SEAT No._____

No. of Printed Pages : 3

SARDAR PATEL UNIVERSITY

B.SC (CA&IT) Sem-II EXAMINATION

TUESDAY, 2ⁿᵈ APRIL, 2019

10.00 am to 12.00 noon

SUBJECT: MATHEMATICS (PS02SMTH21)

Maximum Marks: 35

Q:1 Write the correct option in the answer book. [05]

(1) A Square matrix A is said to be Skew symmetric if ____

(a) $A \neq A^T$ (b) $A = -A^T$ (c) $A = A^T$ (d) $A^2 = A$

(2) The number of edges in the complete graph K_8 is...

(a) 4   (b) 8   (c) 16   (d) 28

(3) The degree of isolated vertex is ....

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

(4) Mode of the observations 2, 5, 8, 4, 4, 5, 4, 6, 3, 4, 4 is ____

(a) 3   (b) 7   (c) 4   (d) 5

(5) In a connected map with V = 5, R = 3 then E = ____

(a) 2   (b) 6   (c) 4   (d) 3

Q:2 Answer the following in short. (**Any five**) [10]

(1) If $A = \begin{bmatrix} 1 & 2 \\ 7 & -2 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 1 \\ 3 & -4 \end{bmatrix}$, then find A+B and A–B.

(2) Draw a diagram for graph G=G(V,E), where V={A,B,C,D}, E=[{A,B},{D,A},{C,A},{C,D}].

(3) Find x and y if x (2, 11) +y (1, 6) = (7, 1).

(4) Find the Mean of 2, 4, 8, 12, 16 and 24.

(5) Find the number of edges in the graphs K_{15}.

(6) Define planar graph. Is K_5 planar?

(7) Find Median of 7, 7, 8, 6, 5, 8, 3, 2, 2, 9, 7.

(8) Define Connected graph with example.

(P.T.O)

(1)

Q:3

(a) Let $A = \begin{bmatrix} 1 & 3 \\ 5 & 3 \end{bmatrix}$. Find $f(A)$, where $f(x) = x^2 - 4x - 12$. [05]
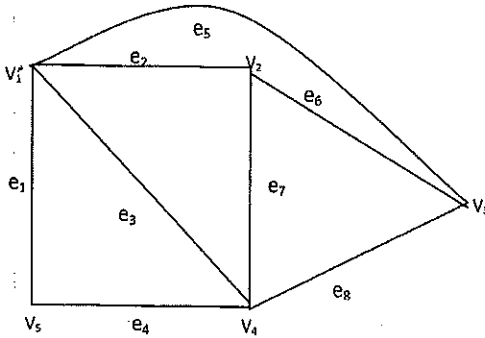
(b) Consider the graph G as [05]
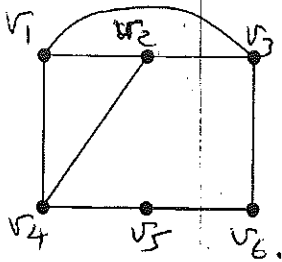
(i) Find all simple paths from v_1 to v_6.
(ii) Find all trails from v_1 to v_6.
(iii) Find $d(v_1, v_5)$.
(iv) Find all cycles in G.
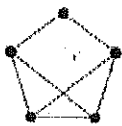
Q:3   OR

(c) Find x, y, z, t if $A = \begin{bmatrix} 5 & 2 & x \\ y & z & -3 \\ 4 & t & -7 \end{bmatrix}$ is symmetric. [05]

(d) Find the incidence matrix and adjacency matrix for the following Graph: [05]

Q:4

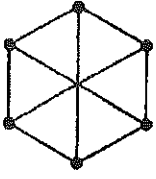(a) Define Chromatic number. Find the Chromatic number of the given graphs: [05]

(b) Find the median and mode of the given data: [05]

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of Students	2	5	8	16	9	5

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Q:4   OR

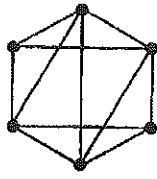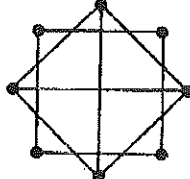(c)   Define: Planar graph. Checks which of the following are planar graphs. Justify.   [05]

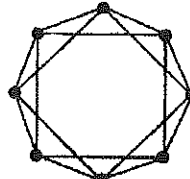

(a)   (b)   (c)   (d)

(d)   If the median of the following distribution is 38 find the missing frequency   [05]
and number of observation are 200.

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	42	38	?	54	?	36	32

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