Code No: A109210501 **Set No. 1**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
II B.Tech. I Sem., II Mid-Term Examinations, November – 2010
MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE
Objective Exam

Name: _____ **Hall Ticket No.** | | | | | | A | | | | |

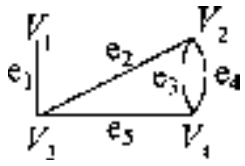
Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. The number of integers < 250 and divisible by 7 or 11 is [ ]
   a) 54 b) 48 c) 74 d) 94

2. The generating function of n^2 is [ ]
   a) $\frac{1}{(1-x)^3}$ b) $\frac{x}{(1-x)}$ c) $\frac{2}{(1-x)^2}$ d) $\frac{1}{(1-x)^2}$

3. The incident matrix of

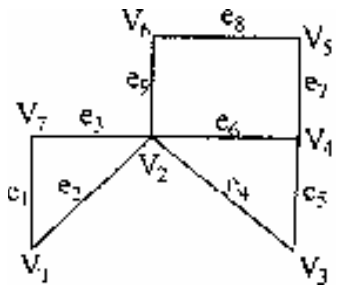


is [ ]

(a) $\begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 1 & 1 & 0 & 1 & 1 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (b) $\begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (c) $\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 1 & 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (d) $\begin{bmatrix} 1 & 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$

4. The chromatic number of a wheel graph W_8 is [ ]
   (a) 2 (b) 3 (c) 4 (d) 5

5.



The eccentricity of v_1 in the graph is [ ]
   a) 0 b) 1 c) 2 d) 3

6. Some code consists of 3 characters, in which first two are letters and the third one is a digit except 0. The possible number of ways if the repetitions are not allowed is
   a) 6084 b) 5850 c) 685 d) 61

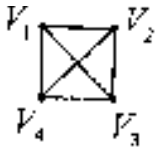
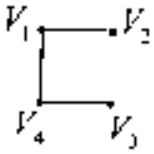
7. If $u_n = A(4)^n + (-4)^n$ then the recurrence relation is
   (a) $u_{n+2} + 5u_{n+1} - 3u_n = 0$ (b) $u_{n+2} - 16u_n = 0$ (c) $u_{n+2} + 16u_n = 0$ (d) $u_{n+2} - 4u_n + 4u_n = 0$

Cont.....2

8. The particular solution of $u_{n+2} + 4u_{n+1} - 5u_n = 2$ is

a) n b) 2^n c) 2 d) 2 n

9. If the adjacency matrix is $\begin{bmatrix} 0 & 1 & 1 & 1 \\ 1 & 0 & 1 & 1 \\ 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 \end{bmatrix}$ then the graph is

a)  b)  c)  d) 

10. In an examination 2 questions from each unit are given and there are 5 units. A student is to answer one from each unit. the number ways that, he can answer is

a) 48 b) 32 c) 64 d) 16

II Fill in the Blanks:

11. The coefficient of $x^5 y^2$ in the expansion of $(x + 2y)^7$ is _____

12. The number of permutations of the word SUCCESS is _____

13. The number of non negative integer solutions of x + y + z = 6 is _____

14. If $u_n = 5^n + 2$, then the recurrence relation is _____

15. The particular solution of $u_{n+2} - 5u_{n+1} + 6u_n = 5^n$ is _____

16. If G is a graph whose order is 6 and it is regular and complete then the size of G is _____

17. If the adjacency matrix consists of unit element except the diagonal elements and the diagonal elements are zeros, then the graphs is _____

18. The number of leaves are _____

19. The chromatic number of octahedron is _____

20. The generating function of $\frac{1}{n!}$ is _____

-oOo-

Code No: A109210501 **Set No. 2**

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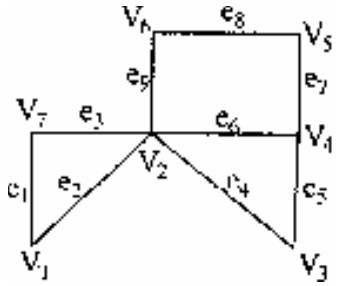
MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE
Objective Exam

Name: _____ **Hall Ticket No.** | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. The chromatic number of a wheel graph W_8 is [ ]
   (a) 2 (b) 3 (c) 4 (d) 5

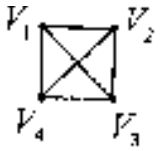
2. 

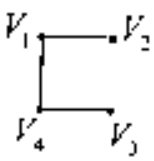
   The eccentricity of v_1 in the graph is [ ]
   a) 0 b) 1 c) 2 d) 3

3. Some code consists of 3 characters, in which first two are letters and the third one is a digit except 0. The possible number of ways if the repetitions are not allowed is
   a) 6084 b) 5850 c) 685 d) 61

4. If $u_n = A(4)^n + (-4)^n$ then the recurrence relation is [ ]
   (a) $u_{n+2} + 5u_{n+1} - 3u_n = 0$ (b) $u_{n+2} - 16u_n = 0$ (c) $u_{n+2} + 16u_n = 0$ (d) $u_{n+2} - 4u_n + 4u_n = 0$

5. The particular solution of $u_{n+2} + 4u_{n+1} - 5u_n = 2$ is [ ]
   a) n b) 2^n c) 2 d) 2 n

6. If the adjacency matrix is $\begin{bmatrix} 0 & 1 & 1 & 1 \\ 1 & 0 & 1 & 1 \\ 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 \end{bmatrix}$ then the graph is [ ]
   a) 

   b) 

   c) 
   d) 

7. In an examination 2 questions from each unit are given and there are 5 units. A student is to answer one from each unit. the number ways that, he can answer is
   a) 48 b) 32 c) 64 d) 16

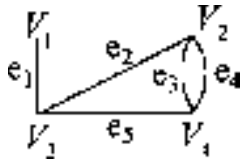
8. The number of integers < 250 and divisible by 7 or 11 is [ ]
   a) 54 b) 48 c) 74 d) 94

Cont.....2

9. The generating function of n^2 is [ ]

a) $\frac{1}{(1-x)^3}$ b) $\frac{x}{(1-x)}$ c) $\frac{2}{(1-x)^2}$ d) $\frac{1}{(1-x)^2}$

10. The incident matrix of



is [ ]

(a) $\begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 1 & 1 & 0 & 1 & 1 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (b) $\begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (c) $\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 1 & 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (d) $\begin{bmatrix} 1 & 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$

II Fill in the Blanks:

11. If $u_n = 5^n + 2$, then the recurrence relation is _____

12. The particular solution of $u_{n+2} - 5u_{n+1} + 6u_n = 5^n$ is _____

13. If G is a graph whose order is 6 and it is regular and complete then the size of G is _____

14. If the adjacency matrix consists of unit element except the diagonal elements and the diagonal elements are zeros, then the graphs is _____

15. The number of leaves are _____

16. The chromatic number of octahedron is _____

17. The generating function of $\frac{1}{n!}$ is _____

18. The coefficient of $x^5 y^2$ in the expansion of $(x + 2y)^7$ is _____

19. The number of permutations of the word SUCCESS is _____

20. The number of non negative integer solutions of x + y + z = 6 is _____

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Code No: A109210501 **Set No. 3**

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Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

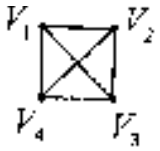
I Choose the correct alternative:

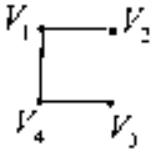
1. Some code consists of 3 characters, in which first two are letters and the third one is a digit except 0. The possible number of ways if the repetitions are not allowed is [ ]
a) 6084 b) 5850 c) 685 d) 61

2. If $u_n = A(4)^n + (-4)^n$ then the recurrence relation is [ ]
(a) $u_{n+2} + 5u_{n+1} - 3u_n = 0$ (b) $u_{n+2} - 16u_n = 0$ (c) $u_{n+2} + 16u_n = 0$ (d) $u_{n+2} - 4u_n + 4u_n = 0$

3. The particular solution of $u_{n+2} + 4u_{n+1} - 5u_n = 2$ is [ ]
a) n b) 2^n c) 2 d) 2 n

4. If the adjacency matrix is $\begin{bmatrix} 0 & 1 & 1 & 1 \\ 1 & 0 & 1 & 1 \\ 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 \end{bmatrix}$ then the graph is [ ]

a) 

b) 

c) 
d) 

5. In an examination 2 questions from each unit are given and there are 5 units. A student is to answer one from each unit. the number ways that, he can answer is [ ]
a) 48 b) 32 c) 64 d) 16

6. The number of integers < 250 and divisible by 7 or 11 is [ ]
a) 54 b) 48 c) 74 d) 94

7. The generating function of n^2 is [ ]
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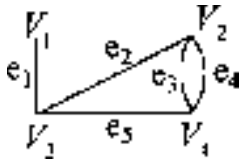
8. The incident matrix of



is [ ]

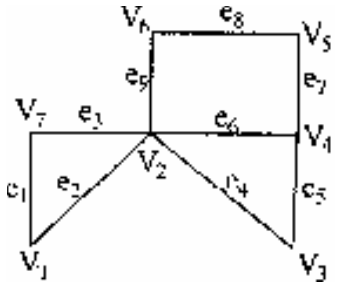
(a) $\begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 1 & 1 & 0 & 1 & 1 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (b) $\begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (c) $\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 1 & 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (d) $\begin{bmatrix} 1 & 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$

Cont.....2

9. The chromatic number of a wheel graph W_8 is [ ]

(a) 2 (b) 3 (c) 4 (d) 5

10.



The eccentricity of v_1 in the graph is [ ]

a) 0 b) 1 c) 2 d) 3

II Fill in the Blanks:

11. If G is a graph whose order is 6 and it is regular and complete then the size of G is _____

12. If the adjacency matrix consists of unit element except the diagonal elements and the diagonal elements are zeros, then the graphs is _____

13. The number of leaves are _____

14. The chromatic number of octahedron is _____

15. The generating function of $\frac{1}{n!}$ is _____

16. The coefficient of $x^5 y^2$ in the expansion of $(x + 2y)^7$ is _____

17. The number of permutations of the word SUCCESS is _____

18. The number of non negative integer solutions of x + y + z = 6 is _____

19. If $u_n = 5^n + 2$, then the recurrence relation is _____

20. The particular solution of $u_{n+2} - 5u_{n+1} + 6u_n = 5^n$ is _____

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Code No: A109210501 **Set No. 4**

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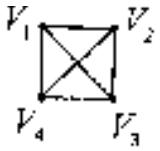
Name: _____ Hall Ticket No. | | | | | | A | | | | |

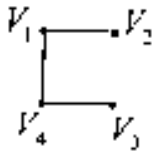
Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. The particular solution of $u_{n+2} + 4u_{n+1} - 5u_n = 2$ is
   a) n b) 2^n c) 2 d) 2 n

2. If the adjacency matrix is $\begin{bmatrix} 0 & 1 & 1 & 1 \\ 1 & 0 & 1 & 1 \\ 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 \end{bmatrix}$ then the graph is

   a) 

   b) 

   c) 
   d) 

3. In an examination 2 questions from each unit are given and there are 5 units. A student is to answer one from each unit. the number ways that, he can answer is
   a) 48 b) 32 c) 64 d) 16

4. The number of integers < 250 and divisible by 7 or 11 is [ ]
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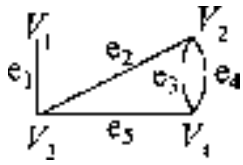
6. The incident matrix of

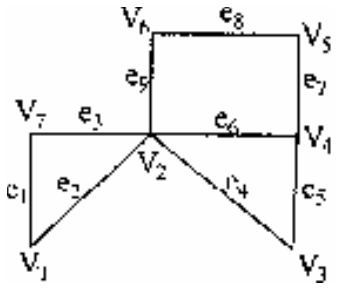
   is [ ]

   (a) $\begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 1 & 1 & 0 & 1 & 1 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (b) $\begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (c) $\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 1 & 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$ (d) $\begin{bmatrix} 1 & 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 & 1 \end{bmatrix}$

7. The chromatic number of a wheel graph W_8 is [ ]
   (a) 2 (b) 3 (c) 4 (d) 5

Cont.....2

8.



The eccentricity of v_1 in the graph is [ ]

a) 0 b) 1 c) 2 d) 3

9. Some code consists of 3 characters, in which first two are letters and the third one is a digit except 0. The possible number of ways if the repetitions are not allowed is

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II Fill in the Blanks:

11. The number of leaves are _____

12. The chromatic number of octahedron is _____

13. The generating function of $\frac{1}{n!}$ is _____

14. The coefficient of $x^5 y^2$ in the expansion of $(x + 2y)^7$ is _____

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16. The number of non negative integer solutions of x + y + z = 6 is _____

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19. If G is a graph whose order is 6 and it is regular and complete then the size of G is _____

20. If the adjacency matrix consists of unit element except the diagonal elements and the diagonal elements are zeros, then the graphs is _____

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