Nagar Yuwak Shikshan Sannstha's

Yeshwantrao Chavan College of Engineering

(An Autonomous Institution Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

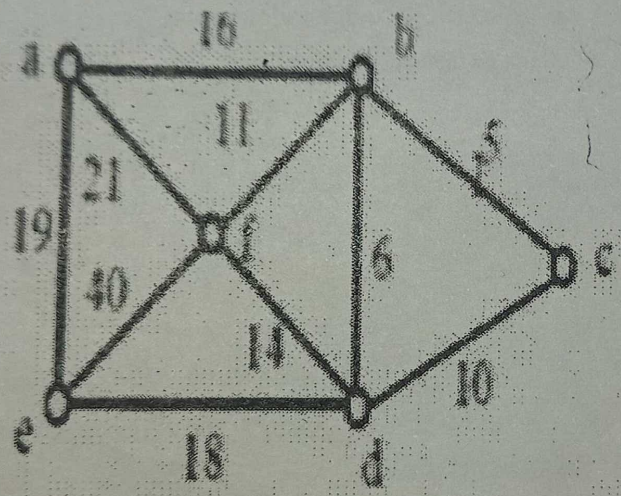
Hingna Road, Wanadongri, Nagpur.

ODD TERM-2022-23	Mid Semester Exam - II
Semester- III	Date:- 18/01/2023
Subject Code: AIDS2201/AIML2201	Subject : DMGT
Time :1½ Hours	Max. Marks: 30

Note:-

- Each Question is Compulsory.
- Non-programmable calculators are only allowed.
- Assume suitable data wherever it is necessary.

Q.1 (A)	Let (R, +,·) be a ring of all 2x2 matrices with entries as integers. Then show that it is an integral domain.	[5]	CO-3	L3
Q.1 (B)	Prove that the set $S = \{0,1,2,3,4\}$ is a ring w.r.t. the operations of addition and multiplication modulo 5.	[5]	CO-3	L3
Q.2 (A)	For any integer n, let D_n denote the set of all divisor of n. Find the Hasse diagram for $n = 6$, $n = 8$, $n = 20$, $n = 36$ and $n = 75$	[5]	CO-3	L3
Q.2 (B)	Examine whether the set of real numbers of the form $a + b\sqrt{2}$, where a and b are integers is a field?	[5]	CO-3	L3

Q.3 (A)	**Draw the digraphs corresponding to adjacency matrices.** $A=\begin{bmatrix}0&1&0&1\\1&0&1&1\\1&1&0&1\\1&0&1&0\end{bmatrix}$, $B=\begin{bmatrix}0&1&0&1\\1&0&1&0\\1&1&0&1\\1&1&1&0\end{bmatrix}$ **Prove that diagraphs of A and B are isomorphic.**	[5]	CO-4	L3
Q.3 (B)	**Using Prim's algorithm, find a minimal spanning tree for the given graph.** 	[5]	CO-4	L3