Time: 3 Hours
Maximum Marks: 70

COMPUTER SCIENCE

CBSE

Sample Question Paper

Solution of Question Paper (2020)

SECTION-A

Answer 1.

- (a) (i) random
 - (ii) math
- (b) The loop does not terminate since i is never an even number.
- (c) NameError: name 'a' is not defined

$$T = ['a', 'b', 'c']$$

(d) 52

arjun.age = 50

arjun.dict has 2 attributes so length of it is 2. So total = 52.

(e) BACKRIGHT

only (iv) is not possible.

(i), (ii) and (iii) are possible

Maximum value of NUM = 3

Minimum value of NUM = 1.

Answering Tip

- *Syntax of randint, randint(start, end)*
- **(f) (i)** The given loop is infinite loop as the value of a is not changing. There can be lots of possible corrections, one is given below:

```
a = 10
while (a < 100):
print (a)
a + = 10
print ("Over!")
```

(ii) The given code is wrong as value of x is not initialized. There can be lots of possible corrections, one is given below:

```
while x < 10:

print (x)

x = x+2

(iii) for p in range (3):

for q in range (3):

print (p *q)

else:
```

print ("Outer Loop Ends")



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- (g) (i) find()
 - (ii) index()
 - (iii) isalpha()
 - (iv) len()

Answer 2.

- (a) We can use the lambda keyword to create small anonymous functions.
- **(b) (i)** f1 = open("BOOK.TXT", 'r')
 - (ii) f2 = open ("BOOK.TXT", 'w')
- (c) While importing packages Python looks in the list of directories defined in sys.path. The search is in this order-
 - Current directory
 - PYTHONPATH
 - The installation dependent default directory.
- (d) (i) show() is used to show the plotted chart on screen.
 - (ii) title() is used to give title to our chart.
- (e) (i) legend() is used to display legends for our chart.
 - (ii) xlim() is used to set the left and right limit for x axis.
- (f) An array is defined as a set of contiguous data of similar data type.

Python lists are actually arrays of variable length. The elements of a list are of heterogeneous types which means they are of different data types.

(g)

			/			
		4	4		+	
	8	8	8	2	2	
28	28	28	28	28	28	30

Result: 30

OR

Applications of queue in computer are

- (i) In a single processor multitasking computer, job(s) wait to be processed form a queue. Some happens when we share a printer with many computers.
- (ii) Compiling a HLL code.
- (iii) Using download manager, for multiple files also uses queue for ordering the files.
- (iv) In multiuser operating system job scheduling is done through queue.
- **(h)** x = int (input ("Enter first number"))

```
y = int (input ("Enter second number"))
```

if (x % y == 0):

print (x, "is divisible by", y)

else:

print (x, "is not divisible by", y)

Output

Enter first number 15

Enter second number 5

15 is divisible by 5

OR

def main ():

import math

r = float(input("enter any radius : "))



(j)

Solutions 3

```
a = \text{math.pi*math.pow}(r, 2)
        print ("Area = ", a)
   main ()
(i) def binfile():
        import pickle # line 1
        file=open('data.dat','wb') # line 2
        while true:
               x=int(raw_input("Enter number")) # line 3
               pickle.dump(x,file) # line 4
               ans=input('want to enter more data Y / N')
               if ans.upper() = = 'N': break
        file.close() # line 5
        print ("Reading from file")
        file = open('data.dat','rb') # line 6
        try:# line 7
               while True:# line 8
                  y=pickle.load(file) # line 9
                  print y # line 10
        except EOFError:# line 11
               pass
        file.close()
   binfile()
   Code using for loop
   for i in range (10, 52, 8):
        print(i)
   print("Thank you")
   Output
   10
   18
   26
   34
   42
   50
   Thank you
```

S.N.	run ()	timeit ()		
1.	It belongs to cProfile module.	It belongs to timeit module.		
2.	module function uses the introspection to	The timeit() function first executes the constructor's, second argument to set things up ie. test and the variables that are passed as input data.		
3.	There is no explicit print() statement since by default the cProfile.run() function prints its output on the console.	1		
4.	We must put the number of repeats inside the code we pass to the cProfile.run () function.	, , , , , , , , , , , , , , , , , , ,		



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5. When using the cProfile module from the command line we cannot specify exactly what we want to be executed. It executes the given program or code and reports timing of everything.

In timeit(), we can specify a particular function to be times.

OR

```
fname = "C: \Oswal \Python 3 \story.txt"
try:
    file = open(fname,'r')
    lines=file.readlines()
    for line in lines:
    print line
file.close()
#Appending
file=open(fname,'a')
line=raw_input("Enter line to be appended")
file.write('/n')
file.write(line)
file.close()
count=0
file=open(fname,'r')
lines=file.readlines()
for line in lines:
    count = count + 1
    print count,"\t",line
file.close()
file=open(fname,'r')
lines=file.readlines()
num=len(lines)
count=0
user=input("Enter line number to be displayed")
for line in lines:
    count=count +1
    if count = = 1:
           print "First line from 10th character is-", line[10:]
if count = = num:
    print "Last line is", line
if count==user:
    print count,'\t',line
file.close()
except:
    print "File Not Found"
```

SECTION-B

Answer 3.

- (a) Router
- (b) Optical Fibre
- (c) LAN (Local Area Network)
- (d) Django



Solutions 5

- (e) (i) VoIP: Voice over Internet Protocol
 - (ii) SMTP: Simple Mail Transfer Protocol
 - (iii) TCP/IP: Transmission Control Protocol/Internet Protocol
 - (iv) LAN: Local Area Network
- **(f)** Switching is a process to forward packets coming in from one port to a port leading towards the destination.

In circuit switching a dedicated path exists from source to destination while in packet switching, there is no fixed path.

(g)	4G	3G		
	(i) 4G networks have a higher data transfer rate	(i) 3G networks have a lower data transfer rate		
	up to 100 Mbps.	up to 2 Mbps.		
	(ii) 4G frequency band is from 2-8 GHz	(ii) 3G frequency band is from 1.8-2.5 GHz.		

- (h) (i) Bus Topology
 - (ii) Wing Senior is the best place to make as a server because it includes maximum number of computers.

Answering Tip

• All admin activities are made from server.

Topology is the Geo-graphical structure of the network.

- (iii) Wing Admin and Wing Senior are the suitable places where hub/switch can be placed.
- (iv) Repeaters should be installed in Wing Admin and Wing Senior.

SECTION-C

Answer 4.

- (a) A primary key is a combination of fields which uniquely specify a row.
- (b) LIKE operator is used for pattern matching, and it can be used as -.
 - (i) % Matches zero or more characters.
 - (ii) _(Underscore) → Matching exactly one character.

Answering Tip

- LIKE operator is used for pattern matching.
- (c) SELECT * FROM Table name WHERE EmpName like 'P%';
- (d) Table are collection of record. These are in rows and columns format.
- **(e)** To create tables in Django they have to be first installed. For this in _ settings.py_file of the app's directory we need to modify the INSTALLED_APPS and MIDDLEWARE_CLASSES section.Now to create table give the following command- manage.py syncdb <table-name>.

OR

Client/Server architecture is a computing model in which the server hosts, delivers and managers most of the resources and services to be consumed by the client. This type of architecture has one or more client computers connected to a central server over a network or internet connection. This system shares computing resources.

Client/server architecture is also known as a networking computing model or client/server network because all the requests and services are delivered over a network.

(f) BETWEEN: Used to display rows based on a range of values in a row.

IN: Used to check for values contained in a specific set of values.

(g) (i) MAX (EXPERIENCE)

(iii) CODE

16

1045

1215



6

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(ii) TEACHER Umesh

Yashraj

(iv) TEACHER

Ganan

(h) (i) SELECT * FROM TRANSACTION WHERE TYPE = "Credit";

Answering Tip

- String value should be used in inverted comma "
 - (ii) SELECT CNO, AMOUNT FROM TRANSACTION WHERE DOT BETWEEN '2017-09-01' AND '2017-09-30';
 - (iii) SELECT MAX (DOT) FROM TRANSACTION WHERE CNO="103";
 - (iv) SELECT CNO, CNAME, DOT FROM CUSTOMER.C, TRANSACTION T WHERE C.CNO=T. CNO AND Sum(AMOUNT)>=2000 GROUP BY T.CNO;

SECTION-D

Answer 5.

- (a) (i) Digital Rights Management
 - (ii) General Public Licenses.
- **(b) (i)** Lack of privacy
 - (ii) Depression
- (c) Government passed the first law on e-waste management in 2011, based on EPR which puts the producer responsible for the management of final stages of life of their product. This law was amended to set collection targets for the producer.
- (d) Cultural and social attributes are often unfavourable to women's participation in the field of science and technology, which limits their opportunities in the area of ICT.
- (e) Ferrous & Non-ferrous Metals, Plastics, Glass, Wood etc.

Affecting Environment

- (i) Air pollution due to burning e-waste.
- (ii) Heavy metals make the water toxic and unusable.
- (iii) When the soil is contaminated by heavy metals via e-waste the crops, and the food they provide, are also contaminated.
- (f) (i) Practice safe mail protocol like SMTPS.
 - (ii) Do not provide personal information to any unsolicited requests for information.
 - (iii) Use varied and complex passwords for all of your accounts.
 - (iv) Continually check the accuracy of personal documents and deal with any discrepancies right away.

