PART-I(N	LOWED ICQS):	: THREE HOURS MAXIMUM 30 M	INUTES	PART-L(MCQS) PART-II	MAXIMUM MARKS = MAXIMUM MARKS =	20
NOTE: (i) (ii)	Attem	II is to be attempted on the only FOUR quite the second se	estions from	n PART-II by selection	ng TWO questions from EA	
66	SECT	ION. ALL questions	carry EQUA	AL marks.	one place instead of at diff	
(au	places.		a Queonon		ene place molead of a unit	cicia
(iv (v)	No Pa	ge/Space be left blan	k between t	he answers. All the bla	e with Q. No. in the Q.Paper. ank pages of Answer Book r	nust
(vi	Extra	attempt of any questic	on or any pa	rt of the attempted que	stion will not be considered.	
- ,	Ke	Plenderen	<u>PAR</u> SECTI	$\frac{\mathbf{T} - \mathbf{H}}{\mathbf{ON} - \mathbf{A}}$	stion will not be considered.) on the working is possible to	2]
Q. No.2.	(a) Exp	plain Moore's law. List	high computi	ing requirements in conten	mporary computing. , h	~ (6)
	(c) W		vel paralleli	to dealing with multiple in ism? What are some		> (7)
Q. No.3.	(a) W	hat is the kernel of an op	erating system	m? Explain the difference	between a monolithic	(7)
	(b) V	What is the difference h	between simp	le and virtual memory p	aging? Also explain the	(6)
and the second second	(c)		flock in the	multiprocessing environ	ment? Explain different	(7)
L		and the second sec			gy to overcome	(8)
Q. No.4.	IF	Pv4 scarcity.		the use of NAT technolo	67	(6)
	g	et from the network 172.	23.0.0/23.	nets and usable hosts per s rganization techniques. A		(6)
		nux file system security.	THREE IIIC 0.	iganization teeriniques. 7 c		
Q. No.5.		hat is signal encoding mmunication.	g? Explain	different encoding tech	hniques used in data	(8)
	(b) Ex	plain the functions and ne	eeds of ARP a	and RARP protocols in co	omputer networks.	(5)
		plain multiplexing and ntext of TCP/IP protocol.	demultiplex	ting at the transport	layer. Explain in the	(7)
			SECT	ION - B		
. No.6.	(a) What of e	at is the purpose of a joir xamples.	n in SQL? Ex	plain inner, left, right an	d full join with the help	(8)
	Asso	ciate with each patient a	log of the van	rious tests and examinati	a set of medical doctors. ons conducted.	(7)
1	c) Expl systen	lain Two-phase locking ns.	(2PL) as a c	concurrency control mec	chanism in the database	(5)
	What is	s Histogram equalization	n? Explain th	e process and discuss its		
(b)	Expla	in types of color mode in detail.	ls. Also disc	uss the most common h	ardware oriented color	(6) (8)
(c)	What is t		Find the nur	mber of bits required to	store a 256x256 image	(6)
	O manor.				ineering". Argue for or	(7)
(b) B	riefly dis	cuss the role of validation	tion and veri	fication in requirement	engineering.	(6)
	Explain f evelopme	unctional and non-fur	ectional requ	irements in the contex	t of a web application	(6) (7)

TAPER-II

the fighter

FEDERAL PUBLIC SERVICE COMMISSION COMPETITIVE EXAMINATION-2020 FOR RECRUITMENT TO POSTS IN BS-17 UNDER THE FEDERAL GOVERNMENT

COMPUTER SCIENCE, PAPER-II

TIME ALI PART-I(M	OWED: THREE HOURSPART-I (MCQS)MAXIMUM MARKSCQS): MAXIMUM 30 MINUTESPART-IIMAXIMUM MARKS	
NOTE: (i) (ii)	Part-II is to be attempted on the separate Answer Book. Attempt ONLY FOUR questions from PART-II by selecting TWO questions from E SECTION . ALL questions carry EQUAL marks.	
	All the parts (if any) of each Question must be attempted at one place instead of at difficult places.	
(iv) (v)	Candidate must write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper No Page/Space be left blank between the answers. All the blank pages of Answer Book be crossed.	
(vi)	Extra attempt of any question or any part of the attempted question will not be considered	
	<u>PART – II</u> <u>SECTION – A</u>	
Q. No.2.	 (a) Explain Moore's law. List high computing requirements in contemporary computing. (b) List and briefly define two approaches to dealing with multiple interrupts. (c) What is instruction-level parallelism? What are some typical distinguishing characteristics of RISC organization? 	() () ()
Q. No.3.	(a) What is the kernel of an operating system? Explain the difference between a monolithic and microkernel.	(
	(b) What is the difference between simple and virtual memory paging? Also explain the purpose of translation lookaside buffer.	(
	(c) Why do we have deadlock in the multiprocessing environment? Explain different techniques for dealing with deadlocks.	(
Q. No.4.	 (a) Compare IPv4 and IPv6 headers. Explain the use of NAT technology to overcome IPv4 scarcity. 	(
	 (b) Find the maximum number of valid subnets and usable hosts per subnet that you can get from the network 172.23.0.0/23. 	(
	(c) List and briefly define any THREE file organization techniques. Also explain basic Linux file system security.	(
Q. No.5.	(a) What is signal encoding? Explain different encoding techniques used in data communication.	(
	(b) Explain the functions and needs of ARP and RARP protocols in computer networks.(c) Explain multiplexing and demultiplexing at the transport layer. Explain in the context of TCP/IP protocol.	(
	<u>SECTION – B</u>	
Q. No.6.	(a) What is the purpose of a join in SQL? Explain inner, left, right and full join with the help of examples.	(
	(b) Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted.	(
	(c) Explain Two-phase locking (2PL) as a concurrency control mechanism in the database systems.	(
Q. No.7.	(a) What is Histogram equalization? Explain the process and discuss its uses.(b) Explain types of color models. Also discuss the most common hardware oriented color	(
	models in detail.(c) What is translation and scaling? Find the number of bits required to store a 256x256 image with 32 gray levels.	(
Q. No.8.	(a) "Web engineering is more challenging than traditional software engineering". Argue for or against.	(
	 (b) Briefly discuss the role of validation and verification in requirement engineering. (c) Explain functional and non-functional requirements in the context of a web application development. 	(