		1	Nanak Dev Engine Department of Infor	mation Test	e, Ludhiana		
Prog	ram		B.Tech.(IT)	maton rech	No. of Concession, Name of Street, or other Designation of the Concession of the Con	6	
Subj	ect Code		PCIT-115		Semester Subject Title		
Mid Semester Test (MST) No.			2	Carry S	Course Coordinator(Dr. Kar	maljit nd pf. i
Max	. Marks		24		Time Duratio		30
Date	of MST		22 April, 2024 (Mon	nday)	Roll Number		5
Note	: Attempt	all questions		P			
Q. N	lo.	7.	Question	4	COs, RBT	Marks	
Q1	1 Define persistent		orage. Explain its type	es.	CO2, L1		2
Q2_	Hov	v do containers	communicate within	Docker?	CO6, L2		2
Q3	Dem build	onstrate the util	ization of Jenkins for	project	CO6, L4 .		4
Q4	building and integration with Git repositories. Describe the distinctions between docker containers and virtual machines as well as their impact on contemporary software development methodologies. Include relevant examples to illustrate your points.			containers act on hodologies	CO4, L5		4
9 5	Con	nprehensively ex orate on the con-	explain the jenkin pipeline and accept of a multibranch pipeline.		CO6, L2		4
Q6 :	Wha creat detai	t is Docker and ing, stopping ar led elaborations	what steps are involved and removing a contain s with corresponding of	ed in er? Provide	CO6, L5		8
	rse Outco lents will b	mes (CO)		*			
l	Contrast t	he various driver	rs accountable for the s	urfacing of De	vOps		
2	Restate th	ne service deliver	y process and business	benefits			
3	Illustratio	tration of most common and popular DevOps tools					
4	Assessme	sment of critical success factors for DevOps implementation					
5	Evaluation	aluations of the results with GIT, GITHUB, Jenkins and Dockers					
6	Integratio	n of GITS, Docke	rs and Jenkins				
RB7 Clas		Lower Orde	r Higher Order	Higher Order Thinking Levels (HOT)			
	Level	Ĺl	1.2	1.3	1.4	1.5	1.6
RBT Level Remembe		Damamharin	g Understanding	Applying	Analyzing		1

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Subje	ect Code		3.Tech.(IT)		Semester	6	:		
257.0			CIT-115	d di	Subject Title	DevOp: Archite	s: S/w cture		
No.	Semester To	est (MST)	11.44	27	Course	Dr. Kar	naljit		
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		1	12 Feb, 2024		Roll Number	2107	(14		
Note:	Attempt all	questions			NY ENTRY	1	, ,		
Q. No).		Question	14					
<u> </u>					COs, RBT	Marks			
Q1	Enlist	our significant	DevOps tools and		level				
		gcuit	Devops tools and	phases.	CO3, L2		2		
Q2_	Justify	the utility of (GIT and Github.						
					CO5, L5		2		
23/	Illustra	te various step	s involved for movi		****				
				ng the	CO1, L2	4 3	4		
24	concep	t of unstaging.	s - 1. Sing area all	u ine	F				
Explain the conce		the concent a	CHI	Strict!!	62	Tanks of the			
	differ f	efits in a Dev	Ops environment.	How does	CO4, L3	-	1		
Q5_	Compo	rom traditional	infrastructure man	agement?					
9	Continu	re and cont	rast continuous						
	How de	the delivery,	ey contribute to the DevOps pipeline?				4		
26/	Discuss	bronghing 0 11	te to the DevOps p	ipeline?		-			
					COSTS	100			
		o examples.			CO5, L5	4.20	8		
Cours	e Outcome	o chammes	*						
Studen	its will be a	ble to							
-	ontract the		1-2 97 98			N. Sinkson			
	ontrast the v	arious drivers a	ccountable for the si	urfacing of Devi	0==				
					Ops	LineKo			
11	estate the se	rvice delivery p	rocess and business	benefits	Market State of	Elaboration			
111	iustration of	most common	and popular DevOps	tools	Example of the second	THE SALAR			
	ccoccmont o	f asition laws	E HARVIENISTE I LEG	190	The second second	The state of the s	TANK DEEM		
Detail.	Assessment of critical success factors for DevOps implementation						1960		
A		Evaluations of the results with GIT, GITHUB, Jenkins and Dockers							
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Prog	ram		B.Tech.(IT)	Tech	Semester			
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Note:	: Attempt	all questions			-			
Q. No			Question		COs, RBT	Marks		
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QF	Def	ine persistent stor	rage. Explain its typ	200	CO2, L1		2	
•	germe persistent s		rage. Explain its typ	jes.	CO2, L1		2	
02	How do contained		ommunicate within	Dealson	606.12			
710W do container		v do containers c	ommunicate withir	Docker?	CO6, L2		2	
Q3 Demonstrate the util			-cCI I' C	607.11				
				CO6, L4		4		
Q4	Dos	building and integration with Git repositories.						
Q4	Describe the distinctions between docker containers and virtual machines as well as their impact on				CO4, L5		4	
	cont	emporary softwa	as well as their imp	thedelesies				
			re development me nples to illustrate y					
05					COC 12			
you			lain the jenkin pipe		CO6, L2		4	
01			pt of a multibranch	The state of the s				
Q6	10.411011		hat steps are involved in		CO6, L5		8	
	100		removing a contain					
			vith corresponding	commands.			1	
		mes (CO)					U	
Stude	nts will be	e able to					/	
1 (Contrast th	ne various drivers a	accountable for the s	urfacing of De	vOps		/	
2	W 183 W 284	26 W	7/4 //					
- 1	Restate the	e service delivery p	rocess and business	benefits				
3 1	Unstration	of most samman	and popular DevOps	An ala		1-1-1-1-1		
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4	Accessmen	t of critical success	factors for DevOps	implementati	an.			
1	155055111011	t of critical succes:	ractors for Devops	implementation	211			
5	luntion	of the results wit	h GIT, GITHUB, Jenki	ne and Dagkor				
į.	valuation	s of the results wit	n GIT, GITHUB, Jenki	ns and Docker	S			
6	ntegration	of GITS, Dockers a	and Jenkins					
RBT		Lower Order	Higher Order	Thinking Le	vels (HOTS)			
	ification	Thinking	and and		The second second			
Class		Levels (LOTS)						
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A CONTRACTOR OF THE PARTY OF TH	Level	LI	L/2	LJ	Li	-	100	
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RBT	Level	Remembering	Understanding	Applying	Analyzing	Lyardaning	210001	
Name								

		Guru	Nanak Dev Eng	ineering Col	lege, Ludhiana	-	
Program			-barement of H	nformation T	echnology	100	
Subject (Code	-	B. Tech.(11)	Semester	16	16	
			PCIT-115		Subject Ti		evOps: S/v
Mid Semester Test (MST) No.			1	Course Coordinate	Dr. Kam		
Max. Ma	irks		24		Time Dura	CALL STREET, SANSAGE	arma
Date of N	AST		10 F 1 222		1 1 1 1	mi	nour 30 nutes
			12 Feb, 2024		Roll Numb	THE RESERVE AND PERSONS NAMED IN	121030
Note: Att	empt all ques	stions					
Q. No.			Question		COs, RBT	Ma	ırks
21	Enlist four s	significan	t DevOps tools a	nd phases.	CO3, L2		2
Q2	Justify the u	tility of	GIT and Github.		CO5, L5		2
Q3	La Company		4.				2
	concept of u	s involved for mo g to staging area	CO1, L2		4		
Q4	Explain the concept of "Immutable Infrastructure" and its benefits in a DevOps environment. How does it differ from traditional infrastructure management?						4
Q5	continuous delivery, and continuous deployment. How do they contribute to the DevOns pipeline?					1	4
	remote branch Share two exa	ning? Wi nes and br imples.	ny it is required?	How to anasta	CO5, L5		8
Course O	utcomes (CO))					
		drivers a	countable for the	surfacing of De	vOns .		
			ocess and business				Local II.
Illustr	ation of most o	common a	nd popular DevOp	s tools			
Assess	sment of critica	al success	factors for DevOps	implementation	on		
Evalua	ations of the re	sults with	GIT, GITHUB, Jenki	ns and Docker	5		
	ation of GITS, I						
BT lassificat	Lower ion Thinkin	Order ng	Higher Order	Thinking Lev	vels (HOTS)		
Levels (LOTS) RBT Level L1		L2	L3	L4	L5		
umber	BT Level Remembering						1

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Program	B.Tech.(IT)	Semester	6
Subject Code	PCIT-115	Subject Title	Devops: Software Architecture
Mid Semester Test (MST) No.	1	Course Coordinator(s)	Dr. Kamal it Kare and Lr. Harror Kaur
Max. Marks	24	Time Duration	1 Tour 30 minutes
Date of MST	25th March, 2023	Roll Number	Dayles .

Q. No.	Question	COs, RBT level	Mar
01	Explain the function of git config command.	CO5, 1.2	2
Q2	How to view the commit history in GIT?	CO3, 1,1	2
Q3	Compare and contrast continuous integration with continuous deployment.	CO1, L3	4
Q4	Explain the working directory and staging area with example.	= CO3 1.2	4
Q5	Illustrate the concept of branching strategy in git. Also explain its working with master branch and the HEAD.	CO5, L4	4
Q6	Discuss the concept of devops in detail. Explain its working. Also explain the various devops tools in detail.	CO2, L5	×

Course Outcomes (CO) Students will be able to

Note: Attempt all questions

1	Contrast the various drivers accountable for the surfacing of Devops
2	Restate the service delivery process and business benefits
3	Illustration of most common and popular DevOps tools
4	Assessment of critical success factors for DevOps implementation
5	Evaluations of the results with GIT. GITHUB- Jenkins and Dockers
6	Integration of GITS. Dockers and Jenkins

RBT Classification	Lower Order	Thinking Levels	(LOTS)	Higher Or	der Thinkin	g Levels (HOT
RBT Level Number	LI	L2	L3	L4	L5	1.6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

		Dura	Nanak Dev Enginee epartment of Inform	mation Took	, Ludhiana		
rogra	m		B.Tech.(IT)	mation Tech	Semester	6	
Subject Code			PCIT-115		Subject Title	- 7	
Mid So No.	emester T	est (MST)	2		Course Coordinator(Dr. Kan	naljit nd
Max.	Marks		24		Time Duratio	n 1 hour ; minutes	505
Date o	of MST		25 May, 2023 (Thur	sday)	Roll Number		
Note:	Attempt a	ll questions					
Q. No	•		Question		COs, RBT level	Marks	
Q1		any two major ization and cor	differences between ntainerization.		CO5, L2		2
Q2	Discus	ss the usage of	hypervisor.		CO4, L1		2
Q3	The same of the sa	does AWS cont ols used for it.	ribute to DevOps? En	nlist atleast	CO6, L3		4
Q4	Illustrate the concept of Jenkins archi help of diagram.				CO3, L4		4
Q5	Explain Jenkins Pipeline. Illustrate the steps use demostrate how Jenkin is used to build projects.				CO5, L4		4
Q6					CO6, L5		8
	ese Outcor	nes (CO)					
1	Contrast th	e various driver	s accountable for the su	urfacing of Dev	Ops		
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10000	Illustration	of most commo	on and popular DevOps	tools		1150	
	Assessmen	t of critical succ	ess factors for DevOps i	implementatio	n		
5	Evaluation	s of the results v	vith GIT, GITHUB, Jenkii	ns and Dockers			
6		of GITS, Docker					
RBT	sification	Lower Order Thinking Levels (LOT	8	Thinking Lev	vels (HOTS)		
RBT Num	Level	LI	L.2	L3	L4	L5	L6
RBT Nam	Level le	Remembering	g Understanding	Applying	Analyzing 1	Evaluating	Creatin

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09]

[Total No. of Pages: 2]

Uni. Roll No.

Program: B.Tech. (Batch 2018 onward)

Semester: 6th

Name of Subject: DevOps: Software Architecture

Subject Code: PCIT-115

Paper ID: 17207

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

1) Parts A and B are compulsory

2) Part C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice

3) Any missing data may be assumed appropriately

Part - A

[Marks: 02 each]

Q1.

- a) What are docker images and docker containers?
- b) List various Devops Tools and their corresponding phases.
- c) What is the difference between staged and unstaged resources?
- d) How do Git and GitHub contribute to the software development process?
- e) Differentiate between containerization and virtualization.
- f) Differentiate between continuous delivery and continuous deployment.

Part - B

[Marks: 04 each]

- Q2. What is the GIT commit lifecycle, and what are its main stages?
- Q3. What is Jenkins pipeline? Explain the multibranch pipeline.
- How DevOps uses key aspects of Agile Methodology in software development. (Justify with a suitable diagram and example)
- Q5. What do you know about pulling and pushing repositories? Compare and explain them in detail.
- Q6. What is docker? How can you create your first container?
- Q7. Elaborate implementation of DevOps with an example.

- Q8. a) Describe the essential components and architecture of Jenkins, highlighting how it enables automation and scalability in software development.
 - b) Explain the process of configuring Jenkins and how they help in building projects?

OR

Describe the Docker architecture. Also, discuss the various steps used in the docker container life cycle and how to stop and remove containers in Docker.

Q9. Explain the GIT installation steps. How does working with the Bourne Again Shell (BASH) contribute to command-line interaction and scripting in Unix-like environments?

OF

What is the purpose of GIT clone? How to clone the repository to system? Write the workflow of branching and merging with suitable examples.

Please check that this question paper contains 9 questions and 2 printed pages within first ten

[Total No. of Questions: 09] Uni. Roll No.

[Total No. of Pages: 2]

Program: B.Tech. (Batch 2018 onward)

Semester: 6th

Name of Subject: DevOps: Software Architecture

Subject Code: PCIT-115

Paper ID: 17207

Scientific calculator is Allowed/NotAllowed

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

1) Parts A and B are compulsory

2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice

3) Any missing data may be assumed appropriately

Part - A

[Marks: 02 each]

Q1.

- a) How can you stop a running Docker container? Why should you remove unused Docker containers?
- b) Describe the primary function of Jenkins in the DevOps toolchain.
- c) Illustrate the benefits of version control system.
- d) Explain the benefits of using containerization.
- e) Explain how Continuous Integration helps improve software quality.
- f) Describe the difference between git fetch and git pull.

Part - B

[Marks: 04 each]

- Q2. List and briefly describe four popular DevOps tools and their primary functions.
- Q3. Differentiate between containerization and virtualization. Explain the steps to create and run your first Docker container using the hello-world image.
- Q4. Explain the basic workflow of using Git from creating a repository to pushing changes to a remote repository.
- Q5. Describe the process of linking Jenkins to a Git repository.

- Q6. Illustrate the concept of branching strategy in git. Also explain its working with master branch and the HEAD.
- Q7. Compare and contrast continuous integration with continuous deployment.

Part - C [Marks: 12 each]

Q8. Illustrate the concept of DevOps. Explain how it works? Also explain various DevOps tools in detail.

OR

Design a simple Git workflow for a small project team. Include the steps for creating branches, committing changes and merging branches into the main branch.

Q9. Compare and contrast the process and benefits of creating Docker images versus using containers. Also describe the layers of a Docker image and their significance. Explain in detail the process of pulling a Docker image from Docker Hub and pushing a locally created Docker image to your Docker Hub repository. Include the specific commands.

OR

Illustrate the concept of using Jenkins in details and also explain the initial setup process for Jenkins, including installation and configuration. Discuss how Jenkins can be used to automate the build process of a software project. Also Describe the process of linking Jenkins to a Git repository.

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Please check that this question paper contains_9_questions and_	2 printed pages within your
[Total No. of Questions: 09]	Total No. of Pages: 2]
Uni. Roll No. Program: B.Tech. (Batch 2018 of	nward)
Semester: 6 th Name of Subject: DevOps: Soft Subject Code: PCIT-115	ware Architecture
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Time Allowed: 03 Hours NOTE:	Max. Marks: 60
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Part – A	[Marks: 02 cach]
Docker containers? b) Describe the primary function of Jenkins c) Illustrate the benefits of version control sy d) Explain the benefits of using containeriza e) Explain how Continuous Integration help Describe the difference between git fetch	in the DevOps toolchain. ystem. tion. s improve software quality. and git pull.
Part – B	[Marks: 04 each]
O3. Differentiate between containerization and virtual and run your first Docker container using the hele Explain the basic workflow of using Git from creation to a remote repository.	alization. Explain the steps to create llo-world image. eating a repository to pushing change:
Q5. Describe the process of linking Jenkins to a Git i	repository.

- Q6. Illustrate the concept of branching strategy in git. Also explain its working with master branch and the HEAD.
- Q7. Compare and contrast continuous integration with continuous deployment.

Part - C

[Marks: 12 each]

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42.5