Topic ..... Date .....

University of Delhi - Open Book Examination
(Semester Examination)

NAME: Khushal Sachdeva
EXAMINATION ROLL NO.: 20003570032
COURSE NAME: (570) - (CBCS) B.Sc. (Hons.) Computer Science
SEMESTER: I
PAPER ID: 32341102
TITLE OF PAPER: Computer System Architecture
DATE: 20-03-2021
TIME: 9:30 am
NAME OF COLLEGE: (003) - Atma Ram Sanatan Dharam College
EMAIL ID: 88044@arsd.du.ac.in
MOBILE NO.: 8178594741

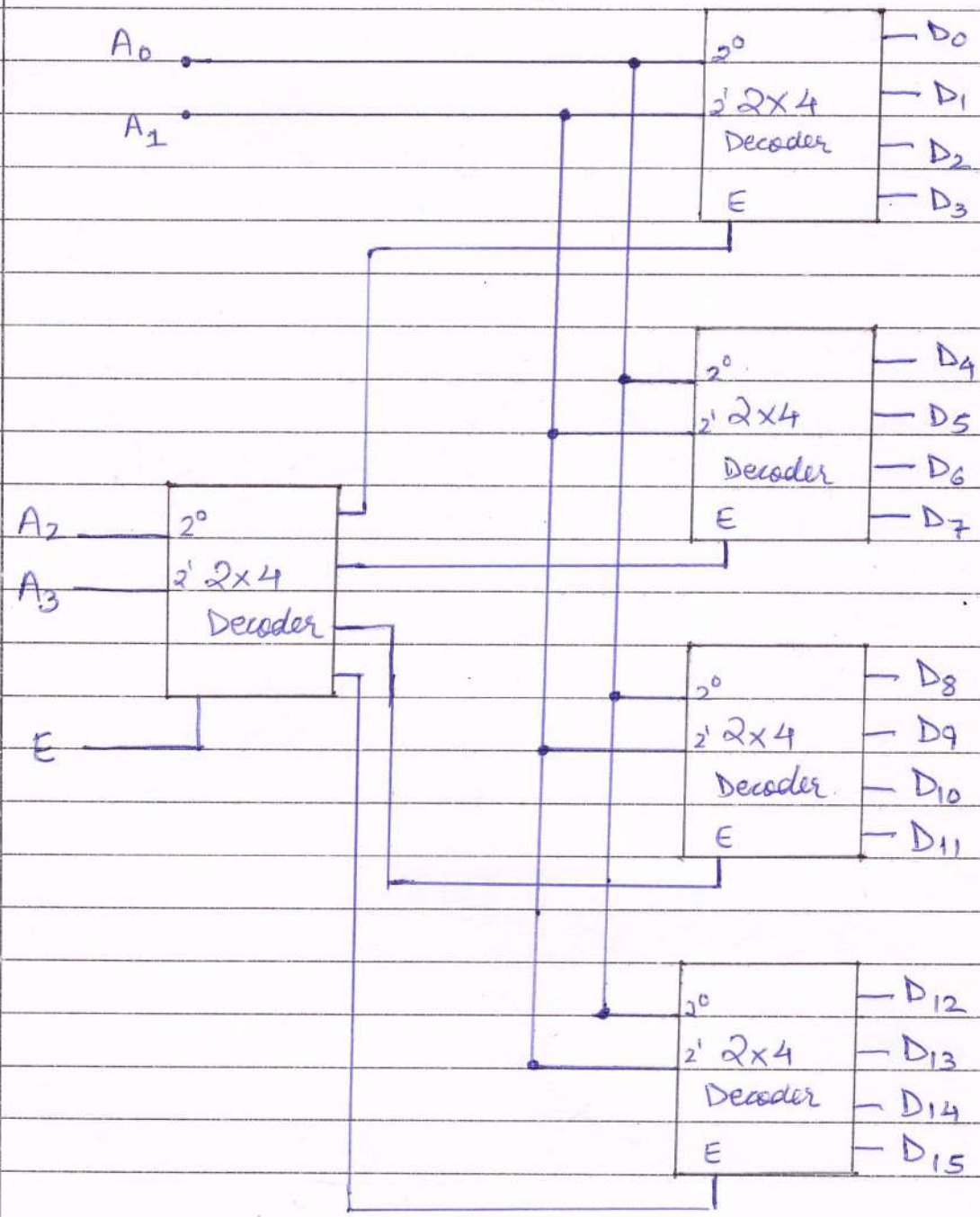
20003570032 Khushal

Topic ..... Date .....

QUESTION : 5

Ans

a) 4×16 decoder using five 2×4 decoder



2000 35 700 32 Khushal

Topic ..... Date .....

INPUTS					OUTPUTS
E	A_3	A_2	A_1	A_0	
0	X	X	X	X	0
1	0	0	0	0	$D_0 = 1$
1	0	0	0	1	$D_1 = 1$
1	0	0	1	0	$D_2 = 1$
1	0	0	1	1	$D_3 = 1$
1	0	1	0	0	$D_4 = 1$
1	0	1	0	1	$D_5 = 1$
1	0	1	1	0	$D_6 = 1$
1	0	1	1	1	$D_7 = 1$
1	1	0	0	0	$D_8 = 1$
1	1	0	0	1	$D_9 = 1$
1	1	0	1	0	$D_{10} = 1$
1	1	0	1	1	$D_{11} = 1$
1	1	1	0	0	$D_{12} = 1$
1	1	1	0	1	$D_{13} = 1$
1	1	1	1	0	$D_{14} = 1$
1	1	1	1	1	$D_{15} = 1$

b) $128K \times 16 \Rightarrow 2^7 \times 2^{10} \times 2^4 \Rightarrow 2^{21}$ bits

1 byte = 8 bits $= 2^3$ bits

$\Rightarrow \frac{2^{21}}{2^3} = 2^{18}$ bytes

128K x 16 Memory = 2^{18} bytes

$\Rightarrow$ 128K x 16

$\Rightarrow 128K = 2^{17}$

Address Lines	Data Lines
17	16

2000357 00032 Kaushal

Topic ..... Date .....

No. of chips $= \frac{4096 \times 16}{256 \times 8} = \frac{2^{12} \times 2^4}{2^8 \times 2^3}$

[Memory capacity = 4096x16] $= 2^5$

$= 32$ chips

c) (i) Status Command
(ii) Control Command (Also use status to check if reached at correct address)
~~(iii)~~
(iii) Status Command
(iv) Output Command

[PAGE NO. - 3]