference between 'Primary key' and 'Foreign Key'? Can a table have multiple Primary keys or Foreign keys? 2

23. Expand the following terms: 2
XML (b) ISP (c) WLL (d) GSM

24. Write the output of the given code: 2

```
def display(l):
    L2=[]
    for n in l:
        if n%3==0:
            L2.append(n)
    return L2
print(display([100,228,333,432,509,60,787,800,967]))
```

OR

Predict the output of the python code given below:

```
t1=(10,20,"Table",30,9.5,"Cost",[12,13],(3,4),30,5,30)
print(t1.index(20))
print(t1.index(30))
print(t1.count(30))
print(t1[-8:-4])
```

25. Write two commands each of DDL and DML commands in SQL. 2

SECTION-C

26. (a) Consider the following tables-CARDEN and CUSTOMER: 1+2

Table: CARDEN

Code	CarName	Charges
501	A-Star	18
503	Indigo	16
502	Innova	15
509	SX4	14

Table: CUSTOMER

Code	CarName
1001	Hemant Sahu
1002	Raj Lal
1003	Feroza Shah
1004	Ketan Dhar

What will be the output of the following statement?

SELECT * FROM CARDEN,CUSTOMER;

Write the output of the queries (i) to (iv) based on the table, STOCK given below:

Table: STOCK

ItemNo	Item	Dcode	Qty	UnitPrice	StockDate
5005	Ball Pen 0.5	102	100	16	2010-03-31
5003	Ball Pen 0.25	102	150	20	2010-01-01
5002	Gel Pen Premium	101	125	14	2010-02-14
5006	Gel Pen Classic	101	200	22	2009-01-01
5001	Eraser Small	102	210	5	2009-03-19
5004	Eraser Big	102	60	10	2009-12-12
5009	Sharpener Classic	103	160	8	2009-01-23

Table: DEALERS

Dcode	Dname
101	Reliable Stationers
103	Classic Plastic
102	Clear Deals

SELECT Dcode, MAX(UnitPrice) FROM STOCK GROUP BY Dcode;

SELECT COUNT(DISTINCT Dcode) from STOCK;

SELECT Qty*UnitPrice FROM STOCK WHERE ItemNo=5006;

SELECT MIN(StockDate) FROM STOCK;

27. Write a user define function count_lines() in python that counts the number of lines starting with vowels in the file "poem.txt". Example, if the file contains: 3

Twinkle Twinkle Little Star
How I Wonder , What you are
Up above the world so high
Like a Diamond in the sky.

The line count should be 1.

28. (a) Write the output of the queries ((a) to (d)) based on the table Furniture given below: 2+1

Table: Furniture

ID	F_TYPE	Date_Purchase	Cost	Discount
B001	Double Bed	03-Jan 2018	45000	15
T010	Dining Table	10-Mar-2020	51000	10
B004	Single Bed	19-Jul-2021	22000	5
C003	Long Back Chair	30-Dec-2016	12000	7
T006	Console Table	17-Nov-2019	15000	10
B006	Bunk Bed	01-Jan-2021	28000	15

Select Sum(Discount) from Furniture where cost>15000;
Select Max(Date_Purchase) from Furniture;
Select * from Furniture where Discount>5 and ID Like “T%”;
Select Date_Purchase from Furniture where F_TYPE in (“Dining Table”, “Console Table”)

(b) Which command is used to view the list of tables in a database?

29. Write a function ABCReplace() in Python, Which accepts a list L of numbers. Thereafter, it increments all odd numbers by 1 and decrements all even numbers by 3. 3

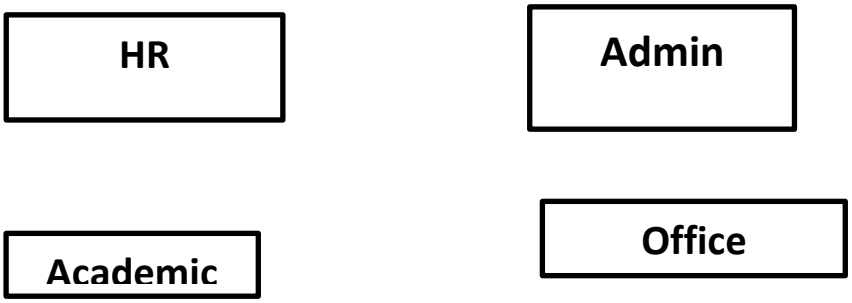
Example:
If sample Input data of the list is:
L=[20,30,40,35,53,10]
Output will be:
L=[17,27,37,36,54,7]

30. Write a program to implement a Stack for Travel_details(Traveller name:Fare) where Traveller name is a key and fare is value. Write a function in python, Push(Traveller_details) where Traveller _details is a dictionary containing the details of Travel-{ Traveller name:Fare }. The function should push the names of those Travellers name in the stack which have fare greater than 4000. Also display the count of Travellers into the stack. 3

For example: If the dictionary contains the following data:
books={“Axar”:5600,”Jugal”:4500,”Vinit”:3300,”Walter”:7250}
The stack should contain Python and Web Development.
The output should be: The count of travellers in the stack is 3.

SECTION-D

31. University of Correspondence in Sikandrabad is setting up the network between its different wings (units). There are four wings named as HR,Admin,Academic,Office. 5



Distance between various wings
HR to Office 100 m
HR to Academic 200 m
HR to Office 400 m
Admin to Academic 300 m
Admin to Office 100 m
Academic to Office 450 m
Number of Computers in each wing
HR 150
Admin 10

Academic 5
Office 50
(a) Suggest the suitable topology and draw the cable layout to efficiently connect various blocks / wings of network.
(b) Where should the server be housed ? justify your answer.
(c) What kind of network (LAN/MAN/WAN) will be formed?
(d) Suggest the fast and very effective wired communication medium to connect another sub office at Kanpur, 670 km far apart from above network.
(e) Suggest the placement of the following devices in the network.
i. Hub/ Switch ii. Repeater

32. (a) Find and write the output of the following Python code: 2+3

```
def Display(kr):
  m=""
  for i in range(0,len(kr)):
   if(kr[i].isupper()):
      m=m+str[i]+'*'
   elif kr[i].islower():
      m=m+'@'
   elif kr[i]==' ' :
      m=m+'#'
 print(m)
Display('Animal King')
```

(b) The code given below inserts the following record in the table Game:
GNo – integer
GName – string
NoofGames– int
Score – integer
Note the following to establish connectivity between Python and MYSQL:
a. Username is root
b. Password is game
c. The table exists in a MYSQL database named Sports
d. The details (Gno,GName,NoofGames,Score) are to be accepted from the user.
Write the following missing statements to complete the code:
(a)Statement 1 – to form the cursor object
(b)Statement 2 – to execute the command that inserts the record in the table Game.
(c) Statement 3- to add the record permanently in the database

```
import mysql.connector as mysql
def sql_data():
  con=mysql.connect(host="localhost",user="root",
  password="sport", database="Sportsl")
  mycur=_____ #Statement 1
  pno=int(input("Enter Game Number :: "))
  name=input("Enter Game name :: ")
  noofgames=int(input("Enter no of games :: "))
  goals=int(input("Score :: "))
  querry="insert into player  values({},'{}',{},{})".format(GNo,Gname,noofgames,Score)
  _____ #Statement 2

  _____ # Statement 3
  print("Data Added successfully")
```

33. a) Mention the advantage of csv files. 5
b) Write the functions to perform the required operations on csv files and call the functions appropriately.
Newgadget() to add the details of new gadgets in csv file gadget.csv which stores records in the format.Deviceno,name,price,brand Get the input from the user.
Countgadget() to read the csv file 'gadget.csv' and count the devices whose brand is "Samsung"

OR

a) Is CSV file a text file?
b) Write the functions to perform the required operations on csv files and call the functions appropriately.
Namelist() to add the participants for Music competition in a csv file “music.csv” where each record has the format Name,class,age
Display() to read the csv file ‘music.csv’ and display the participants under 15 years of age

SECTION-E

34. In a database Student, there are two tables given below: 4

STUDENTS

RNO	NAME	CLASS	SEC	ADDRESS	ADMNO	PHONE
1	Amina	12	D	A-26	1211	3245678
2	Kamla	12	A	NULL	1213	NULL
3	Krish	10	B	AB-234	1214	4567890
4	Suman	11	C	ZW12	1215	4345677

SPORTS

ADMNO	GAME	COACHNAME	GRADE
1215	CRICKET	AMRIT	A
1213	VOLLEYBALL	AAKARSH	B
1211	VOLLEYBALL	GOPAL	A
1214	BASKETBALL	TEJAS	B

Based on the given information answer the questions which follows,
(i) Identify the attribute used may be used as candidate keys and primary key, foreign key.
(ii) What is the degree of the table sports?
(iii) Write SQL statements to perform the following operations
To display the name and game played by sports students
To change the address and phone number of “Kamla ” to B 54, 8864113
(OR only to subpart iii)
iii) a) To make the field class in table STUDENTS mandatory while inserting data
b) To delete the game CRICKET from SPORTS TABLE.

35. Aman is a Python programmer. He has written a code and created a binary file employee.dat with employeeid, ename and salary. The file contains 10 records. 4
He now has to update a record based on the employee id entered by the user and update the salary. The updated record is then to be written in the file temp.dat. The records which are not to be updated also have to be written to the file temp.dat. If the employee id is not found, an appropriate message should to be displayed.
As a Python expert, help him to complete the following code based on the requirement given above:

```
import _______ #Statement 1
def update_data():
  rec={}
  fin=open("employee.dat","rb")
  fout=open("_______________") #Statement 2
  found=False
  eid=int(input("employee id to update their salary :: "))
  while True:
    try:
        rec=_______________ #Statement 3
        if rec["Employee id"]==eid:
            found=True
            rec["Salary"]=int(input("Enter new salary :: "))
            pickle._____________ #Statement 4
        else:
            pickle.dump(rec,fout)
except:
        break
    if found==True:
        print("The salary of employee id
        ",eid," has been updated.")
    else:
        print("No employee with such id
        is not found")
fin.close()
fout.close()
```

(i) Which module should be imported in the program? (Statement 1)
(ii) Write the correct statement required to open a temporary file named temp.dat. (Statement 2)
(iii) Which statement should Aman fill in Statement 3 to read the data from the binary file, record.dat and in Statement 4 to write the updated data in the file, temp.dat?