Software Engineering

Part-B: 20 marks भाग-बः 20 अंक

Part B has 04 questions (with a limit of 150 words) of 10 marks from each unit. The candidate is required to attempt any 02 questions.

प्रश्न पत्र के भाग ब में 10 अंक के 04 प्रश्न (156-शब्दों की सीमा के साथ) है। परीक्षार्थी के। कोई भी 02 प्रश्न हल करने हैं।

Part-C: 80 marks भाग-सः 80 अंक

Part C of the question paper is divided into four units comprising question numbers 6-9. There is one descriptive question from each unit with internal choice. Each question will carry 20 marks.

प्रश्न पत्र के भाग **स** को प्रश्न संख्या 6-9 सहित चार इकाइयों में विभाजित है। प्रत्येक इकाई से आंतरिक विकल्प के साथ एक वर्णनात्मक प्रश्न है। प्रत्येक प्रश्न 20 अंक का है।

Part-A

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1. (a) Define software.

[2×10]

- (b) What is software component?
- (c) Write any two ways of Requirement Identification?
- (d) COCOMO stands for-

(e) What is on size estimation?

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- (f) What do you mean by abstraction?
- (g) Explain functional independence.
- (h) What is Unit Testing?

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(i) [Define software safe	ety.	edean a High	outstan La	alahadaa radaa	of Out of
	A language					
(i) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	What is the longest	phase in sorty	vare developme	ent life cycle?	in Mary a	I was 4 ft
			Part-B		1	
						. 1
2. Explai	n about the probler	n domain in so	oftware engine	ering at voltar,	an hours of	[10]
di .			₩	In active	124 71W 1	
3. Differ	entiate between Ve	rification and	Validation by ta	king an example	e. well ([10]
			2021			
				1		
4. Expla	in the Test characte	eristics in softv	vare engineerin	g. Samulantia	Barrier 1	Barrie [10]
	Hart Branch			· Manager and Aller	Sangrey 1 9	,
5. What	do you understand	d by Reverse E	ngineering? Ex	plain		[10]
			D 4 C			
			Part-C			
6. Exp	lain waterfall mode	l by taking suit	able example.			[20]
			OR			
Des	cribe the concept o	f 'Prototyping'	n software engi	neering.		[20]
7. Des	scribe the Uncertain	ties in cost esti	mation during s	oftware project	planning.	[20]
			OR			
		<i>;</i>				
			2	1		[P.T.O.]
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Expl	ain project scheduling & mil	estones with a suitable example.	en un son tell to [20
125		- 11	
o. Disci	ass the rue intectural design	elements in the design model.	(a) [20]
Ĺ	and the second second	J-).	
		OR	
Diffe	rentiate between Black-Box	Testing and while Box Testing with p	anoman and an 1
8	20K	resting and while box resting with p	proper example. [20]
9. Expl	ain (i) Risk management		1201
		1 200	[20]
r 1	(ii) Measures of reliabi	lity & Availability bile / has no gentled	V move of otention 300 T
		OR	or in the second of the secon
		u a	
Expl	ain (i) Software Maintaina	nce is the man a contraction of solution	[20] [which is a second of the control of the cont
	(ii) Re-engineering		made to the first
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1411		o by Reyerse E yer a degli Eriff on	5. What do you underst.
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100		Prototypung is after a compertugue.	Describe it concept of
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Object Oriented Programming through C++

Part-A

	Plant State		
Write	e short answer to the following:	ska skiller den -	[2×10=20]
(a)	What is OOP paradigm?	tumatik diêt	
(b)	What do you mean by overloading?	2	
	What is the role of new and delete opera	tor? 00 50	continue of the senti
(d)	What are the Member and Non-member	Functions?	
b 8 5	a je a salakilika salah salah salah salah salah		74
(e)	Which operators cannot be overloaded?		Control of the Contro
明情情的	मनीतु पत्तर प्रकृति । ते व ते व व विकासित होत् ।		
(f)	What is this pointer?		The state of the s
Property and	and the forest state of the sta	go taki keresaka dangah dengan berasa Kangan	eran era i gerinde e
(g)	What is member access control?	O O	sanwing richted a
मु जोग्यस	TO AN ARTHUR STATE OF THE STATE	2 2 T	
(h)	What is base and derived class?		
(i)	What is Generic Programming?	orang pelan O ris ng pinaka kanangganak pelangganan	
(j)	What is Function Template?	भारतार केर्ने	
Carried S.	Par		
व निवासी क्ष	g tree matterial properties of the most		
. Wh	nat is OOP and what are the essential con	cepts of Object-Oriented	Programming (OOP)? Ex-
	in each		[3+12]
	in each.		Comment of the Commen
A STANSON AND A STANSON		OR CO	The state of the same
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MILE OF	less a trop stary is trained of torons.	4	

(a) Differentiate between the functional programming and OOP approach.	1081
(b) What are the advantages of OOP?	1071
NA.	
(a) What is structure? What is the difference between class and structure?	[2+5]
(b) Explain the concept of constructors and destructors in C++ with examples.	1081
OR	
(a) What is a friend function? What are the merits and demerits of using frien	d functions?
(b) Write a program in C++ calculate factorial value using friend function.	[07]
4. (a) What is operator overloading in C++? Demonstrate with an example how t	14+6
"+-" operator.	
(b) What are the difference between early and late binding?	[05]
OR	
Write short note on: (a) Importance of Inheritance	[05]
(b) Multiple and Multi Level inheritance	[05]
(c) Copy Constructor	[05]

5. Explain the concept of templates in C++. How are function templates and class templates defined and used? Provide detailed examples for each.

[5+10]

What is Exception and how many types? Explain the Exception handling mechanism in C++?

Explain with suitable example.

[5+10]

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Data Structures and Algorithms

Part-A

1.	(a)	List the characteristics of an algorithm.	[2×10=20]
		and acteristics of an algorithm.	
	(b)	What do you mean by stack overflow and stack underflow?	
		and stack undernow	
	(c)	Distinguish between Prefix and Postfix Expressions.	
	for y	97	
	(d)	Explain binary tree.	<u> </u>
	(e)	Define the following terms in tree	
		(i) Sibling	
	A STATE OF		A Comment
		(ii) Terminal Node	A TOTAL STREET
	(f)	What do you mean by edges of a graph?	
	(g)	Define the terms Out-degree and In-degree applicable to a graph.	
	(h)	What do you know by Successor and Predecessor node in Directed	d Cromb?
	()	Mar do you know by Buccessor and Fredecessor hode in Directed	d Grapin:
	(i)	What do you know by Weighted Graph?	
			Arg. a
	(j)	Differentiate between linear and binary search.	
		700	
		Part-B	
2.	Explai	n algorithm analysis in term of its complexity related to space, time	and cases with suitable
	diagrai	m.	[15]

				REAL PROPERTY OF THE	信頼はど
	Wr	rite an algorithm to insert value	s in a circular queue using	an array with suitable	e example.[15]
•, • ;	are N			Mr. Telster,	
3.	Wr	ite an algorithm to delete a lea	f note from a binary search	tree.	[15]
					•
			OR		
	Wri	ite an algorithm to insert a noc	le into an ordered linked list	t.	[15]
4.	Wri	ite an algorithm for Depth I	irst Search DFS(v) and F	Breadth First Searcl	n BFS(v) in a
		ph applications.			[15]
Alexand.	B 74			Significant of the second	A STATE OF THE STA
		,	OR		
	Writ	e short note on:			
	(a)	Adjacency matrix			[8+7]
	(b)	Adjacent list	•		
5.	Expla	ain the following:			[10+5]
	(a)	Hash Function			
	(b)	Selection Sort			
	` /				

OR

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[.O.T.9]

Define heap sort method and its advantages. How does the Heap Sort Method work? Explain with suitable example.

[8+7]

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