University of Mumbai
Examination 2020 under cluster 4 (Lead College: PCE, New Panvel)
Examinations Commencing from 15th June 2021 to 26th June 2021

Program: **Computer Engineering**

Curriculum Scheme: **Rev2016**

Examination: **TE Semester V**

Course Code: **CSC501** and Course Name: **Microprocessor**

Time: 2 hour   Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	In order to choose both even and odd memory bank what values does $\overline{BHE}$ and A_0 should hold
Option A:	$\overline{BHE}$ =0, A_0 =0
Option B:	$\overline{BHE}$ =1, A_0 =0
Option C:	$\overline{BHE}$ =0, A_0 =1
Option D:	$\overline{BHE}$ =1, A_0 =1
2.	The_____ input enables the command output pins on the 8288.
Option A:	address enable
Option B:	command enable
Option C:	control enable
Option D:	data enable
3.	Which values of QS_0 and QS_1 denotes that instruction queue is empty?
Option A:	QS_0 =0, QS_1 =0
Option B:	QS_0 =1, QS_1 =0
Option C:	QS_0 =0, QS_1 =1
Option D:	QS_0 =1, QS_1 =1
4.	The peripheral clock signal is _____ of the crystal or EFI input frequency.
Option A:	one sixth
Option B:	one third
Option C:	one fourth
Option D:	almost same
5.	Which instruction converts Signed Byte to Signed Word
Option A:	CWD
Option B:	CBW
Option C:	CDW
Option D:	CBD
6.	TEST instruction internally does which operation?
Option A:	AND
Option B:	OR
Option C:	NOT
Option D:	XOR

7.	POP instruction _____ the stack pointer
Option A:	increments
Option B:	decrements
Option C:	either increments or decrements
Option D:	neither increment nor decrement
8.	PUSHF instruction
Option A:	Push 16 bit number of flag register into stack
Option B:	Push the 16 bit destination into stack
Option C:	Push 8 bit number of flag register into stack
Option D:	Push the 8 bit destination into stack
9.	After 8 bit multiplication, the result is stored by default in which register?
Option A:	AL
Option B:	AH
Option C:	AX
Option D:	DX
10.	Programmable Interrupt Controller is ……
Option A:	8255
Option B:	8257
Option C:	8259
Option D:	8237
11.	ICW3 will be programmed if _____
Option A:	SNGL = 0 in ICW1
Option B:	SNGL = 1 in ICW1
Option C:	SNGL = 0 in ICW2
Option D:	SNGL = 1 in ICW2
12.	Control register is selected in 8255 when _____
Option A:	$A_1=1$ $A_0=1$
Option B:	$A_1=0$ $A_0=0$
Option C:	$A_1=0$ $A_0=1$
Option D:	$A_1=1$ $A_0=0$
13.	In BSR mode of 8255, only _____ bits are used for set or reset.
Option A:	PORT A
Option B:	PORT C
Option C:	PORT B
Option D:	Control word
14.	Control Word Register of 8253
Option A:	Cannot be read/written
Option B:	Cannot be Written
Option C:	Can be read
Option D:	Cannot be read
15.	The value 0 of BCD bit in control word format of 8253 denotes

Option A:	Binary Counter 16 bits
Option B:	BCD counter
Option C:	Decimal Counter
Option D:	No operation
16.	Each channel of 8257 can transfer data up to ….
Option A:	512 kb
Option B:	128 kb
Option C:	16 kb
Option D:	1024 kb
17.	Paging is enabled in 80386 DX by setting
Option A:	PG=0
Option B:	PG=1
Option C:	PE=0
Option D:	PE=1
18.	Granularity Bit is _____ for segment length is page granular
Option A:	3
Option B:	2
Option C:	0
Option D:	1
19.	BTB denotes
Option A:	Branch Target Buffer
Option B:	Buffer Target Branch
Option C:	Bridge Target Buffer
Option D:	Branch Target Bridge
20.	Which is true according to U and V pipeline in Pentium
Option A:	U pipe can execute any instruction
Option B:	U pipe can execute only simple instruction
Option C:	V pipe can execute any instruction
Option D:	U and V can execute complex instructions

Q2	Solve any Four out of Six 5 marks each
A	Explain de-multiplexing of Address/Data Bus in 8086.
B	What is Mixed Language Programming? Illustrate with example.
C	Sketch the Interrupt structure of 8086 and describe.
D	State BSR mode of 8255 in detail.
E	Enumerate the operating modes of 80386.
F	How flushing of pipeline problem is minimized in Pentium Architecture.

Q3.	Solve any Two Questions out of Three 10 marks each
A	Describe the Maximum Mode of 8086 in detail.
B	Summarize the Addressing modes of 8086 with example.
C	Draw and explain cascading of three 8259 ICs with 8086 microprocessor based system.

Examination 2020 under cluster _4_ (Lead College: _Pillai)
Examinations Commencing from 15ᵗʰ June 2021 to 26ᵗʰ June 2021
Program: **Computer Engineering**
Curriculum Scheme: Rev 2016
Examination: TE Semester V
Course Code: **CSC502** and Course Name: **Database Management System ___**
Time: 2 hour   Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Derived attribute means
Option A:	Attribute can be divided into smaller subparts
Option B:	Attribute that are not divisible
Option C:	Attribute which have different number of values for a entity
Option D:	Value of the attribute can be determined from the other attribute value
2.	Create a new relation and include foreign key attribute refer to the primary key attribute of participating entity type is which type of mapping?
Option A:	Mapping of binary M:N relationship type
Option B:	Mapping of binary 1:1 relationship type
Option C:	Mapping of binary 1:N relationship type
Option D:	Mapping of binary N:1 relationship type
3.	It is a virtual table through which a selective portion of the data from one or more tables can be seen
Option A:	Trigger
Option B:	View
Option C:	Normalization
Option D:	Transaction
4.	Which of the following are not components of the DBMS architecture?
Option A:	Query Optimizer
Option B:	Transaction manager
Option C:	File manager
Option D:	Entity relationship model
5.	A relation is in ___iff in every non-trival functional dependency X$\rightarrow$ Y , X is a super key
Option A:	Normalization
Option B:	Transaction
Option C:	3NF
Option D:	BCNF
6.	For the following given database, identify the correct result for the given SQL query Employee(eid, ename, street, city)

		Works(eid, cid, salary) Company(cid, cname, city) Query: Display name of the employee who has highest salary. SQL query : Select ename from employee where eid in(select eid from Works where salary in(select max(salary) from Works));
Option A:	It generates an error because of use of nested subquery.	
Option B:	It executes but does not give the correct result.	
Option C:	It executes and gives the correct result.	
Option D:	It generates an error because of pairwise comparison.	
7.	Select the name of employee, dname from tables employee and department join on common attribute dno where employee address and department location is same.	
Option A:	$\prod_{ename}$ $\sigma_{(Emp.dno=Dept.dno}$ (Emp x Dept))	
Option B:	$\prod_{ename,dname}$ $\sigma_{(Emp.dno=Dept.dno \wedge (Emp.address = Dept.location)}$ (Emp x Dept)	
Option C:	$\sigma_{(Emp.dno=Dept.dno \wedge (Emp.address = Dept.location)}$ $\prod_{dname}$ (Emp x Dept)	
Option D:	$\prod_{ename,dname}$ $\sigma_{(Emp.address = Dept.location)}$ (Emp x Dept)	
8.	___ protocol has a growing phase, where all the locks are being acquired by the transaction; and the second phase is shrinking, where the locks held by the transaction are being released.	
Option A:	Lock based protocol	
Option B:	Timestamp based protocol	
Option C:	Two phase lock protocol	
Option D:	Strict two phase locking	
9.	_____DDL and _____DML command is used to delete records from the table	
Option A:	DROP & DELETE	
Option B:	TRUNCATE & DELETE	
Option C:	UPDATE & DROP	
Option D:	ALTER & TRUNCATE	
10.	R (A,B,C,D,E) and dependency A → B B→E and C→ D relation R is in which normalform?	
Option A:	1NF	
Option B:	2NF	
Option C:	3NF	
Option D:	BCNF	
11.	Schedule S1:R1(A) W1(A) R2(A) W2(A) R1(B) W1(B) R2(B) W2(B) is_____	
Option A:	Conflict serializable	
Option B:	Non conflicting serializable	
Option C:	Both Conflict and View serializable	
Option D:	Non view serializable	
12.	R (A ,B ,C, D, E, F, G, H) and dependency AB → C A→DE B→F and F→ GH	

	relation R is in which normal form?
Option A:	BCNF
Option B:	3NF
Option C:	2NF
Option D:	1NF
13.	For the following given database ,write SQL queries 　　Employee(eid, ename, street, city) 　　Works(eid, cid, salary) 　　Company(cid, cname, city) Find the total number of employees working in the company where cname= ' TCS'.
Option A:	select count(eid) from employee where cid in (select cid from Company where cname='TCS');
Option B:	select count(eid) from employee where eid in(select eid from Works);
Option C:	select count(eid) from employee where eid in(select eid from Works where cid in (select cid from Company where cname='TCS'));
Option D:	select count(eid) from employee where eid in(select eid from Works where cid in (select cid from Company));
14.	Consider the join of a relation R with a relation S. If K has m tuples and S has n tuples, then the maximum and minimum sizes of the join respectively are:
Option A:	m+n and m-n
Option B:	m+n and 0
Option C:	mn and 0
Option D:	mn and m+n
15.	Student (ssn, name, subject, dob); Course(cid, name, dept); Enroll(ssn, cid, sem, grade) Find the ssn and student name who enrolled for the course id=101; SQL query for this is 　i) select ssn , name from student where ssn in (select ssn from enroll where cid =101); 　　　　　　　and 　ii) select student.ssn, name from student,enroll where student.ssn=enroll.ssn and cid=101;
Option A:	SQL query i) and ii) both queries are not correct
Option B:	SQL query i) and ii) both queries are correct
Option C:	SQL query i) is correct but ii) is not correct
Option D:	SQL query i) is not correct but ii)is correct
16.	Which of the following is not a function of DBA?
Option A:	Storage structure and Access method definition
Option B:	Approving data access
Option C:	Schema definition
Option D:	Use of user interface of database applications

17.	Which one of the following is correct notation in E-R diagram?
Option A:	Entities are oval
Option B:	Relationships are rectangle
Option C:	Attributes are diamonds
*Option D:	Weak entities are double rectangle
18.	Using Relational Algebra the query that finds name of employees, who have age over 50 years
Option A:	Π employee_name(σ age >50 (employee))
Option B:	σ employee_name(Π age>=50(employee))
Option C:	Π employee_name(Π age>50 (employee))
Option D:	Π age(σ age >50(employee))
19.	___is a special type of integrity constraint that relates two relations & maintains consistency across the relations.
Option A:	Entity Integrity Constraints
Option B:	Domain Integrity Constraints
Option C:	Domain Constraints
Option D:	Referential Integrity Constraints
20.	No other transaction should be able to view any partial result of the actions of a transaction
Option A:	Consistency
Option B:	Isolation
Option C:	Durability
Option D:	Atomicity

subjective/descriptive questions

Q2 (20 Marks)	**Solve any Four out of Six** **5 marks each**
A	Write applications of database system. Draw and explain three-schema architecture.
B	Explain mapping of ER (for strong ,weak entities and M:N cardinality between entities) to relational schema with example.
C	Write a trigger for the particular event and perform action with suitable example
D	What is conflict serializability. Write one example by considering schedule with conflict equivalent and conflict serializable.
E	R (A B C D E) and dependency CE→D , D→B and C→A Identify the relation is in which normal form?
F	Write deadlock- prevention schemes using timestamp concurrency protocol with example.

Q3. (20 Marks)	Solve any Two Questions out of Three 10 marks each
A	department(dnum, dname, dlocation); employee (empid , ename , address, salary, dno) ; i) Display employee id, employee name and department number who are working for 'research' department ii) Display employee id, name and salary of all employees order by salary. iii) Display department number and sum of salary of all departments. iv) Display department number and average salary of the ' R&D' department . v) Update the address of the employee as "Delhi" who is working in the 'Account' department
B	Draw EER diagram and create Relational schema for Library management system. Library contains Books and Magazines. Students, faculties and staff are the members who borrow and return the books/Magazines.. Books have title, author, publication, price and number of books. Magazines have title, publisher, date etc. Library staff keeps track of the members, issue and return data and and fine calculation1.
C	Define 3 NF and Boyce Codd Normal form (BCNF). Consider any relational schema and convert it into BCNF , by considering valid data records.

University of Mumbai
Examination 2020 under cluster 4 (Lead College: Pillai,New Panvel)
Examinations Commencing from 15th June 2021 to 26th June 2021
Program: **Computer Engineering**
Curriculum Scheme: Rev2016
Examination: TE Semester V
Course Code: CSC503 and Course Name: Computer Networks

Time: 2 hour   Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Bits are packaged into frames at which layer of the OSI model?
Option A:	Transport
Option B:	Data Link
Option C:	Network
Option D:	Physical
2.	Automatic repeat request error management mechanism is provided by
Option A:	logical link control sublayer
Option B:	media access control sublayer
Option C:	network interface control sublayer
Option D:	application access control sublayer
3.	Start and stop bits used in serial communication for
Option A:	Error Detection
Option B:	Error Correction
Option C:	Synchronization
Option D:	Listening for sender and receiver
4.	In IPv4 protocol, each datagram is handled _____
Option A:	dependently
Option B:	independently
Option C:	priority basis
Option D:	systematically
5.	The sizes of source and destination port address in TCP header are _____ respectively
Option A:	16-bits and 32-bits

Option B:	16-bits and 16-bits
Option C:	32-bits and 16-bits
Option D:	32-bits and 32-bits
6.	The _____ translates internet domain and host names to IP address.
Option A:	routing information protocol
Option B:	network time protocol
Option C:	HTTP
Option D:	Domain name system
7.	UDP and TCP are both _____ layer protocols.
Option A:	Network
Option B:	Data link
Option C:	Session
Option D:	Transport
8.	In Bluetooth, the _____layer is roughly equivalent to the MAC sublayer in LANs.
Option A:	Baseband
Option B:	Radio
Option C:	L2CAP
Option D:	Internet
9.	Header of datagram in IPv4 has _____
Option A:	0 to 20 bytes
Option B:	20 to 60 bytes
Option C:	20 to 80 bytes
Option D:	20 to 40 bytes
10.	An interconnected collection of piconet is called ___
Option A:	Scatternet
Option B:	Micronet
Option C:	Mininet
Option D:	Multinet
11.	Application layer offers _____ service.
Option A:	process to process
Option B:	end to end
Option C:	node to node
Option D:	Packet to packet
12.	Which constructor of Datagram Socket class is used to create a datagram socket and binds it with the given Port Number?

Option A:	Datagram Socket(int port)
Option B:	Datagram Socket()
Option C:	Datagram Socket(int port, Int Address address)
Option D:	Datagram Socket(int address)
13.	_____ cable consists of an inner copper core and a second sheath.
Option A:	twisted-pair
Option B:	coaxial
Option C:	Fiber-optic
Option D:	shielded twisted-pair
14.	All computers are connected to the single backbones. Which topology is that?
Option A:	star
Option B:	bus
Option C:	ring
Option D:	mesh
15.	Transport layer aggregates data from different applications into a single stream before passing it to _____
Option A:	physical layer
Option B:	presentation layer
Option C:	session layer
Option D:	network layer
16.	Each channel in Bluetooth layer is of
Option A:	1MHz
Option B:	2MHz
Option C:	3MHz
Option D:	4MHz
17.	When does the station B send a positive acknowledgement (ACK) to station A in Stop and Wait protocol?
Option A:	only when no error occurs at the transmission level
Option B:	when retransmission of old packet in a novel frame is necessary
Option C:	only when station B receives frame with errors
Option D:	only when station B does not receive the frames

18.	When a host on network A sends a message to a host on network B, which address does the router look at?
Option A:	Port
Option B:	MAC
Option C:	logical
Option D:	physical
19	An endpoint of an inter-process communication flow across a computer network is called _____
Option A:	socket
Option B:	port
Option C:	link
Option D:	system
20.	Which OSI layer allows the transmission and reception of data segments to a session layer in addition to the provision of flow control, sequence numbering and message acknowledgment?
Option A:	Data link layer
Option B:	Session layer
Option C:	Transport layer
Option D:	Application layer

Q2	Solve any Two Questions out of Three 10 marks each
A	List out the different error detection techniques? Explain any one of them.
B	Illustrate OSI reference model in detail with neat diagram.
C	Explain three way handshake techniques in TCP.

Q3	Solve any Two Questions out of Three 10 marks each
A	Discuss different types of guided media in detail
B	Explain following protocols- 1) DNS 2)Telnet
C	What is IPV4 Protocol? Explain the header format of IPV4 in detail.

University of Mumbai
Examination 2020 under cluster 4 (Lead College: PCE)
Examinations Commencing from 15th June 2021 to 26th June 2021

Program: Computer Engineering
Curriculum Scheme: Rev 2016
Examination: TE Semester V
Course Code: CSC504 and Course Name: Theory of Computer Science

Time: 2 hour   Max. Marks: 80

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1.	Which symbol is used to represent a Transition Function of Finite Automata?
Option A:	β
Option B:	δ
Option C:	$\sum$
Option D:	ε
2.	What is the language of Finite Automata?
Option A:	Recursive Language
Option B:	Context-Sensitive Language
Option C:	Regular Language
Option D:	Context-Free Language
3.	Number of states in NFA are
Option A:	Less than or equal to equivalent DFA
Option B:	Less than equivalent DFA
Option C:	Greater than equivalent DFA
Option D:	Greater than or equal to equivalent DFA
4.	What is the correct form of productions in Chomsky Normal Form?
Option A:	A -> aB
Option B:	A - > BC
Option C:	A -> B
Option D:	A -> Ba
5.	The language WCW^R is accepted by-
Option A:	Moore Machine
Option B:	Non-Deterministic Finite Automata
Option C:	Deterministic Finite Automata
Option D:	Pushdown Automata
6.	The transition $\delta (q1,a,a) = (q_f , \varepsilon)$ of PDA is -
Option A:	Performing delete and pop operation
Option B:	Performing delete operation only
Option C:	Performing pop operation only
Option D:	Performing push operation
7.	What is the language of Turing machine?
Option A:	Regular language
Option B:	Context free language

Option C:	Recursive enumerable language
Option D:	Context sensitive language
8.	What is the limitation of regular grammar?
Option A:	Can generate simple strings
Option B:	Can only describe regular language
Option C:	Can't generate long strings
Option D:	Too difficult to understand
9.	DFA designed to accept strings with no more than 2 a's can accept:
Option A:	a b a b
Option B:	a b a a
Option C:	b a a a
Option D:	a b a b a b a b
10.	The length of Moore machine compared to Mealy machine is:
Option A:	Equal to Mealy machine for given input
Option B:	Smaller than Mealy machine for given input
Option C:	One smaller than Mealy machine for given input
Option D:	One longer than Mealy machine for given input
11.	Derivation process is one which-
Option A:	Parses given string
Option B:	Generates new string
Option C:	Convert string to right linear grammar
Option D:	Convert string to left linear grammar
12.	Language of PDA is:
Option A:	Recursively Enumerable language
Option B:	Regular Language
Option C:	Context sensitive language
Option D:	Context free language
13.	The tuple Σ in Turing machine represents-
Option A:	Tape symbol
Option B:	Output symbol
Option C:	Tape alphabet
Option D:	Input alphabet
14.	A Turing Machine can compute problems which are-
Option A:	Complex
Option B:	Simple
Option C:	Unsolvable
Option D:	Computable
15.	Which of the following languages are most suitable for implement context free languages ?
Option A:	C
Option B:	Perl
Option C:	Assembly Language

Option D:	Compiler language
16.	With reference to the process of conversion of a context free grammar to CNF, the number of variables to be introduced for the terminals are: S->AB0 A->001 B->A1
Option A:	3
Option B:	4
Option C:	2
Option D:	5
17.	Next move function δ of a Turing machine M = (Q, Σ , Γ, δ, q0, B, F) is a mapping
Option A:	δ : Q x Σ --> Q x Γ
Option B:	δ : Q x Γ ---> Q x Σ x {L, R}
Option C:	δ : Q x Σ ---> Q x Γ x {L, R}
Option D:	δ : Q x Γ ---> Q x Γ x {L, R}
18.	Which of the following grammars are in Chomsky Normal Form:
Option A:	S->AB|BC|CD, A->AB B->CD, C->2, D->3
Option B:	S->AB, S->BCA|0|1|2|3
Option C:	S->ABa, A->aab, B->Ac
Option D:	S->ABa, A->AAB, B->Ac
19.	Halting states are of two types. They are:
Option A:	Accept and Reject
Option B:	Reject and Allow
Option C:	Start and Reject
Option D:	Start and Stop
20.	Which of the following relates to Chomsky hierarchy?
Option A:	Regular<CFL<CSL<Unrestricted
Option B:	CFL<CSL<Unrestricted<Regular
Option C:	CSL<Unrestricted<CF<Regular
Option D:	CSL<Unrestricted< Regular<CF

Q2 .	Solve any Four questions out of Six . 5 marks each
A	Construct DFA to accept strings that ends with substring 110 for Σ={0,1}
B	Design a Moore machine which counts the occurrence of substring aab in an input string.

C	Give Regular Expressions for
	   i) For all strings over a,b which contains exactly 3 occurrence of b over Σ={a,b}
	   ii) For all strings over 0,1 that starts with 10 and ends with 01

D	Let G be the grammar having the following set of production. S☐ ABA, A☐ aA | bA | ϵ B☐ bbb

		Find LMD and RMD for string "ababbbba"
	E	Write Short Note on Chomsky Hierarchy
	F	Write Short Note on Post Correspondence Problem

Q3.	**Solve any Two Questions out of Three each**		**10 marks**
A	Convert the given grammar G to CNF. G: S -> a | aA | B |C , A -> aB | ε , B -> Aa, C -> aCD | a, D -> ddd.
B	Design a Turing Machine for 2's Compliment of a binary number
C	Design PDA for odd length palindrome let $\Sigma = \{0,1\}, \square = \{\square\square\square^{\square}\} \square h\square\square\square \ \square \ \square \ \square \ ^{*}$

University of Mumbai
Examination 2020 under cluster 4 (Lead College: PCE, New Panvel)
Examinations Commencing from 15th June 2021 to 26th June 2021
Program: **Computer Engineering**

Curriculum Scheme: Rev 2016

Examination: TE Semester V

Course Code: CSDLO5012 and Course Name: Advanced Operating Systems

Time: 2 hours   Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which of the following is not a function of operating system?
Option A:	Program execution
Option B:	Accounting and CPU Utilization
Option C:	Memory Management
Option D:	Virus Protection
2.	The process control subsystem is responsible for the following except_____
Option A:	Process synchronization
Option B:	Inter process communication
Option C:	Retrieving data for users
Option D:	Process scheduling
3.	The file subsystem has following structure. Except:
Option A:	The boot block
Option B:	The process table
Option C:	The super block
Option D:	The inode list
4.	The kernel caches the data in the buffer pool according to
Option A:	Least Recently Used Algorithm
Option B:	First in First Out Algorithm
Option C:	Optimal Used Algorithm
Option D:	Least Frequently Used Algorithm
5.	Which of the following algorithm is used to assign new inodes?
Option A:	Ialloc
Option B:	Iget
Option C:	Namei
Option D:	Getblk
6.	What is the ready to run, swapped state of a process?
Option A:	The process is executing in user mode
Option B:	The process is ready to run, but the swapper must swap the process into main memory before the kernel can schedule it to execute
Option C:	The process is not executing but is ready to run as soon as the kernel schedules it
Option D:	The process is sleeping, and the swapper has swapped the process to secondary storage to make room for other processes in main memory

7.	Which of the following describe the state of a process?
Option A:	Per process region table
Option B:	The region table
Option C:	The process table
Option D:	The segment table
8.	The _____consists of the process text, data, stack, and shared data regions
Option A:	Memory level context
Option B:	Register context
Option C:	System-level context
Option D:	User-level context
9.	The kernel allocates a new region during following system calls except:
Option A:	Fork
Option B:	Exec
Option C:	Exit
Option D:	Shmat
10.	In process state transition, Created is the start state for all processes except process
Option A:	1
Option B:	0
Option C:	2
Option D:	3
11.	A directory is a file whose data is a sequence of entries, each consisting of
Option A:	Inode number and file name
Option B:	File type, file name and file size
Option C:	File type, file name and i-node
Option D:	File type and i-node
12.	Which of the following is a design issue in distributed system structure?
Option A:	Threads
Option B:	Reliability & fault tolerance
Option C:	Global knowledge
Option D:	Processor scheduling
13.	Following are the distributed computing models except
Option A:	Client server model
Option B:	Minicomputer model
Option C:	Workstation Model
Option D:	Processor Pool Model
14.	Which of the following is not based on the vicinity and accessibility of the main memory to the processors?
Option A:	UMA
Option B:	NUMA
Option C:	NORMA
Option D:	SISD

15.	All runnable tasks of an application are scheduled on the processors simultaneously by
Option A:	Smart scheduling
Option B:	Affinity based scheduling
Option C:	Gang Scheduling
Option D:	Co-scheduling algorithm
16.	Which of the following is not a major cause of performance degradation in multiprocessor systems?
Option A:	Preemption inside spinlock controlled critical section
Option B:	Fault tolerance
Option C:	Context switching overhead
Option D:	Cache corruption
17.	Which of the following is not a structure of multiprocessor operating systems?
Option A:	The processor pooled model
Option B:	The separate supervisor configuration
Option C:	The master slave configuration
Option D:	The symmetric configuration
18.	The real time operating system
Option A:	Gives same priority to all processes
Option B:	Serves a task by its deadline period
Option C:	Does process scheduling only once
Option D:	Does not require a Kernel
19.	iOS stands for
Option A:	Internetwork operating system
Option B:	Internet operating system
Option C:	iphone operating System
Option D:	Intra operating system
20.	In Which of the following the applications and services run on a distributed network using virtualized resources?
Option A:	Distributed computing
Option B:	Soft computing
Option C:	Parallel computing
Option D:	Cloud computing

Q2. (20 Marks)	Solve any Four out of Six 5 marks each
A	List various design approaches of an Operating System. Explain any two of them in detail.
B	Describe the structure of buffer header. Discuss any one scenario that kernel may follow to allocate a disk block.
C	Explain process table and U area in detail.
D	Explain various distributed computing models in detail.
E	Based on whether a memory location can be directly accessed by a processor or not, explain tightly coupled and loosely coupled systems.
F	What are the characteristics of real time operating system?

Q3. (20 Marks)	
A	Solve any Two out of Three 5 marks each
i.	What is a superblock? Elaborate on its structure and role in operating system.
ii.	Explain access, location, concurrency and fault transparency.
iii.	Explain various issues in processor scheduling in detail.
B	Solve any One out of Two 10 marks each
i.	With the help of neat diagram discuss the process states and state transitions with respect to Unix OS.
ii.	Explain the architecture of android along with its main components in detail.