

6. What will this code print? The data in this scenario is 2020-05-03 11:12:30
`time = datetime.now ()`
`printtime.year`
 (A) 2020-05-03 (B) 11:20:30
 (C) 2020-05-03 11:20:30 (D) 2020
7. Recall the format for add the button widget to the GUI application.
 (A) `button = tk.Button (text = 'click', width = 10)` (B) `button = tk.Button (root, text = 'click', width = 10)`
 (C) `tk.Button (root, text = 'click', width = 10)` (D) `button.pack ()`
8. Check whether the following syntax is correct or not. Find the suitable answer.
`def add (* * att)`
 (A) Partially correct (B) Partially wrong
 (C) It matches and collects remaining keyword arguments in dictionary (D) Fully wrong
9. $\forall x, y$: is father (x, y) or mother (x, y) then parent (x, y).
 Based on the fact given, which of the following is false?
 (A) $\text{Parent}(x, y) \subset \text{mother}(x, y)$ (B) $\text{Parent}(x, y) \subset \text{father}(x, y)$
 (C) $\text{Parent}(x, y) \subset \text{mother}(x, y) \mid \&\& \text{father}(x, y)$ (D) $\text{Parent}(x, y) \subset \text{mother}(x, y) \mid \text{father}(x, y)$
10. Consider the following output, what is the correct syntax for creating field "submit" in the above window?
 (A) `Parent = TK () submit = Button (parent, text = "submit"). grid (row = 0, column = 0)` (B) `Parent = TK () submit = Button (parent, command = "submit"). grid (row = 0, column = 0)`
 (C) `Parent = TK () submit = Button (parent, text = "submit"). grid (row = 2, column = 0)` (D) `Parent = TK () submit = Button (parent, command = "submit")`
11. A thread is also known as
 (A) Process (B) Heavy weight process
 (C) Light weight process (D) A computer program
12. For synchronizing thread, which syntax is correct to release lock
 (A) `threadLock.release ()` (B) `release ()`
 (C) `thread_id.release ()` (D) `th_release ()`
13. Consider the below given code and guess what value will X return in this code
`>>> from multiprocessing import pool`
`>>> P = pool (5)`
`>>> def f(x):`
`>>> return x &&`
 (A) Square of given value (B) Cube of given value
 (C) Return the value of parameter (D) Return the value of x^x

14. Suppose list1 is [3, 4, 5, 20, 5, 25, 1, 3], what is list1 after list1.pop(1)? 1 1 4 1
 (A) [3, 4, 5, 20, 5, 25, 1, 3] (B) [1, 3, 3, 4, 5, 5, 20, 25]
 (C) [3, 5, 20, 5, 25, 1, 3] (D) [1, 3, 4, 5, 20, 5, 25]
15. What is the output printed of the below code snippets? Assume appropriate imports and previous steps are done. 1 1 4 1

```
tpl = srver_sock.accept ()
print (tpl [1] [0])
```

 (A) Socket object (B) Server IP and port
 (C) Client IP and port (D) Client IP
16. "C, a = S.accept ()". What will be the value of "a" variable? 1 1 4 1
 (A) Client address (B) Server address
 (C) Host name (D) IPv4 address
17. Constructor that can be used for creating a datagram socket that binds to a given port number is? 1 1 4 2
 (A) Datagram socket (int port) (B) Datagram socket ()
 (C) Datagram socket (int port, int address) (D) Datagram socket (int address)
18. Inorder to access the methods of parent class which is over ridden in a child class that inherits it, what method is used? 1 1 1 1
 (A) super () (B) override ()
 (C) thin () (D) init ()
19. Predict the output of the following map, reduce and filter. 1 1 5 1

```
a.x = [12, 34]
print (len (list (map (len, x))))
```

 (A) 2 (B) 1
 (C) 0 (D) Error
20. Output of the following program is: 1 1 5 2

```
import sympy as sym
exp = sym.Rational (3, 12)
sym.solve (Y && 4, -1, Y)
```

 (A) {-1, 1, i, -i} (B) {-1, 1, -i, i}
 (C) {-i, i, -1, 1} (D) {-1, i, -i, 1}

PART – B (5 × 4 = 20 Marks)

Answer ANY FIVE Questions

Marks BL CO PO

21. Write a python program to reverse the digits of a given number and add it to the original, if the sum is not a palindrome repeat this procedure. (Condition: functions with arguments with return values) 4 2 1 2
22. How to ensure data security inside a code block? Illustrate with suitable examples. 4 2 1 2
23. What is the role of event handler in GUI programmer? Write a code snippet to handle button event. 4 2 2 2

- | | | | | |
|---|---|---|---|---|
| 24. Differentiate declarative and imperative statements with suitable illustrations. | 4 | 2 | 2 | 2 |
| 25. Given two trending topics and a bunch of tweets, write a python program to count the number of tweets that contain each topic. You need to do this by putting together map(), reduce() and filter() functions. | 4 | 2 | 3 | 1 |
| 26. Differentiate SOCK_STREAM and SOCK_DGRAM in network programming. | 4 | 2 | 4 | 2 |
| 27. Construct DFA for the following conditions. Let $\Sigma = \{0,1\}$, give DFA's for $\{\}$, $\{\varepsilon\}$, Σ^* and Σ^+ . | 4 | 2 | 5 | 2 |

PART – C (5 × 12 = 60 Marks)
Answer ALL Questions

Marks BL CO PO

- | | | | | |
|---|----|---|---|---|
| 28. a. Explain Bohm-Jacopini's structured program theorem with its components. | 12 | 2 | 1 | 2 |
| (OR) | | | | |
| b. Write a python program to get square and cube of a number using inheritance concept. | 12 | 2 | 1 | 2 |
| 29. a. Using GUI and event write a code for the below tkinter window. | 12 | 3 | 2 | 3 |

- | | | | | |
|---|----|---|---|---|
| (OR) | | | | |
| b. Create an application for a garment shop that stores and retrieves vendor information from a database using python using SQLite. | 12 | 3 | 2 | 3 |
| 30. a. Write a multithreaded application where thread-1 process the given list and print the odd numbers and thread-2 implement the logic to print the palindrome numbers between 1 to 200. | 12 | 3 | 3 | 2 |
| (OR) | | | | |
| b. Write a socket based program server-client you simulate a simple chat application where the server is multithreaded which can serve for multiple clients at the same time. | 12 | 2 | 3 | 2 |
| 31. a.i. Write a program to check prime numbers in python logic programming. | 4 | 3 | 4 | 3 |

ii. Encode the following facts and rules in py datalog:

8 3 4 3

Bear is big
Elephant is big
Cat is small
Bear is brown
Cat is black
Elephant is grey
An animal is dark if its black
An animal is dark if it is brown

- Write a python using py Datalog to find which animal is dark and big
- Write a python query using py Datalog to find which animal is big and grey
- Write a python query using py Datalog to find which animal is small and black
- Write a python query using py Datalog to find which animal is black
- Write a python query using py Datalog to find which animal is brown

(OR)

b.i. Illustrate higher-order function and pure function with eg.

5 3 4 3

ii. Demonstrate mutable and immutable variables.

3 3 4 3

iii. Give an example using recursion.

4 3 4 3

32. a. Write a python sympy program to solve the following

3 5 3

(i) Differentiate $f(x) + \frac{d^2}{dx^2} f(x)$

3

(ii) Solve $f(x) = c_1 \sin(x) + c_2 \cos(x)$

3

(iii) Find the value of z , $z = (x + y) + (x - y)$

3

(iv) Find the output of the following

3

`sym.diff (sym.sin(2*x), x(2))`

(OR)

b.i. Write a automata code for the language that accepts all and only those strings that contain 001.

6 3 5 3

ii. Write a automata code for $L(M) = \{w / w \text{ has an even number of } 1s\}$.

6 3 5 3

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