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B.Tech. DEGREE EXAMINATION, DECEMBER 2022

Fifth Semester

18ECE201J - PYTHON AND SCIENTIFIC PYTHON

(For the candidates admitted from the academic year 2020-2021 to 2021-2022)

Note:

- (i) Part A should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- (ii) Part B should be answered in answer booklet.

2½ Ho	ours			Ma	x. 1	Mai	rks:	75
	PART – A (25	\times 1 = 25 Marks)		Mar	ks	BL	со	PO
	Answer AI	L Questions						
1. Fol	lowing construct is used to u	ilize a loop to rui	n over two lists	1		1	1	3
(A)	Range	(B) Zip						
(C)	Append	(D) Join						
2. Py	thon uses a compact construc	for generating li	sts from a 'for' loop	1		1	1	5
) Composition	(B) Conca						
(C) Comprehension	(D) Diction	nary					
	print an integer with a field	f width of 6 char	acters is achieved by	1		1	1	5
(A) % 6f	(B) %6i						
(C	%6d	(D) % g						
	hat will be the output of folloteractive mode? 16%3	wing expression	if it is executed in pyth	non 1		2	1	2
(A	3) 5	(B) 1						
(C	c) 0 -	(D) 7						
5. A	variable defined outside a fur	ction is referred	to as	1		1	1	2
(A	Local variable	(B) Only	variable					
(0	C) Global variable	(D) Outsi	de variable					
	the following code snipp presents	et X_2 = linespo	ace(0,5,7), the number	r 7 1		1	2	1
(A	Maximum value	(B) Data	type in number					
((C) Number of divisions	(D) Line	colour					
7. C	hoose the valid plotting librar	y in python		1		1	2	1
(/	A) Humpy	(B) Grac	e					
	C) Open VFX	(D) Gun	plot .					
	ollowing problem cannot be				1	1	2	1
Frank Contract	A) Growth of population Area of a circle	(B) Fact						
	A Tea OF a CIFCIE	IIII Pav	THE OF LOAD					

9.	Wha	t will be the output of round (4.5	76)?		1	2	2		1
	(A)	4.5	(B)	4					
	(C)	5	(D)	4.6					
10.			o' in	the command plot (t, y1, 'bo') is	1	2	2		5
	(A)	Redline	(B)	Black dot					
	(C)	Brown stripe	(D)	Blue line					
11.		the result of following code snip	pet		1	2	3	Cauli .	5
		Delhi is Hot'							
		wer ()							
		Delhi is Hot		DELHI IS HOT					
	(C)	delhi is hot	(D)	Delhi is hot					
12	Dict	ionary holds a pair. They are			1	1	3	5	
12.		Index and key	(B)	Key and value					
		Key and lock		Range and index					
	(0)	recy and lock	(D)	Range and index					
13.	For	reading data from web page the for	ollow	ing module is used	1	1	3	5	
	(A)			math					
	(C)	urllib		weblib					
14.		at does random.shuffle (x) do whe			1	2	3	5	
		Error		Do nothing					
	(C)		(D)	Place the elements in order					
		in place							
15	Who	at will be output of the following	nytho	on code sninnet?	1	2	3	5	
13.		$d = \{ \text{"john"} : 30, \text{"peter"} : 60 \}$	pyuic	in code snippet:					
		d["john"]							
	(A)		(B)	60					
		"john"		"peter"					
	(-)								
16.	Cho	ose the non valid application of ra	andor	n walk	1	1	4	1	
	(A)	Population genetics		Quantum mechanics					
	(C)	Trajectory estimation of a ball	(D)	Molecular motion					
17.			gen	erates integer random number	1	1	4		5
		een 9 to 11.							
_		random.rand(9,11)		random.randint (9,11)					
	(C)	Rand.randfloat(9,12)	(D)	Random. Randstr(9,12)					
18.		rd party library that is used to we			1	1	4	-	5
	(A)			numpy					
	(C)	rand	(D)	sys					
	TI	11: ()							
		eadlines() method returns			1	2	2	4	5
	(A)		(B)						
	(C)	A list of single characters	(D)	A list of integers	N. L.				

20.	what is the range of values t	hat {random.random ()} can return?	d		2	5 5
	(A) (0.0, 10.0)	(B) (0,100)				
	(C) (0,50)	(D) (0,1.0)				
21	Numpy library is written in					
	(A) MATLAB		1		1	5 1
	(C) C, python and C++	(B) Python ++				
	(c) c, python and c++	(D) Assembly language				
22.	Linear algebra module is ava	nilable in library.	1			5 5
	(A) Grace	(B) Numpy				
	(C) Linalg	(D) Matplot				
23.	Plotting a histogram in pytho	on is carried out by using a library named	1	1	5	5
	(A) random	(B) matplotlib				
	(C) seiplot	(D) plyplot				
24	How to identify the last num	har of siven	1	2	5	5
2	num=np.array([5,10,15,20])	ber of given numpy array?		-	,	,
	(A) num[4]	(B) num[-2]				
	(C) num[3]	(D) num[0]				
25.	The expected value or	of a random variable is the center of its	1	2	5	1
	distribution.					
	(A) Mode	(B) Median				
	(C) Mean	(D) Average				
		$(5 \times 10 = 50 \text{ Marks})$	Marks	BL	со	PO
	Answer	ALL Questions				
26 a	Wite a function to comp	ute following expression $y = mx + 0.783gt^3$,	10	3	1	1
20. a.		es, 'g' is a constant with a value 9.81. Write a				
		line arguments to get input, give necessary				
	explanation.	and arguments to get input, give necessary				
		(OR)		-		
b.i.	Create a Farenheit temperatu	are list that has a range from -20 to 40 in the	,	3	1	5
		or' loop find the corresponding centigrade list				
	using Farenheit list as input.					
ii	Create a table that contains	both Farenheit and Celcius list as columns.	5	3	1	5
11.	Another table contains Faenl	neit and Celcius list as rows. Give necessary				
	diagram and explain. Let Γ =	=[35, 40, 45, 50, 55] and C – [1.67, 3.8, 6.6,				
	9.4, 12.8].					
27 ai	Develop a goda for the follo	owing expression $X = t^3 \cdot e^{-t}$. Use necessary	7	4	2	2
27. a.i.	library and commands to draw	w a plot for the expression. Add label at x , y				
	axis, give legend and title.	a proceed the capterston. And label at X, y				
			2		-	
ii.	Justify the usage of Easyviz d		3	4	2	2
		(OR)				

b.i.	Develop a code for finding factorial using difference equation.	A	4	2	
	Create a program to play a note with 440 Hz in python.	6	4	2	7
	A file contains monthly rainfall data (month name and rainfall in mm) in the year 1984. Write a program to find average and total rainfall. Plot the rainfall as a graph. Give necessary description for the program.	8	3	3	
ii.	Compare list and dictionary.	2	3	3	5
	(OR)				
b.	Discuss following string manipulation operations with necessary examples.	4	1	1	,
	(i) Split	4	3 3	3	i
	(ii) Strip off white space (leading and trailing)(iii) Join the substring	3			1
29. a.	Write a code to demonstrate Monte Carlo simulation. Explain the principle of Monte Carlo simulation.	10	3	4	1
b	(OR) Compute the statics of a possible position by Python language. Plot the particle position. Provide necessary explanation.	10	3	4	1
30. a	Discus the statistical methods available in numpy with necessary code snippets.	10	3	5	5
	(OR)				
b.i	Write a code to solve following expression $f(t) = 2\sin(10\pi t) + \sin(200\pi t)$ add noise with $f(t)$. Plot it.	6	3	5	2
ii	Find the FFT for $f(t)$ with noise. Plot the real and imaginary part of FFT signals. Let $f(t)=4\sin(20\pi t)$.	4	3	5	2

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