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16. a) Sally _____ (eat) dinner last night when someone _____ (knock) on the door. **(Fill in the blanks with an appropriate form of tense)** **(2)** CO 2 BL 3

b) I began to study at seven last night. I fed _____ (arrive) at seven-thirty. I _____ (study) when I fed _____ (come). **(Fill in the blanks with an appropriate form of tense)** **(3)** CO 2 BL 3

Part - C
Answer any Three (3x10=30 Marks)

17. On behalf of the Students' Union of your College, submit a report to the Principal on the shortcomings of the College Canteen with your recommendations on how to overcome them. **(10)** CO 4 BL 6

18. Imagine yourself to be the Team Leader in TCS and send a mail to your team appreciating successful completion of the Project. **(10)** CO 4 BL 6

19. Prepare an application for the position of Assistant Engineer at Accenture, Kolkata in response to their advertisement in The Times of India on 22nd January 2023. **(10)** CO 4 BL 3

20. a) Define non-verbal communication and explain its function with respect to eye contact. **(5)** CO 1 BL 3

b) In what ways does non-verbal language interact with verbal language? **(5)** CO 1 BL 3

21. _____ June 13 the Circle Players will open _____ Star Theater a revival _____ George Bernard Shaw's play, Major Barbara. When the play opened _____ Philadelphia a week ago, the critics gave the Circle Players enthusiastic reviews. Good reviews are not unusual for the Circle Players, who have thrilled audiences _____ their performances _____ the past decade. In fact, they were so loudly acclaimed _____ London for their performance of Major Barbara that the play ran _____ three years. Tickets are now on sale _____ the box office at the Star Theatre _____ the three-week engagement. **(Fill in the blanks with appropriate preposition)** **(10)** CO 2 BL 3

JIS UNIVERSITY

Sr. No: A22/B.Tech CSE./1/005

Roll Number

END SEMESTER EXAMINATION - AUTUMN 2022

YED1001– ENGLISH FOR COMMUNICATION / ENGLISH (Common to HU101)

Time: 2.5 Hrs. Maximum Marks: 50

Instructions to the candidate:

- *Figures to the right indicate full marks.*
- *Draw neat sketches and diagram wherever is necessary.*

Part - A
Answer any Ten (10x1=10 Marks)

1. What grudge do you have _____ me? **(1)** CO 2 BL 3

a) On b) For

c) With d) Against

2. His disease is _____ cure. **(1)** CO 2 BL 3

a) Through b) With

c) Beyond d) On

3. The police _____ four thieves last night. **(1)** CO 2 BL 3

a) catch b) caught

c) catching d) will catch

4. _____ in magic? **(1)** CO 2 BL 3

a) Do you believe b) Are you believe

c) You believe d) Does you believe

e)

5. **Active** God will endow him with the power of speech one day. (1) CO 2 BL 3
Passive He _____ with the power of speech by God one day.
a) Can be endowed b) Should be endowed
c) Will be endowed d) Could be endowed

6. Our dress code is an example of _____ communication. (1) CO 1 BL 4
a) verbal b) non-verbal
c) written d) spoken

7. In an oral presentation the listener can clarify their doubts in the _____ session. (1) CO 1 BL 4
a) introduction b) description of methods and results
c) conclusion d) audience questions

8. Posters fall under _____ communication. (1) CO 1 BL 3
a) oral b) visual
c) written d) spoken

9. Effective communication requires _____. (1) CO 1 BL 4
a) listening b) speaking
c) both a and b d) none of the above

10. If you need to apply for leave at work, which method of communication will you use? (1) CO 1 BL 4
a) E-mail b) poster
c) newsletter d) blog

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11. Full stops, commas are question marks are examples of _____ mark. (1) CO 4 BL 5
a) Sentence b) Punctuation
c) Conjunction d) None of the above

12. Akash works for _____ amazing organization. (1) CO 2 BL 3
a) a b) an
c) the d) none of the above

Part - B
Answer any Two (2x5=10 Marks)

13. a) What is communication? (2) CO 1 BL 1
b) Write a short note on noise in communication. (3) CO 1 BL 1

14. In the following paragraph, ***identify and change*** the ***five errors*** in subject-verb agreement. ***Write*** the passage and ***underline*** the changes. (5) CO 2 BL 4

According to legend, Santa Claus is a fat old man who visits every house on our planet in about eight hours on one of the coldest nights of the year. Santa, as everybody knows, stop for a glass of milk and a cookie at each house along the route. He prefer to work unnoticed, so he wears a luminous red suit and travels with a pack of bell-jangling reindeer. For reasons that most people does not understand, this jolly old man enters each house not by the front door but through the chimney (whether you has a chimney or not). He customarily gives generously to children in wealthy families, and he usually remind poorer children that it's the thought that counts. Santa Claus is one of the earliest beliefs that parents try to instill in their children. After this absurdity, it's a wonder that any child ever believes in anything again.

15. a) Write a short note on written communication. (3) CO 1 BL 1
b) Give two examples of audio-visual communication. (2) CO 1 BL 4

16. If $u = \cos^{-1}\left\{\frac{x+y}{\sqrt{x}+\sqrt{y}}\right\}$, then prove that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = -\frac{1}{2}\cot u$ (5) CO3 BL 2

Part - C
Answer any Three (3x10=30 Marks)

17. a) Evaluate $\int_0^\infty e^{-4x} x^{\frac{3}{2}} dx$ (5) CO3 BL 2 BL 3

b) Find the maxima and minima of the function $f(x,y) = x^3 + y^3 - 3x - 12y + 20$ (5) CO3 BL 2

18. a) Using Cayley-Hamilton theorem, find A^{-1} where $A = \begin{bmatrix} 2 & 1 \\ 1 & 3 \end{bmatrix}$ (5) CO 1 BL 2

b) If $z = f(x,y)$ and $x = e^u \cos v$, $y = e^u \sin v$ then show that (5) CO 3 BL 2

$$y\frac{\partial z}{\partial u} + x\frac{\partial z}{\partial v} = e^{2u}\frac{\partial z}{\partial y}$$

19. $T: R^3 \to R^2$ is a linear transformation which is represented by the matrix $\begin{bmatrix} 1 & 2 & 4 \\ 2 & 1 & 0 \end{bmatrix}$ relative to the basis of $\{(1,0,0),(0,1,0),(0,0,1)\}$ of R^3 and $\{(1,0),(1,1)\}$ of R^2. Find T (10) CO3 BL 2

20. a) Evaluate $\int_0^\infty e^{-x^2} dx$ (5) CO3 BL 2 BL 3

b) Find the extrema of the function $f(x) = x^{\frac{1}{x}}$ (5) CO 2 BL 3

21. Investigate for what values of λ and μ the following equations $x + 2y + 3z = 6$; $x + 3y + 5z = 9$; $2x + 5y + \lambda z = \mu$ has (i) unique solution (ii) no solution (iii) many solutions (10) CO 1 BL 3, BL 2

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END SEMESTER EXAMINATION - AUTUMN 2022

YMT1001 / M101 – MATHEMATICS – I

Time: 2.5 Hrs. **Maximum Marks: 50**

Instructions to the candidate:
- *Figures to the right indicate full marks.*
- *Draw neat sketches and diagram wherever is necessary.*

Part - A
Answer any Ten (10x1=10 Marks)

1. If $f(x) = \frac{\sin x}{x}, x \neq 0$ then $\lim_{x \to 0} f(x)$ is equal to (1) CO 1 BL 3

a) 1 b) $\frac{1}{2}$

c) 0 d) -1

2. The system of equation $x + y = 2$, $2x + 2y = 5$ has (1) CO 2 BL 3

a) one solution b) no solution

c) many solutions d) four solutions

3. If $f(x,y) = \frac{x^2 + y^2}{\sqrt{x+y}}$ then $xf_x + yf_y =$ (1) CO 3 BL 2

a) $\frac{1}{2}$ b) $\frac{1}{2}f$

c) $\frac{3}{2}f$ d) none of these

4. The rank of a null matrix is (1) CO 1 BL 1

a) 0 b) 1

c) 2 d) 3

5. If the matrix $\begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & \lambda \end{bmatrix}$ is singular, then the value of λ is (1) CO 1 BL 2

a) 3 b) 5

c) 2 d) 4

6. The necessary condition that (a,b) is a .....point of $f(x,y)$ if $f_x(a,b)=0=f_y(a,b)$ (1) CO 3 BL 1

a) maximum b) stationary

c) saddle point d) minimum

7. If $T:V\to W$ is a linear transformation then Nullity of T +Rank of T equals to (1) CO 5 BL 1

a) dimension of V b) dimension of W

c)dimension of $(V+W)$ d) none of these

8. Find k so that the vectors $(1,-1,2),(0,k,3)$ and $(-1,2,3)$ are linear dependent (1) CO 4 BL 3

a) $\frac{1}{2}$ b) $\frac{3}{5}$

c) $-\frac{1}{2}$ d) $-\frac{3}{5}$

9. The critical point of the function $f(x,y)=xy$ (1) CO 3 BL 2

a) $(1,1)$ b) $(1,-1)$

c) $(-1,1)$ d) $(0,0)$

10. If $x=r\cos\theta$ and $y=r\sin\theta$, then $\frac{\partial(x,y)}{\partial(r,\theta)}$ is (1) CO 3 BL 2

a) r b) 1

c) $\frac{1}{r}$ d) none of these

11. The value of the integral $\int_0^\infty e^{-2x}dx$ is (1) CO 3 BL 3

a) 1 b) -1

c) $\frac{1}{2}$ d) $-\frac{1}{2}$

12. The value of $\beta\left(\frac{1}{2},\frac{1}{2}\right)$ is (1) CO 3 BL 1

a) $\sqrt{\pi}$ b) π

c) $\frac{\pi}{2}$ d)none of these

Part - B
Answer any Two (2x5=10 Marks)

13. Using Mean Value Theorem, prove that $\frac{x}{1+x^2}<\tan^{-1}x<x$ if $0<x\frac{\pi}{2}$ **(5)** CO1 BL 1

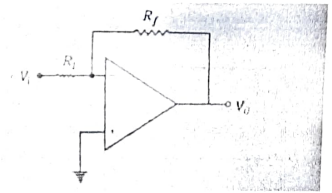
14. Find the rank of a matrix $\begin{bmatrix} 2 & 1 & 2 \\ 2 & 2 & 1 \\ 1 & 1 & 1 \end{bmatrix}$ **(5)** CO1 BL 1

15. Show that $\{(3,1,-2),(2,1,4),(1,-1,2)\}$ form a basis of R^3 **(5)** CO3 BL 1

b) A Si diode with forward bias resistance 15 Ω is used to design a half wave rectifier. The applied input voltage Vi = 50 sin ω t and the load resistance is 1000 Ω. Evaluate (i) Im, (ii) Idc , (iii) Irms, (iv) ripple factor and (v) efficiency. (5) CO 2 BL 5

19. a) Draw the inverting OPAMP circuit diagram and determine the OPAMP gain. (5) CO 3 BL 4

b) For an inverting OPAMP, if R1= 5000 Ω, Rf = 500 Ω, V1= 10 V. Calculate the output voltage Vo. (5) CO 3 BL 4



20. a) Explain the working of center tapped full-wave rectifier circuit with suitable circuit diagram and waveform. (5) CO 2 BL 2

b) A center tapped transformer has 240 V primary winding at 6-0-6 volt. This transformer is used in the full wave rectifier circuit with a load resistance of 150 Ω. Evaluate (i) Im, (ii) Idc , (iii) Irms, (iv) ripple factor and (v) efficiency. (5) CO 2 BL 5

21. a) Name the channel types of p-channel and n-channel JFET. Also name the regions where JFET behaves as an ordinary resistor, as an amplifier and as constant voltage source. (5) CO 2 BL 1

b) For a JFET, show that $\mu = g_m \times r_d$ (5) CO 2 BL 3

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END SEMESTER EXAMINATION - AUTUMN 2022

YCS1001 – BASIC ELECTRONICS

Time: 2.5 Hrs. Maximum Marks: 50

Instructions to the candidate:

- *Figures to the right indicate full marks.*
- *Draw neat sketches and diagram wherever is necessary.*

Part - A

Answer any Ten (10x1=10 Marks)

1. A p-n junction diode is used as (1) CO2 BL1

a) an oscillator b) an amplifier

c) a rectifier d) a voltage regulator

2. Cut-in voltage of a silicon diode is (1) CO2 BL1

a) 2.4 volt b) 3 volt

c) 3.1 volt d) 0.7 volt

3. When a pentavalent impurity is added to a pure semiconductor, it becomes (1) CO1 BL1

a) an insulator b) an intrinsic semiconductor

c) p type semiconductor d) n type semiconductor

4. MOSFET is (1) CO2 BL1

a) Metal Oxide Semiconductor Field Effect Transistor b) Metal Oxide Semiconductor Field Emission Transistor

c) Junction Field Effect Transistor d) None of these

5.	Band gap of Silicon is		(1)	CO1	BL1
	a) 6.7 eV	b) 1.1 eV			
	c) 0.3 eV	d) 0.7 eV			
6.	An ideal OPAMP has CMRR		(1)	CO3	BL1
	a) infinity	b) zero			
	c) one	d) none of these			
7.	For a transistor , which one is correct		(1)	CO2	BL1
	a) $I_C = I_E - I_B$	b) $I_B = I_E + I_C$			
	c) $I_E = I_B - I_C$	d) $I_E = I_B - I_C$			
8.	The maximum efficiency of a half wave rectifier is		(1)	CO2	BL1
	a) 40.6%	b) 56%			
	c) 14%	d) 81.2%			
9.	An ideal OPAMP has slew rate		(1)	CO3	BL1
	a) infinity	b) zero			
	c) one	d) none of these			
10.	BJT is called		(1)	CO2	BL1
	a) current controlled device	b) voltage controlled device			
	c) unipolar device	d) none of these			
11.	With both junctions reverse biased, the transistor operates in		(1)	CO2	BL1
	a) active region	b) saturation region			
	c) cut off region	d) none of these			

12.	The base region of a BJT is doped		(1)	CO2	BL1
	a) heavily	b) lightly			
	c) moderately	d) none of these			

Part - B

Answer any Two (2x5=10 Marks)

13.	a)	Sketch the symbol of p-n junction diode and Zener diode.	(2)	CO2	BL3
	b)	Write down the diode equation and explain each term.	(3)	CO2	BL3
14.	a)	Sketch the symbol of BJT for both pnp and npn transistor.	(2)	CO2	BL3
	b)	For a BJT, if $I_E = 0.99$ mA , $I_C = 0.96$ mA , calculate I_B .	(3)	CO2	BL4
15.	a)	Sketch the symbol of OPAMP.	(2)	CO3	BL3
	b)	Describe the function of function generator and CRO.	(3)	CO3	BL1
16.	a)	State Mass Action Law.	(2)	CO1	BL1
	b)	Write down the Einstein's relationship equation of semiconductor.	(3)	CO1	BL3

Part - C

Answer any Three (3x10=30 Marks)

17.	a)	Describe f(E)= 1 and f(E)= 0 with the help of Fermi-Dirac distribution function. (Mention the conditions).	(5)	CO1	BL5
	b)	Draw and explain the position of Fermi level for extrinsic semiconductor.	(5)	CO1	BL4
18.	a)	Explain the working of half-wave rectifier circuit with suitable circuit diagram and waveform.	(5)	CO2	BL2

19.	a)	What is a Pointer	(2)	CO3	BL3
	b)	What is I/O function? List different types of I/O functions	(8)	CO1	BL1
20.		Draw an algorithm for sorting an array in ascending order and another function for descending order	(10)	CO4	BL4
21.	a)	What is mean by storage class of variable?	(2)	CO1	BL1
	b)	Draw the flowchart and write the algorithm and c code to find the sum and to reverse the digits of given five digit number.	(8)	CO6	BL5

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END SEMESTER EXAMINATION - AUTUMN 2022

YCS1003 – BASIC PROBLEM SOLVING

Time: 2.5 Hrs. **Maximum Marks: 50**

Instructions to the candidate:

- ***Figures to the right indicate full marks.***
- ***Draw neat sketches and diagram wherever is necessary.***

Part - A
Answer any Ten (10x1=10 Marks)

1.	Loop statement which is repeated for some given number of times is classified as a) FOR loop b) GO loop c) REPEAT loop d) GO REPEAT loop	(1)	CO1	BL1
2.	Type of statement written in sequence and is repeated until the specific condition met is classified as a) format b) loop c) case d) condition	(1)	CO1	BL1
3.	Size of an array is declared by a) programmer b) program users c) software d) declared automatically	(1)	CO1	BL1
4.	Functions that are used in the programs and are defined by the programmers are called a) program layout b) program procedure c) built-in functions d) user-defined function	(1)	CO1	BL1

5. Name given by a programmer to any particular data is classified as (1) CO1 BL1
   a) identifier b) identification
   c) exponent d) mantissa

6. When variable used in program is whole number, the variable is stored as (1) CO 1 BL1
   a) fixed string b) integers
   c) negative whole numbers d) positive whole numbers

7. The_____ statement is used to transfer the control to the end of statement block in a loop: (1) CO 1 BL1
   a) Continue b) Break
   c) Switch d) Goto

8. Which of the following is not a valid variable name declaration (1) CO1 BL1
   a) int _a3 b) int a_3;
   c) int 3_a d) int _3a

9. All keywords in C are in (1) CO1 BL1
   a) LowerCase letters b) UpperCase letters
   c) CamelCase letters d) None of the mentioned

10. Which of the following is a User-defined data type? (1) CO 1 BL1
    a) typedef int Boolean; b) typedef enum {Mon, Tue, Wed, Thu, Fri} Workdays;
    c) struct {char name[10], int age}; d) all of the mentioned

11. The following code 'for(; ;)' represents an infinite loop. (1) CO1 BL1
    a) break b) exit(0)
    c) abort() d) all of the mentioned

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12. The keyword 'break' cannot be simply used within: (1) CO1 BL1
    a) do-while b) if-else
    c) for d) while

Part - B
Answer any Two (2x5=10 Marks)

13. a) What is the syntax of nested If statement? (2) CO1 BL1
    b) What is the difference between Local and Global variables? (3) CO 1 BL1

14. a) What is Pseudo code? (2) CO2 BL2
    b) What is a function? (3) CO2 BL2

15. a) Explain the following term: (3) CO3 BL3
        i. Static variables
        ii. External variables
        iii. Automatic variables
    b) Draw flowchart to find the largest and smallest of three numbers. (2) CO3 BL3

16. a) What is the difference secondary and primary memory? (2) CO2 BL2
    b) What is the Scope of an extern variable? (3) CO2 BL2

Part - C
Answer any Three (3x10=30 Marks)

17. a) What is array? (2) CO2 BL2
    b) What are the different types of arrays? How to declare an array? (3) CO2 BL2

18. a) What are the various types of software used in computer? (3) CO 1 BL 1
    b) Explain the functionality of each of the component. (7) CO 1 BL 1

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