R={(a)b) (a+b) is even}
$R = \{(1,1), (2/2), (3,3), (4,4), (5,5), (1,3), (1,5), (3,1), (3,1), (5,1), (2,4), (4,2), (3,5), (5,3)\}$
Reflexive: - (1,1),(2,2),(3,3), (4,4), (5,5) ER
Reflexive
~ /,
Symmetric:- a+b= b+a
-: (a,b) ER & (b, a) ER
Sympe fic
Tronsitive:
4 a+b = even
btc = even
Then at c has to be even
1 + 3 = 4 (even) $3 + 5 = 8 (even)$
1+5=6 (even)
3+5=8 (even)
5+1=86 (even)
3+1=4 (oven
- Jansitive
Fort is reflexive, Symmetric & Honsitive, hence it is equiv
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iii)	a) Ring:-
l	The algebraic structure (R, +,) which consists of
	a non empty set R along with 2 binary
	anach like like to han () the
	operation libe addition & multiplication (), then
	if is called a xing ring An algebraic system (R, *, 0) consisting of non empty set R ony 2 sinary operations like *(*) & and o defined on R such that
	No algebraic system (K, *, o) consisting
	of non empty set & ony a sinary operations
	like *(*) and o defined on K such
	Chaf
	i) (R,*) is on algebraic group & (R,0) is
	ii) The operation o is distributive over operation * is said to be ling
	* is said to be ling
	b) CyClic group
	b) Cyclic group A cyclic group is cycloid & monoid in which every element in the set has on inverse element
	which proper depent in the cel has an
	inverse element
	es. The set of complex one statistics
	ey: The set of complex nos. {1, -1, i, -i} was ander multiplication operation is cyclic group
	antier mattriplication operation is egent group
	2 11 1
	An algebraic structure & < A, 07, where the ois
	an eigebraic spacture the mele fit is
	a binary operation is called a monoid if: o is associative & there exists an identity element.
	Sassociative & these controls
	ey: 5= {1,2,3,4. } nith multiplication
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	2 /7

1	11 = 1
4	Normal Subgroup A subgroup is called a normal subgroup if for ony act at the subgroup of the subgroup is called a normal subgroup if for
	1 Subgroup 13 (41/2 a-normal subgroup of fir
	ony acy an-114
	Consider aly system <11, > where 1 = {0,2,3}
	0* H= OM= {0x0, 2x0, 3x0}= {0,2,3}
0)	Plan is ex graph
	A graph 4 is called Planner graph if it
	A graph & is called Planner graph if it
	crosesed. crossed
B	
ih	Euler Path -> An eulers Path is a simple path that confains every edge of h
14	3 A alos Put in a single with that so being
	ence adva 1
/)	Eulers & Circuit
*/	Eulers & Grant
	of simple gircuit containing every edge of &
	Chili girtuit contrining every eage of
9	Condition of eulers puth
	-7 N Connected multigroph with at least 2
	-7 A connected multigraph with at least 2 vertices has eulers circuit if all its vertices
	have even degree
-	-) If I is so connected and has exactly
	a vertices that are odd then eulers path
	2 vertices that are odd then eulers path begins from I odd to 2nd odd verter
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Momiltons Ruff	
-> A simple puth in & graph that purses through every vertex exactly once is called Humi	
through every vertex exactly once is called Hom	/bnos
pull	
Momilton Circuit	
-) A circuit in graph & & that presser passes to every vertex is called Mamilton circuit.	hrough
every vertex is called Mamilton circuit.	
In the Figure	
The DM De I I a May DM Ia a i	/
Eulers Path: Doesnot have Euler Path because it	•
has odd degree verhices	
Eulers circuit: d=3 d=4	
d=3 d=3 d=3	
d=3 $d=5$	
	/
-: There are exactly 3 vertices with odd do	egree
hence ealey circuit is not possible	
- W · 11 0 M · M 1 2 6 5 12	
-> Manilfon & Rah > :- 123 45 67	
-> Mamilhon Grewit > :- 12 345671	
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Jem: - II Signature: - 5 D- Shelf	y
Jubject :- DSIL	_
4	1