

- 7. A _____ of integers is a function from the natural number to integers c) Function a) Sequence b) series d) none 8. ______ is an extension of mathematical induction to well-ordered sets, for example to sets of ordinal numbers or cardinal numbers. a) Transfinite induction b) Step Case c) Function d) Recursion 9. A graph that has neither self-loops nor parallel edges is called _____ graph. b) simple c) complete a) regular d) null 10.G is strongly connected implies _____. a) G is unilaterally connected b) G is bilaterally connected
 - c) G is unilaterally connected c) G has more than one component

<u>SECTION – B</u>

Answer any FIVE Questions :

11. Let $f:A \to B$, $g:B \to C$ and $h:C \to D$ then prove that $(h^{\circ}g)^{\circ}f = h^{\circ}(g^{\circ}f)$ 12. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 4 & 5 \\ 2 & 7 & 8 \end{bmatrix}$ then find |A|. 13. If $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & 2 \\ 1 & 2 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -2 & 3 \\ 2 & 3 & -1 \\ -3 & 1 & 2 \end{bmatrix}$ Find *AB* and *BA*.

14. Define Tautology.

15. Write the principle of mathematical induction.

16. Define Digraph.

17. Define tree.

<u>SECTION – C</u>

Answer ALL Questions :

 $(5 \times 5 = 25)$

18.a) Let I f: A \rightarrow B and g:B \rightarrow C be both one-one and onto functions then prove that $(g^{\circ}f)^{-1}=f^{-1\circ}g^{-1}$.

(**OR**)

- b) Let A={1,2,3,4} and R={(1,1),(1,3),(2,3),(3,4),(4,1),(4,2)} find the reflexive closure of R.
- 19. a) Find the adjoint of the matrix $\begin{bmatrix} 2 & 4 & -1 \\ 0 & 3 & 7 \\ 8 & 1 & 5 \end{bmatrix}$.

(OR)

b) Find the rank of the matrix. $\begin{bmatrix} 1 & 1 & 1 & 1 \\ 4 & 1 & 0 & 2 \\ 0 & 3 & 4 & 2 \end{bmatrix}$.

20. a) Construct the truth table for the formula

$$(P^{A}Q) \lor (P \land Q) \lor (P \land Q) \lor (P \land Q) \lor (Q \land Q)$$
$$(OR)$$

b) Show that $Q(P \land _{\Box} Q) \lor (_{\Box} P \land _{\Box} Q)$ is a tautology.

21.a) Find the recurrence relation satisfying $y_n = A(3)^n + B(-4)^n$.

(OR)

b) Find the generating function of the recurrence relation

s(k)=2 s(k-1), s(0)=1.

22.a) Prove that in any graph, the number of odd degree is even.

(OR)

b) Explain adjacency matrix and incidence matrix.

 $(5 \times 2 = 10)$

<u>SECTION – D</u>

Answer any THREE Questions :

 $(3 \times 10 = 30)$

23. If A,B and C are three sets then prove that AU(BUC)=(AUB)UC.

24. Find the inverse of $A = \begin{bmatrix} 8 & -1 & -3 \\ -5 & 1 & 2 \\ 10 & -1 & -4 \end{bmatrix}$.

25. Explain logical operators with truth table.

26. Using the generating function solve the difference equation

 $y_{n+2} - y_{n+1} - 6y_n = 0$ given $y_1 = 1, y_0 = 2$.

27. Prove that a given connected graph G is Eulerian iff all the vertices

of G are of even degree.



Time: 3 Hours

c) both

VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University]

B.Sc. Comp. Sci. Degree (Semester) Examinations, November 2019 Part – III : Allied Subject : Third Semester : Paper – I

OPERATIONS RESEARCH

Under CBCS – Credit 4

Max. Marks: 75

SECTION - A

Answer ALL Questions :

 $(10 \times 1 = 10)$

1. Model abstract in nature

b) Analogue a) iconic c) Mathematical d) none

2. Operations research is the application of _____ methods to arrive at the optimal solutions to the problems.

a) economical c) a and b both d) artistic b) scientific

- 3. Linear programming inclues more than two variables can be solved by a) simplex method
 - b) Big-M method

d) graphical Method

4. The canonical form of LPP if the objective function is of maximization, then all the constraints other than non-negativity conditions are .

b) lesser than type a) greater than type

- c) greater than or equal to type d) lesser than or equal to type
- 5. In the optimal simplex table $c_j z_j = 0$ value indicates
 - a) unbounded solution b) cycling
 - c) alternative solution d) None of these

6. In linear programming we need to ensure that both the objective function and the constraints can be expressed as linear expressions of

a) Basic variables

c) Constraints

b) Decision variables

d) Objective function

- 7. A transportation problem has a feasible solution when
 - a) all of the improvement indexes are positive
 - b) the number of filled cells is one less than the number of rows plus the number of columns
 - c) all the squares are used
 - d) all demand and supply constraints are satisfied
- 8. In transportation problem if total supply > total demand we add

	a) dummy row w	vith cost 0	b) dummy column with cost 0		
	c) dummy row w	vith cost 1	d) dummy column with cost 1		
9. On travelling salesman problem staring city and ending city should					
	be	·			
	a) Same	b) not same	c) different	d) none	
0. The method us		_ method used to ol	otain optimum s	olution of	
travelling salesman problem.					

a) Simplex b) Hungarian c) dominance d) graphical

<u>SECTION – B</u>

Answer any FIVE Questions :

 $(5 \times 2 = 10)$

- 11. List any four significant features of Operations Research.
- 12. Name three methods for deriving the solution to an OR model.
- 13. Define slack variables in L.P.P.
- 14. Define basic feasible solution.
- 15. State the mathematical formulation of an assignment problem.
- 16. What is a balanced transportation problem?
- 17. Describe a transportation table.

<u>SECTION – C</u>

<u>Answer ALL Questions</u> :

 $(5 \times 5 = 25)$

18.a) Describe the different phases of Operations Research.

(**OR**)

b) Describe the scope of Operations Research.

19.a) The manager of an oil refinery must decide on the optimum mix of two possible blending processes of which the inputs and outputs production run are as follows:

Dreases	Inp	out	Output		
Process	Crude A	Crude B	Gasoline X	Gasoline Y	
1	6	4	6	9	
2	5	6	5	5	

The maximum amounts available of crudes A and B are 250 units and 200 units respectively. Market demand shows that at least 150 units of gasoline X and 130 units of gasoline Y must be produced. The profits per production run from process 1 and process 2 are Rs.4 and Rs.5 respectively. Interpret the problem into a L.P.P for maximizing the profit.

(OR)

b) Solve graphically the following L.P.P:

Maximize $z=2x_1+4x_2$ subject to the constraints:

 $x_1+2x_2 \le 5$, $x_1+x_2 \le 4$ and $x_1, x_2 \ge 0$

20.a) Solve the following problem by simplex method Maximize $z=3x_1+2x_2$ subject to the constraints: $x_1+x_2\leq 4, x_1-x_2\leq 2$ and $x_1,x_2\geq 0$

(OR)

b) Solve the following problem by simplex method Maximize z=107x₁+x₂+2x₃ subject to the constraints: 14x₁+x₂-6x₃+3x₄=7,16x₁+x₂-6x₃≤5, 3x₁-x₂-x₃≤0 and x₁,x₂, x₃, x₄≥0

Mon	Job					
Ivian	А	В	C	D		
Ι	5	3	2	8		
II	7	9	2	6		
III	6	4	5	7		
IV	5	7	7	8		
(OR)						

21.a) Solve the following assignment problem:

b) The following is the cost matrix of assigning 4 clerks to 4 key punching jobs. Find the optimal assignment if clerk I cannot be assigned to job A:

Clark	Job				
Clerk	А	В	C	D	
Ι	-	5	2	0	
II	4	7	5	6	
III	5	8	4	3	
IV	3	6	6	2	

What is the minimum total cost?

22.a) Apply North West Corner rule to obtain an initial basic feasible solution to the following transportation problem:

		D	E	F	G	Available
	А	[11	13	17	14	250
	В	16	18	14	10	300
	С	21	24	13	10 J	400
Requirement		200	225	275	250	

(**OR**)

b) Apply Least Cost method to obtain an initial basic feasible solution to the following transportation problem:

		D	Е	F	G	Available
	А	[1	2	3	4 ~	6
	В	4	3	2	0	8
	С		2	2	1 -	J 10
Requirement		4	6	8	6	

<u>SECTION – D</u>

Answer any THREE Questions :

 $(3 \times 10 = 30)$

23. Explain the various classification schemes of models.

- 24. A company makes two kinds of leather belts. Belt A is a high quality belt, and belt B is of lower quality. The respective profits are Rs.4.00 and Rs.3.00 per belt. Each belt of type A requires twice as much time as a belt of type B, and if all belts were of type B, the company could make 1000 per day. The supply of leather is sufficient for only 800 belts per day (Both A and B combined). Belt A requires a fancy buckle and only 400 per day are available. There are only 700 buckles a day available for belt B. Convert the problem into a L.P.P and solve it graphically.
- 25. Apply Big M method to solve the following L.P.P: Maximize $z=6x_1+4x_2$ subject to the constraints: $2x_1+3x_2\leq 30$, $3x_1+2x_2\leq 24$, $x_1+x_2\geq 3$ and $x_1,x_2\geq 0$

26. Solve the following assignment problem:

Tealra	Men					
Tasks	Е	F	G	Н		
А	18	26	17	11		
В	13	28	14	26		
С	38	19	18	15		
D	19	26	24	10		

27. Solve the following transportation problem:

Enom		Available		
From	А	В	С	Available
Ι	6	8	4	14
II	4	9	8	12
III	1	2	6	5
Requirement	6	10	15	



(Autonomous & Residential) [Affiliated to Madurai Kamaraj University]

B.Sc. Comp. Sci. Degree (Semester) Examinations, November 2019 Part - III : Core Subject : First Semester : Paper - I

PROGRAMMING IN C

	Under CBCS – Credit 4	
Time: 3 Hours		Max. Marks: 75

SECTION – A

 $(10 \times 1 = 10)$

Aı	nswer ALL Ques	$(10 \times 1 = 10)$		
1	. Which of the follo	owing is correct va	riable type?	
	a) float	b) real	c) int	d) double
2.	. The declaration o	f C variable can be	done	·
	a) anywhere in th	ne program	b) in declaration	on part
	c) in executable	part	d) at the end of	the program
3.				
	a) integer value	b) float value	c) char value	d) double
4.	. In str1+str2 mean	S		
	a) Combines two	string b) add y	value c) both	d) none
5.	. The meaning of k	eyword void befor	e the function na	ame means
	a) function shoul	d not return any va	lue	
	b) function shoul	d return a value		
	c) no arguments	are passed		
	d) some argumer	nts are passed		
6	. The bitwise AND	operator is used for	or	
	a) Masking	b) Comparison	c) Division	d) Shifting bit
7.	. The structure con	bines variables of		_·
	a) similar data ty	pes	b) dissimilar da	ata types
	c) unsigned data	types	d) signed data	types

8. The redirection operator -> transfers any output to _____.

a) text file b) console c) binary file d) number file

9. A function declaration must be ended with a ______.

a) .Dot b) ? c) semicolon ; d) none

10. Command line arguments are used to accept argument from _____.a) command prompt of operating system

b) through scanf() statement

c) both (a) and (b)

d) through printf() statement

<u>SECTION – B</u>

Answer any FIVE Questions :

 $(5 \times 2 = 10)$

11. What is the purpose of void data type?

- 12. Write a C Program addition 2 Numbers using Scanf() and Printf().
- 13. What do you mean by Arrays?
- 14. What is the purpose of String Terminator?
- 15. List out the Important Reasons for Need of Function.

16. Define Union.

17. Define Pointers.

<u>SECTION – C</u>

Answer ALL Questions :

 $(5 \times 5 = 25)$

18.a) Enumerate in brief Nested-if-else Statements in C Syntax with example.

(OR)

b) Elucidate briefly about do-while and for Statements in C with example.

19.a) Write briefly about Traversing or Outputting an array in C with example.

(**OR**)

b) Discuss in detail Input and Output String Functions using scanf() in C with example.

20.a) Discuss about the Nesting of Functions in C with example.

(OR)

- b) Write Short notes on : Recursive Function in C with example.
- 21.a) Discuss in detail about Initializing of Structure in C with example.

(OR)

- b) Explain Array of Structures in C.
- 22.a) Write about Pointers and One dimensional arrays in C with example.

(OR)

b) Write about Pointer to Pointer in C with example.

SECTION – D

 $(3 \times 10 = 30)$

- 23. Write about the different types of Operators used in C with example.
- 24. Write a C program to find Matrix Addition.

Answer any THREE Questions :

- 25. Discuss in detail about the various Categories of Functions in C with examples.
- 26. Summarize in brief Call by value and Call by reference passing Structures to Functions in C with example.
- 27. Examine with example I/O using Formatted I/O Function in C using File Handling.



- A data transfer in which one device initiates the transfer is reffered the ______transfer.
 - a) Synchronous b) Asynchronous c) Input/Output d) Data signal

8. The instruction	. The instruction set of a computer are stored in a special memory			19.a) Explain about T and D flip flop.		
called the				(OR)		
a) Control wor	a) Control word b) Control unit		nit	b) Discuss about the De Multiplexers.		
c) Control device d) Con		d) Control sto	ore	20.a) Explain about the Languages and Translato	rs.	
9. The accumulate	or is an 8-bit regi	ister that is part of	f the	(OR)		
a) ALU	b) CPU	c) Microproc	essor d) None	b) Discuss about the Loaders and Linkers.		
10. Increment the contents of a register equivalent instruction		struction	21.a) Explain about the addressing modes.			
a) INR I b) INR R c) IN		c) INC I	d) INC R	(OR)		
				b) Discuss about the procedure for execution	of a complete instruction.	
	<u>SECT</u>	<u> ION – B</u>		22.a) Explain about 8085 instruction set.		
Answer any FIV	<u>E Questions</u> :		$(5 \times 2 = 10)$	(OR)		
11. What is a BCD	code?			b) Discuss about the 8085 pin function.		
12. List the differen	nce between nibl	ble and byte.				
13. What is a Deco	oder?			<u>SECTION – D</u>		
14. Define the use	of multiplexer.			Answer any THREE Questions :	$(3\times 10=30)$	
15. What is a Stack	x?			23. Explain about the Laws of Boolean Algebra.		
16. Define the use	of absolute node			24. Discuss about the JK flip flop.		
17. Name any two	examples for eig	ht bit microproce	essor.	25. Explain about the Bus Structure.		

 $(5 \times 5 = 25)$

<u>SECTION – C</u>

Answer ALL Questions :

18.a) Explain about OR gate.

(**OR**)

b) Discuss about AND gate.

- 25. Explain about the Bus Structure.
- 26. Explain about the Micro Programmed control.
- 27. Discuss about the 8085Architecture.



Answer ALL Questions :

c) Value map Set

VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University]

B.Sc. Comp. Sci. Degree (Semester) Examinations, November 2019 Part – III : Core Subject : Third Semester : Paper – I

COMPUTER ORGANISATION WITH PARALLEL PROCESSING

Under CBCS - Credit 4Time: 3 HoursMax. Marks: 75

SECTION – A

 $(10 \times 1 = 10)$

- 1. The _____ of the computer consists of physical entity of the device.
 - a) software b) middleware c) hardware d) firmware
- 2. _____ directive is used to specify and assign the memory required for the block of code.

a) Allocate b) Assign c) Set d) Reserve

- 3. A _____ circuit is an interconnection of flip-flops and gates.a) combinational b) arithmetic c) shift d) sequential
- 4. The assembler stores all the names and their corresponding values in
 - a) Special purpose Register b) Symbol Table
 - d) None of the mentioned
- 5. _____ is a binary code of a group of elements consisting of 10 decimal digits, the 26 letters of the alphabet and a certain number of special symbols such as \$.
 - a) Alphanumeric code b) Decimal code
 - c) Error detection code d) Reflected code
- 6. RAM is ______ its contents are destroyed when power is turned off.a) non volatileb) permanentc) volatiled) initial

7. Each stage	in pipelining should	l be completed w	vithin cyc	ele.	
a) 1	b) 2	c) 3	d) 4		
8. In super-sc	alar processors,	mode of e	execution is used.		
a) In-orde	r	b) Post or	der		
c) Out of o	order	d) None o	f the mentioned		
9. Out of the	following which is r	not a CISC mach	ine?		
a) IBM 37	'0/168	b) VAX 1	1/780		
c) Intel 80	486	d) Motore	ola A567		
10	10 method is used in centralized systems to perform out of				
order exec	ution.				

a) Scorecard b) Score boarding c) Optimizing d) Redundancy

<u>SECTION – B</u>

<u>Answer any FIVE Questions</u> : $(5 \times 2 = 10)$

11. What are the functional units of a Computer?

12. What is a Bus?

13. Define stack.

14. What is Interrupt?

15. Define DMA.

16. What is parallel Processing?

17. Expand IPC.

<u>SECTION – C</u>

Answer ALL Questions :

 $(5 \times 5 = 25)$

18.a) Explain Basic operational concepts.

(**OR**)

b) Write a short note on Addition of positive Numbers.

19. a) Discuss about the stack operation with example.

(**OR**)

b) Explain Instruction formats.

20. a) Explain Asynchronous Data Transfer.

(**OR**)

b) Discuss about the serial communication.

21.a) Discuss about the Parallel Processing Mechanisms.

(**OR**)

b) Explain parallel computer structures.

22. a) Explain SIMD Interconnection Networks.

(**OR**)

b) Discuss about the parallel Algorithms for Multiprocessors.

<u>SECTION – D</u>

Answer any THREE Questions :

 $(3 \times 10 = 30)$

- 23. Explain Functional units of a computer system.
- 24. Discuss about the types of Addressing modes.

25. Explain DMA.

26. Explain Parallel Processing Applications.

27. Explain Inter Process Communication.



(Autonomous & Residential) [Affiliated to Madurai Kamaraj University]

B.Sc. Comp. Sci. Degree (Semester) Examinations, November 2019 Part - III : Core Subject : Third Semester : Paper - II

COMPUTER GRAPHICS Under CBCS – Credit 4

Time: 3 Hours

Max. Marks: 75

SECTION – A

American ATT O

 $(10 \times 1 \times 1)$

An	iswer ALL Questi	<u>ons</u> :		$(10 \times 1 = 10)$
1.		is a process of tra	ansforming an o	bject or a person
	into another in image processing technology			
	a) Morphing		b) Motion Cap	ture
	c) Animation		d) Surface rend	lering
2.		on random sca	n system depend	s on the number
	of lines to be displa	yed		
	a) Beam intensity	b) refresh rate	c) stroke writir	ng d) scan line
3.		_ is an accurate a	nd efficient raste	er line generating
	algorithm			
	a) Bresenham's lin	e	b) Parallel Line	e
	c) Midpoint		d) DDA	
4.	A line with endpoir	nts codes as 0000	and 0100 is	
	a) Not visible		b) completely	visible
	c) partially visible		d) trivially visi	ble
5.		_ is a rigid body t	transformation th	nat moves objects
	without deformatio	n		
	a) Rotation	b) Scaling	c) Translation	d) All the above
6.	The transformation	that is used to al	ter the size of an	object is
	a) Scaling	b) rotation	c) translation	d) reflection

7.	7. The Process of extracting a portion of a database or a picture inside				
	or outside a specified region are called				
	a) transformation	b) Projection	c) Clipping	d) Mapping	
8.	In	mode,the inpu	t device initiate	data input to the	
	application program	n			
	a) Request	b) sample	c) event	d) loacator	
9.		_ refer to the shap	pes created by u	nion, intersection	
	and difference of given shapes				
	a) Wireframe mod	el	b) composite t	ransformation	
	c) constructive sol	id geometry	d) none of the	se	
10.	10. Stretching out a line from a starting position on moving the screen				
	cursor by using		method		
	a) Gravity	b) rubber band	c) dragging	d) drawing	

<u>SECTION – B</u>

Answer any FIVE Questions : $(5 \times 2 = 10)$

- 11. Name the two graphics software standards developed and approved by the Standards Organization.
- 12. Recall any 2 areas of application of computer graphics.
- 13. List any 2 area fill attributes.
- 14. Define 'Translation' and 'Scaling'.
- 15. Which transformation is used to produce mirror image of an object and how?
- 16. What do you mean by the terms 'Window' and 'Viewport'?
- 17. How does Perspective Projection generate a view of a three dimensional scene?

SECTION – C

Answer ALL Questions :

 $(5 \times 5 = 25)$

18.a) Compare the 'Raster Scan Displays' and the 'Random Scan Displays'.

(**OR**)

- b) Explain any 5 input devices used for providing data input to graphics applications.
- 19.a) Summarize the DDA line drawing algorithm.

(**OR**)

b) Illustrate the various line attributes.

20. a) Outline how a 2-D rotation is applied to an object.

(**OR**)

- b) Show how 'Shear' distorts the shape of an object.
- 21.a) Demonstrate the 'Sutherland Hodgeman Polygon Clipping' procedure.

(**OR**)

- b) Interpret how the graphics input functions operate in various input modes.
- 22.a) Explain the concept of 'Three Dimensional Translation'.

(**OR**)

b) Explain the concept of 'Three Dimensional Scaling'.

<u>SECTION – D</u>

<u>Answer any THREE Questions</u> : $(3 \times 10 = 30)$

- 23. Identify the various components of refresh CRT and explain its basic operations with diagram.
- 24. Apply the 'Mid Point Circle' algorithm to generate a circle.
- 25. Apply the following composite transformations to 2-D objects.

i) Two successive Translations	(3 marks)
ii) Two successive Rotations	(3 marks)
iii) General Fixed Point Scaling	(4 marks)

- 26. Utilize the 'Cohen Sutherland Clipping' procedure to perform Line Clipping.
- 27. Identify the various three dimensional display methods.



(Autonomous & Residential) [Affiliated to Madurai Kamaraj University]

B.Sc. Comp. Sci. Degree (Semester) Examinations, November 2019 Part – III : Core Subject : Fifth Semester : Paper – I

COMPUTER NETWORKS

Under CBCS – Credit 5 Time: **3** Hours Max. Marks: **75**

<u>SECTION – A</u>

A	nswer ALL Que	<u>stions</u> :		$(10 \times 1 = 10)$	
1	1. Number of layers present in OSI protocol stack is				
	a) 5	b) 6	c) 4	d) 7	
2	. In Frequency Div	vision Multiple A	ccess (FDMA), ea	ach band is	
	reserved for a spe	ecific	·		
	a) Signal	b) Station	c) Bandwidth	d) Data	
3	·	is the loss	of energy as the s	signal propagates	
	outwards, which	is expressed in D	B per kilometer.		
	a) Bandwidth		b) Data transfer	rate	
	c) Attenuation		d) Distortion		
4	. When the user ta	ke turns in a roun	d-robin fashion ea	ach one getting	
	entire band width	n for a period of t	ime periodically is	s called	
	a) FDM	b) TDM	c) WDM	d) DWDM	
5	. Which protocol t	he sender sends o	one frame and wai	ts for an	
	acknowledgemen	nt before sending	is called		
	a) Unrestricted s	simplex protocol	b) simplex stop-	and-wait protocol	
	c) Sliding protoc	col	d) Sliding winde	ow protocol	
6	6. Which consequences are more likely to occur during the frame				
	transmission in stop=and-wait ARQ mechanism?				
	a) Loss of frame	or acknowledge	ment		
	b) delay in an ac	knowledgement			

c) Normal operation

d) all of the above

- 7. Flooding is technique of the _____
 - a) Multicast distance vector routing
 - b) Unicast distance vector routing
 - c) Multicast link state routing
 - d) Unicast link state routing

8. Maximum size of TCP header is _____

- a) 20 bytes b) 40 bytes c) 60 bytes d) 80 bytes
- 9. A supporting program that is used by other programs such as e-mail is called _____
 - a) DNS b) SMTP c) IP d) Server/Client
- 10.IANA Stands for _____
 - a) Internet Assigned Node Authority
 - b) Internet Assigned Native Authority
 - c) Internet Aligned Number Authority
 - d) Internet Assigned Number Authority

<u>SECTION – B</u>

 $(5 \times 2 = 10)$

Answer any FIVE Questions :

- 11. Write the uses of Computer Networks?
- 12. What is multiplexing?
- 13. Recall the concept of Sliding window protocol.
- 14. What is virtual circuit?
- 15. Define optimality principle.
- 16. What is MIME?
- 17. How do you make web search?

<u>SECTION – C</u>

Answer ALL Questions :

 $(5 \times 5 = 25)$

18.a) Compare connection-oriented services with connectionless services.

(**OR**)

- b) What are the different types of Networks? Explain.
- 19. a) Demonstrate the structure of telephone system.

(**OR**)

- b) Compare circuit switching with packet switching.
- 20. a) Explain any two error correcting codes.

(**OR**)

- b) Explain two Error detection codes.
- 21.a) Summarize the design issues of network layer.

(**OR**)

- b) Explain TCP.
- 22. a) Explain DNS.

(**OR**)

b) Explain WWW.

<u>SECTION – D</u>

Answer any THREE Questions :

$(3 \times 10 = 30)$

23. Organize OSI and TCP reference models and its design issues.

24. Identify the basic concepts behind various guided transmission medias.

- 25. Identify the Elementary Data Link Protocols.
- 26. Develop the following routing algorithms
- a) Distance vector routing b) Hierarchical routing 27. Organize the concepts of email architecture and its services.



(Autonomous & Residential) [Affiliated to Madurai Kamaraj University]

B.Sc. Comp. Sci. Degree (Semester) Examinations, November 2019 Part – III : Core Subject : Fifth Semester : Paper – II

JAVA PROGRAMMING

Under CBCS - Credit 4Time: 3 HoursMax. Marks: 75

SECTION – A

Answer ALL Questions : $(10 \times 1 = 10)$ 1. Which of these keywords is used to make a class? a) class b) struct c) int d) array 2. The statement is used to terminate a statement sequence. a) break b) switch c) continue d) wait 3. What is the return type of Constructors? a) int b) float d) None of the mentioned c) void 4. A method without the body is called method. a) view b) class c) abstract d) user defined 5. Which of these access specifiers can be used for an interface? a) public b) protected d) All of the mentioned c) private 6. A package is a collection of _____. b) classes and interfaces a) keywords c) editing tools d) views 7. In java thread to thread communication is called . a) passing b) sending c) messaging d) calling

8. _____

a) run() method b) call() method

c) super() method

d) none of the above

9. When we invoke repaint() for a JAVA.awt.Component object, the AWT invokes the method ______.

a) update() b) draw() c) show() d) paint()

10. What class is in the top of the AWT event hierarchy?

a) iostream class	b) java.awt.AWTEvent class
c) io.awt.AWTEvent class	d) java.Event class

<u>SECTION – B</u>

Answer any FIVE Questions :

 $(5 \times 2 = 10)$

 $(5 \times 5 = 25)$

11. What is JVM?

- 12. What is automatic type conversion?
- 13. What is a static keyword?
- 14. What is an abstract keyword?
- 15. Compare Method overloading with Method overriding.
- 16. What is synchronization?

17. Define Throw.

SECTION – C

Answer ALL Questions :

18.a) Explain any two iteration statements in java with example.

(OR)

b) Explain with examples how one dimensional arrays are declared and accessed in java.

19. a) What is constructor? What are its special properties?

(OR)

b) Write short notes on nested classes.

20. a) Explain super and final keyword with example.

(OR)

- b) When do we declare a method or class abstract?Discuss with one Example.
- 21.a) What is an Exception? Explain how we define try, catch block.

(OR)

b) Explain the following Thread methods: i) Sleep ii) Suspend 22. a) Discuss about PrintWriter Class with example.

(**OR**)

b) Discuss about Native method with example.

<u>SECTION – D</u>

Answer any THREE Questions :

 $(3 \times 10 = 30)$

- 23.List out the decision making statements available in Java. Explain with example.
- 24. i) Define Class. How do classes help us to organize our programs?ii) Explain how classes are declared and accessed.
- 25. What is Package? How do we add a class or an interface to a package? Explain it with Examples.
- 26. Write a java program to find factorial of a given number and generate Fibonacci series by implementing multithreading.
- 27. Explain with example, how client can communicate with the server using sockets?



- 8. The relationship in bidirectional link applies in ______ directions. d) four a) one b) both c) tri
- 9. In unit testing, _____ paths are tested to uncover errors within the boundary of the module.
 - a) independent b) control c) network d) graph
- 10. Validation testing begins at the culmination of ______ testing. a) data flow testing b) condition testing c) loop testing d) validation testing

SECTION – B

Answer any FIVE Questions :

 $(5 \times 2 = 10)$

- 11. What is meant by software and software engineering?
- 12. List any four types of softwares.
- 13. Define project cost estimation.
- 14. Define quality control and quality assurance.
- 15. State the phases of software quality assurance.
- 16. What is verification?
- 17. Define Debugging.

SECTION – C

Answer ALL Questions :

 $(5 \times 5 = 25)$

18.a) Describe the size factors in software engineering.

(**OR**)

b) Explain the concept of project structure.

19.a) Describe about software cost estimation techniques.

(**OR**)

b) Discuss about staffing level estimation.

20.a) Explain the format of software requirement specifications.

(OR)

b) Illustrate the relational notations for format specification techniques.

21.a) Write about the guidelines for software design.

(**OR**)

- b) Describe the term coupling and cohesion.
- 22.a) Discuss about the four types of tests.

(**OR**)

b) Explain source code metrics.

SECTION – D

Answer any THREE Questions :

$(3 \times 10 = 30)$

- 23. Explain about planning the development process.
- 24. Explain about software cost factors.
- 25. Explain about Languages and processor for requirement specification.
- 26. Explain the concept of design notation for software design.
- 27. Discuss about unit testing and debugging.



(Autonomous & Residential) [Affiliated to Madurai Kamaraj University]

B.A. / B.Sc. Degree (Semester) Examinations, November 2019 Part – IV : Non-Major Elective Subject : First Semester : Paper – I

INTRODUCTION TO INFORMATION TECHNOLOGY

	Under CBCS – Credit Z		
Time: 2 Hours		Max.	Marks: 75

<u>SECTION – A</u>

Answer ALL Questions :	$(10 \times 1 = 10)$		
1. Information is			
a) a collection of data	b) a processed data		
c) a text data	d) an audio/video data		
2. WWW means			
a) World Wide Wan	b) World Wide Web		
c) World Wan Web	d) World van Web		
3. Website is a collection of			
a) audio files b) video file	c) image file d) html file		
4. WAN stands for			
a) wire and network	b) wire accessible network		
c) widely accessible network	d) wide area network		
5. DOM is an acronym for			
a) document object model	b) document object metrics		
c) digital object model	d) digital object metrics		
6. WWW uses the following protocol	!?		
a) http b) ftp	c) www d) SMTP		

7. A source program is written in		<u>SECTION – C</u>		
a) high level language	b) English language	Answer ALL Ouestions :	$(3 \times 9 = 27)$	
c) machine language	d) symbolic language	18.a) Briefly discuss about the input device	ce and output device.	
 8. Computer performs calculations a) in accurately b) accurately c) 1 million decimals d) 2 decimals 9. The actual machinery in a computer is called the a) machinery b) hardware c) software d) instruments 		(OR)		
		b) Explain the followings		
		i) Web page ii) websit	te iii) browser	
		19.a) Explain about the computer with types. (OR)		
a) cathode ray tubec) printers	b) typewriterd) paper tapes	20.a) Explain about the memory with types. (OR)		
		b) Discuss briefly about storage media	a in a computer system?	

 $(5 \times 2 = 10)$

<u>SECTION – B</u>

Answer any FIVE Questions :

11. Expand HDD and USB.

12. Expand TCP and IP.

13. List out the any two web browsers?

14. What is peripherals?

15. What is CPU?

16. Define internet.

17. Type of memory in computer.

<u>SECTION – D</u>

Answer any TWO Questions :

 $(2 \times 14 = 28)$

21. Explain the different types of operating system?

22. Discuss briefly about the keyboard descriptions in a computer system?

23. Explain the usage of IT in Different fields.

24. Explain the functional unit in a computer.

10SB31



VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University]

B.Sc. Comp. Sci. Degree (Semester) Examinations, November 2019 Part – IV : Skill Based Subject : Third Semester : Paper – I

OPERATING SYSTEM

Under CBCS – Credit 2

Time: 2 Hours

Answer ALL Questions :

Max. Marks: 75

<u>SECTION – A</u>

 $(10 \times 1 = 10)$

1. Instruction and data are stored in a) Main Storage b) Memory c) Core Memoryd) All of these Process some waiting for event. 2. b) Wait a) Run c) Ready d) Execute 3. Main memory is divided into separate . a) Memory Regions b) Memory Partitions c) Memory Devices d) Both a&b 4. A _____ can be defined as a logical grouping of information. b) Paged segment a) Segment d) None c) Demand paged segment 5. The process scheduleris also called the b) Dispatcher c) Processor a) Scheduler d) Controller 6. Page interrupt condition is also called the a) Page interrupt b) Page defaults c) Exception d) Demand page 7. UCB expand for b)Unix cell Block a) Unit Control Block c) Uniform Control Block d) None 8. Arm position is called as a _____ c) Tape d) Record a) Cylinder b) Disk 9. Information management sometimes referred to the _____. a) OS b) Database c) File system d) Contemporary System a) Symbolic fine b) Physical file c) Basic file d) Logical file

<u>SECTION – B</u>

Answer any FIVE Questions :

 $(5 \times 2 = 10)$

- 11. What is OS?
- 12. Differents between software and hardware?
- 13. Define Multiprogramming?
- 14. What is a memory management?
- 15. Write a multiprocessor system?
- 16. Define a storage device? & Example?
- 17. Define a file system?

SECTION – C

<u>Answer ALL Questions</u> :

 $(3 \times 9 = 27)$

- 18.a) What is os, types, function and importance for OS. (OR)
 - b) Write a short notes on os resource Manager.
- 19.a) Write a short notes an Single contigious allocation. (OR)b) Explain about the State model.
- 20.a) Explain the device management system. (OR)b) Explain the simple file system.

<u>SECTION – D</u>

<u>Answer any TWO Questions</u> :

 $(2 \times 14 = 28)$

- 21. Basic concept and terminology for OS.
- 22. Discuss about the job scheduling algorithm.
- 23. Write a short notes an channels and control units.
- 24. Explain about the logical file system.



(Autonomous & Residential) [Affiliated to Madurai Kamaraj University]

B.Sc. Comp. Sci. Degree (Semester) Examinations, November 2019 Part – IV : Skill Based Subject : Fifth Semester : Paper – I

COMPETITIVE EXAMINATION FOR IT

	Under CBCS – Credit 2	
Time: 2 Hours		Max. Marks: 75

<u>SECTION – A</u>

Answer ALL	$(75 \times 1 = 75)$			
1. The L.C.M	of number is 2, 4, 32	2, 8 find the value	e	
a) 32	b) 65	c) 60	d) 63	
2. The L.C.M	of two number is 2,	13 = ?		
a) 15	b) 25	c) 26	d) 28	
3. $\frac{(489+375)^2 - (489-375)^2}{(489\times375)} = ?$				
a) 4	b) 5	c) 40	d) 52	
4. If \times stands f	For 'addition', \div stand	ls for 'subtraction	', + stands for	
'multiplicati	ion' and-stands for 'c	livision', then 20	$\times 8 \div 8 - 4 + 2 = ?$	
a) 80	b) 25	c) 24	d) 19	
5. One digit nu	umber some times ca	alled		
a) Oncs	b) Units	c) Single D	igit d) Number	
6. 637849 this is a number Face value $(8) = ?$				
a) 800	b) 80	c) 8	d) 88	
7. ba b aab a b				
a) acbc	b) acba	c) baba	d) abba	

8. CB = 5, DISCH = 43 NEVER = ?				
a) 64	b) 65	c) 14	d) 48	
9. The Octal	number 23 convert to	o binary number is	1	
a) 111110	b) 110011	c) 010011	d) 110001	
10. The Octal	number 34.52 conve	rt to binary numbe	er is	
a) 011100	0.100	b) 011100.1	01010	
c) 011100	0.001011	d) 011100.0	11110	
11.Computers	s use the	language to pr	ocess data.	
a) Relatio	nal b) megabyte	c) binary	d) Processing	
12. The 3 rd ger	neration computers n	nanufactured by		
a) vacuum	n tubes b) transistors	s c) micro pro	ocessor d) IC	
13. A man wal	lks 5km East, turns le	eft & walks anothe	er 5 km. Again he	
takes a left	t turn & walks 5km.	Which direction of	n is he facing now?	
a) West	b) East	c) South	d) North	
14. Given interchanges : Signs + and - , numbers 4 and 8.				
a) 4 + 8 -	12 = 12 b) $4 - 8 + 12$	2 = 0 c) 8 + 4 - 12	= 2 d) 8 - 4 + 12 = 8	
15.77% of 64	= ?			
a) 47.28	b) 49.28	c) 48.29	d) 49.27	
16. The L.C.M of two number is $12, 30 = ?$				
a) 58	b) 60	c) 62	d) 64	
17. The L.C.M of two number is $30, 42 = ?$				
a) 630	b) 635	c) 220	d) 210	
18 (963+476	$(5)^2 - (963 - 476)^2$)		
18. ${(963 \times 476)} = ?$				
a) 4	b) 5	c) 6	d) 2	

19. If Q means 'add	d to', J means 'multi	ply by', T means	'substract from'
and K means 'c	livide by' then 30 K	2 Q 3 J 6 T 5 = 6	?
a) 28	b) 18	c) 31	d) 103
20.637849 this is	a number Place valu	1e(3) = ?	
a) 30000	b) 3000	c) 300	d) 3000000
21.2, 5, 10, 17, 26	, ??, 50, ??		
a) 36, 65	b) 36, 63	c) 37, 66	d) 37, 65
22.HEART = @8	531; FEAST = #85	41; FARTHEST	= ?
a) #541@831	b) @541#831	c) #831@541	d) #531@841
23. NOTION – LN	IRGML; VECTOR	= ?	
a) VEGXIL	b) VEXGLI	c) EVTCRO	d) EVROTC
24. The Binary nur	mber 011101111con	nvert to octal nun	nber is
a) 357	b) 356	c) 355	d) 354
25. The binary nur	nber 10001100 con	vert to hexa num	ber is
a) 812	b) 8A	c) 8B	d) 8C
26. Arranging of d	ata in a logical sequ	ence called is	
a) Sorting	b) classifying	c) reporting	d) summarising
27. A text is entered	ed, using word proce	essor by means o	f a
a) keyboard	b) disk	c) file	d) Printer
28. Home D is 10	km, towards the No	rth of House A. I	Home C is 15km
towards the we	est of Home D. Hor	ne B is 15km tov	vards the west of
Home A. How	far and in which di	rection is Home	B from Home C?
a) East	b) West	c) North	d) South
29. Find out the tw	o signs to be intercl	hanged for makir	ng following
equation correc	t t 5 + 3 x 8 - 12 / 4	=3	
a) + and -	b) + and /	c) + and x	d) - and /

30.70, 27, 32, 40 = ?

a) 256	b) 252	c) 305	d) 352		
31. The L.C.M of The	31. The L.C.M of Three number is 4, 16, $32 = ?$				
a) 64	b) 60	c) 32	d) 30		
32. The L.C.M of two variable is $x^3y^2 z^2$, $xyz = ?$					
a) xy ² z	b) x^3y^2z	c) x^3y^2	d) x ³ yz		
33.7:12 is equivalent	to				
a) 28:40	b) 42:71	c) 42:72	d) 72:42		
34. If \times means \div , - m	neans \times , \div means +	and + means- t	than (3 - 15 ÷ 19)		
\times 8 + 6 = ?					
a) 8	b) 4	c) 10	d) 2		
35.9587 - ? = 7429 -	- 4358				
a) 6516	b) 6563	c) 6662	d) 6514		
36. look this series : 7, 10, 8, 11, 9, 12 what number should come next?					
a) 7	b) 10	c) 12	d) 13		
37. A/2, B/4, C/6, D/8 .?,?					
a) E/8, F/10	b) E/12, F/14	c) E/10, F/12	d)D/10, E/10		
38. If ACTION is coded as ZXGRLM, then HEALTH will be coded as					
a) SVZOGS	b) TVZOGT	c) RUZPGR	d) QVGOZQ		
39. The hexa number 9AFconvert to binary number is					
a) 100110101111		b)100111101101			
c)100010001011		d)100100111100			
40. The hexa number 3E2 convert to binary number is					
a) 100110101111		b) 100110111110			
c)101111101010		d) 001111100010			

41. What protocols used between E-Mail servers					
	a) FTP	b) SMTP	c) SNMP	d) P0P3	
42	Where is RAM lo	cated?			
	a) Expansion Board		b) External Drive		
	c) MotherBorad		d) None		
43	Ram is the brothe	r of Arun. Sana is t	he sister of Tina	. Arun is the son	
	of Sana. How is R	Ram related to Sana	ι?		
	a) Brother	b) Uncle	c) Son	d) Father	
44	Select the correct	set of symbols whi	ch will fit in the	given equation?	
	5 0 3 5 = 20				
	a) x, x, x	b) -, +, x	c) x, +, x	d) +, -, x	
45.5% of 5% of Rs.100 is					
	a) Rs.25	b) Rs.0.50	c) Rs.10	d) Rs.0.25	
46. The L.C.M of Three number is 26, 26, 26 = ?					
	a) 64	b) 26	c) 32	d) 30	
47. The L.C.M of two variable is $3x^2yz$, $4x^3y^2z = ?$					
	a) $34x^2zx^3z$	b) $3x^2y4x^3y^2$	c) $7x^3yy^2z$	d) $12x^{3}y^{2}z$	
48. A ratio equivalent to 3:7 is					
	a) 9:21	b) 6:10	c) 3:9	d) 18:49	
49	.If 'blue' means 'g	reen', 'green' mea	ns 'white', 'whit	te' means	
	'yellow', 'yellow'	' means 'black', 'b	lack' means 'red	l' and 'red'	
means 'brown', that what is colour of 'Board'?					
	a) Yellow	b) Green	c) Red	d) Black	

50. Find the missing number in the following series? 3, 5, 5, 19, 7, 41, 9, ?				
a) 91	b) 61	c) 79	d) 71	
51. What should cor	ne in place of quest	tion mark (?) ir	the following	
number series?	132 156 ?	210	240 272	
a) 196	b) 182	c) 199	d) 204	
52. Look at this serie	es: V, VIII, XI, XIV	V,, X	XX, What number	
should fill the bl	ank?			
a) IX	b) XXIII	c) XV	d) XVII	
53. In a certain code language, WINDOW is coded as 452364, SHADE				
as 17839. Then	HIDDEN is coded	as?		
a) 763392	b) 753392	c) 765595	d) 756696	
54. The Multiplication of two number is $117 \times 113 = ?$				
a) 12321	b) 12231	c) 13221	d) 13220	
55. The Multiplication of two number is $69 \times 61 = ?$				
a) 4207	b) 4201	c) 4205	d) 4209	
56. We can draw a pie-graph in a				
a) Excel	b) Power point	c) Access	d) Word	
57.M-S word is an example of				
a) System S/W b) Appl		b) Application	on S/W	
c) OS	c) OS d) Translating program		g program	
58. Pointing towards a day, Veena said, "He is the son of the only son of				
my Grandfather." How is that boy related to Veena?				
a) Uncle	b) Brother	c) Cousin	d) None	

59. Givenintercharge	s : Signs + and x and	nd numbers 4 an	d 5	
a) $5 \times 4 + 20 = 4$	a) $5 \ge 4 + 20 = 40$		b) 5 x 4 + 20 = 85	
c) $5 \times 4 + 20 = 1$	c) $5 \ge 4 + 20 = 104$		d) 5 x 4 + 20 = 95	
60. $2\sqrt{1225} = ?$				
a) 35	b) 30	c) 45	d) 25	
61. The L.C.M of Th	ree variable is a ² bc	,ab ² c,abc ² =?		
a) a ² bcab ² cabc ²	b) $a^2ab^2bc^2c$	c) $a^2b^2c^2$	d) $aa^2bb^2cc^2$	
62. The L.C.M of Th	ree variable is a ^{m+1}	$a^{m+2}, a^{m+4} = ?$		
a) a ^{m+4}	b) a ^{m+2}	c) a ^{m+1}	d) $a^{m+2}a^{m+4}$	
63. In a class there ar	e 20 boys & 15 gir	ls. The ratio of b	ooys to girls are	
a) 4:3	b) 4:5	c) 3:9	d) 18:49	
64. If 'blue' means 'g	green', 'green' mea	ns 'white', 'whi	te' means	
'yellow', 'yellow' means 'black', 'black' means 'red' and 'red'				
means 'brown', that what is colour of 'panana'?				
a) Yellow	b) Green	c) Brown	d) Black	
65. Look at this series: 201, 202, 204, 207, What number should				
come next?				
a) 205	b) 208	c) 210	d) 211	
66. Look at this series: 3, 4, 7, 8, 11, 12, What number should come				
next?				
a) 7	b) 10	c) 15	d) 14	
67. If ACTION is coded as ZXGRLM, then HEALTH will be coded as				
a) SVZOGS	b) TVZOGT	c) RUZPGR	d) QVGOZQ	
68. If $C = 3$ and POLISH = 79, then POINTER = ?				
a) 98	b) 97	c) 96	d) 95	

69. Arrange the words given below in a meaningful sequence.			
I. Key II	.Door III.Lock	IV.Room	V.Switch on
a) 5, 1, 2, 4, 3	b) 4, 3, 2, 5, 4	c) 1, 3, 2, 4, 5	d) 3, 5, 1, 2, 4
70. Arrange the word	s given below in a	meaningful sequ	ience.
I.Word II. I	Essay III. Senter	nce IV. Paragra	aph V. Letter
a) 3, 1, 5, 2, 4	b) 5, 1, 3, 4, 2	c) 1, 2, 5, 3, 4	d) 3, 5, 1, 2, 4
71. Data in a compute	er can be represente	ed as	·
a) Hexa Decimal	b) Decimal	c) Binary	d) All of these
72. The Hexadecimal number system cinsists of the			
a) 0-15	b) 0-9,A-E	c) 0-7,A-F	d) 0-9,A-F
73.Docter::Patient::Teacher::?			
a) Principal	b) Hod	c) Student	d) All of these
74. What is $7 + 7 \div 7 + 7 \times 7 - 7 = ?$			
a) 50	b) 42	c) 0	d) 57
75. $2\sqrt{9025} = ?$			
a) 85	b) 75	c) 95	d) 90