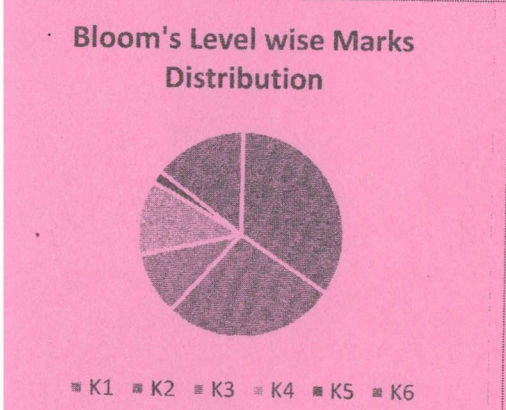
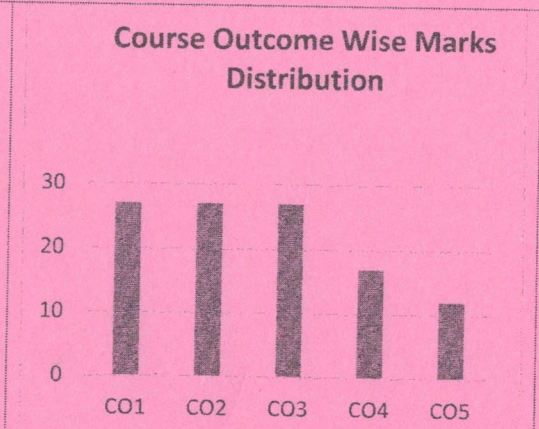
O- Course Outcomes, **KL**- Knowledge Level, **PO** – Program Outcome

Course Outcomes	CO1	Comfortably work on computer, install and configure OS
	CO2	Assemble a PC
	CO3	Connect it to external devices, write documents,
	CO4	Create worksheets, prepare presentations
	CO5	Protect information and computers from basic abuses/ attacks.

GRAFICAL REPRESENTATION





ARKAJAIN University Jharkhand

END TERM EXAMINATION
School of Engineering & IT

Branch	**CSE & EEE**	**Program**	**Diploma**
Subject Name	**Introduction to IT System**	**Semester**	**1st**
		Year	**2023/ Odd**

Time: 3 Hour
Max. Marks : 70

- Start writing from 2nd page onwards; **don't Write on the 1st Page Backside**
- **Answer all Questions of Section A (Compulsory)**
- **Answer Any Four out of Six of Section B**
- **Answer Any Three out of Five of Section C**
- **Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Papers.**

Knowledge Level (KL)	**K1 :** Remembering	**K3 :** Applying	**K5 :** Evaluating
	K2 : Understanding	**K4 :** Analysing	**K6 :** Creating

Section A (Each question Carry 02 Marks from Q1-i to Q1-x) – 20 Marks

Q. N 1	QUESTIONS	Marks	COs	KL	PO
i	List two devices which can be used as input as well as output device.	2	CO1	K1	PO2
ii	What is batch processing?	2	CO2	K2	PO1
iii	Define multiprogramming.	2	CO2	K2	PO3
iv	Differentiate between single user and multi-user system.	2	CO2	K1	PO4
v	What is the role of Information Technology in our society?	2	CO5	K4	PO6
vi	How the speed of processor can be measured?	2	CO2	K1	PO9
vii	What is 'Internet'? How does it differ from 'Intranet'?	2	CO3	K2	PO10
viii	What is the function of Recycle Bin?	2	CO2	K1	PO1
ix	Explain about free and open source software.	2	CO2	K2	PO3
x	Define a Database.	2	CO4	K1	PO4

Section B (Answer any FOUR out of SIX) – 20 Marks
(Each question 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Explain in detail multiprocessing and time-sharing systems.	5	CO3	K1	PO6
3	Briefly describe the generations of computer.	5	CO1	K1	PO9
4	Explain EBCDIC in brief.	5	CO1	K3	PO10
5	Explain with example procedure to convert binary number to octal number.	5	CO1	K6	PO1
6	Explain the following: (i) LAN (ii) MAN (iii) WAN.	5	CO4	K1	PO3
7	Write short notes on (any two) (i) Types of memory (ii) Virus and antivirus (iii) Any one output device.	5	CO2	K3	PO4

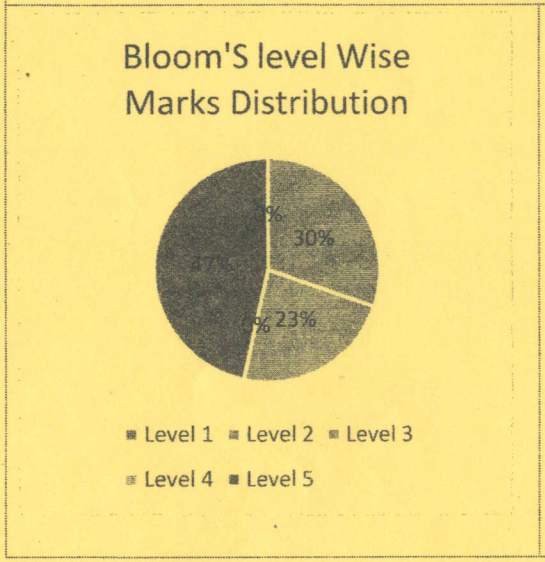
Section C (Answer any THREE out of FIVE) – 30 Marks-
(Each question Carry 10 Marks)

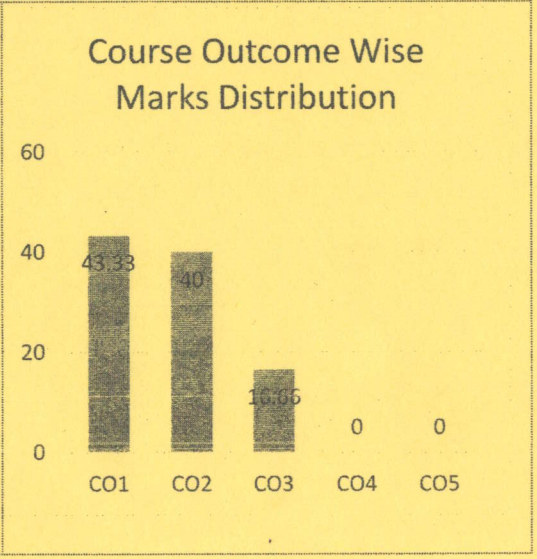
Q. No.	QUESTIONS	Marks	COs	KL	PO
8	Discuss the working of various components of computer with block diagram.	10	CO1	K2	PO6
9	What are the differences between internal commands and external commands in DOS? Give three examples of each type with syntax.	10	CO2	K2	PO9
10	Why is the software needed in computer systems? Mention the role of system software. Discuss the functionalities of the operating system.	10	CO3	K1	PO10
11	Define computer network. Discuss the types of network topologies with their pros and cons.	10	CO4	K4	PO1
12	Convert following from decimal to binary : a. $(999)_{10} = (?)_2$ b. $(1234)_{10} = (?)_2$ c. $(127)_{10} = (?)_2$ d. $(130)_{10} = (?)_2$	10	CO5	K6	PO3

CO- Course Outcomes, **KL**- Knowledge Level, **PO** – Program Outcome

Course Outcomes	CO1	The mathematical tools needed in evaluating multiple integrals and their usage.
	CO2	The effective mathematical tools for the solutions of differential equations that model physical processes.
	CO3	The tools of differentiation and integration of functions of a complex variable that are used in various techniques dealing engineering problems
	CO4	An ability to apply effective, creative and innovative solutions, both independently and cooperatively, to current and future problems.
	CO5	A commitment to continuing learning and the capacity to maintain intellectual curiosity.

GRAFICAL REPRESENTATION





ARKAJAIN University Jharkhand

END TERM EXAMINATION
School of Engineering & IT

Branch	ME, EEE, CSE & CL	**Program**	B.Tech
Subject Name	Engineering Mathematics-1	**Semester**	1st
		Year	2023/ Odd

Time: 3 Hour
Max. Marks : 70

- Start writing from 2nd page onwards; **don't Write on the 1st Page Backside**
- **Answer all Questions of Section A (Compulsory)**
- **Answer Any Four out of Six of Section B**
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Knowledge Level (KL)	**K1** : Remembering	**K3** : Applying	**K5** : Evaluating
	K2 : Understanding	**K4** : Analysing	**K6** : Creating

Section A (Each question Carry 02 Marks from Q1-i to Q1-x) – 20 Marks

Q. N 1	QUESTIONS	Marks	COs	KL	PO
i	Define Gamma function.	2	CO2	K1	PO2
ii	Evaluate $\int_0^{\frac{\pi}{2}} cos^6 x dx$.	2	CO1	K2	PO1
iii	Write the expansion of Log(1-x)	2	CO2	K2	PO2
iv	$Evaluate \lim_{x\to 0} xlogx$.	2	CO2	K2	PO2
v	Define Monotonic and strictly monotonic increasing sequence.	2	CO1	K1	PO1
vi	Write the statement of p- series	2	CO3	K5	PO2
vii	If $\emptyset = x^3 + y^3 + z^3 - 3xyz$ find div(grad$\emptyset$).	2	CO1	K1	PO2
viii	Define characteristics equation and eigen value.	2	CO1	K2	PO1
ix	Define Hermitian matrix with example.	2	CO3	K2	PO1
x	Find the rank of the matrix $A=\begin{bmatrix} 2 & 1 & 4 & 7 \\ 3 & 6 & 2 & 1 \\ 0 & 0 & 1 & 5 \end{bmatrix}$	2	CO1	K3	PO2

Section B (Answer any FOUR out of SIX) – 20 Marks
(Each question 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Prove that any square matrix can be expressed uniquely as the sum of a symmetric and skew Symmetric matrix	5	CO2	K5	PO2
3	Find div$\vec{F}$ curl $\vec{F}$. Where $\vec{F} = (x^2 - y^2)\vec{\imath} + 2xy\vec{\jmath} + (y^2 - xy)\vec{k}$.	5	CO2	K5	PO3
4	If Σu_n andΣv_n be two infinite series of positive terms such that $\lim_{n\to\infty} \frac{u_n}{v_n}$=l>0 then prove that the two series are either both convergent or both divergent.	5	CO2	K3	PO2
5	Evaluate $\lim_{x\to 0} log_{tan^2 x}\, tan^2 2x$.	5	CO1	K3	PO1
6	a) Trace the curve the cardiode r=a(1+cosθ). b) Also find the whole area.	2.5+2.5	CO1	K4	PO2
7	solve following system of equation 2x-y+3z=8, x+2y+z=2, x+y+2z=0	5	CO1	K2	PO1

Section C (Answer any THREE out of FIVE) – 30 Marks-
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
8	Find the maximum and minimum Values of the function F(x,y)=x^3+y^3-3x-12y+10.	10	CO1	K4	PO4
9	a) Verify Cauchy Mean value theorem for the functions f(x)=X^3, g(x)=X^4 in [1,2]. b) Reduce the following matrix to normal form and hence find its rank. A=$\begin{bmatrix} 2 & 3 & -1 & -1 \\ 1 & -1 & -2 & -4 \\ 3 & 1 & 3 & -2 \\ 6 & 3 & 0 & -7 \end{bmatrix}$	5+5	CO1	K5	PO1
10	a) Evaluate $\int_0^{\frac{\pi}{2}} \log sinx dx$ b) Show that the sequence $\{u_n\}$ defined by $u_1=\sqrt{2}$ and $U_{n+1}=\sqrt{2u_n}$ converges to 2.	5+5	CO1	K5	PO2
11	Verify Cayley- Hamilton theorem for the matrix A=$\begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$ and hence find its inverse.	10	CO3	K3	PO2
12	Find the Evaluate of the curve x=a$\cos^3\theta$, y=a$\sin^3\theta$ i,e $X^{2/3}+y^{2/3}=a^{2/3}$.	10	CO2	K5	PO1