1(a) Functions, that are declared within clower are automatic linuine functions ". Inline keyword int needed here but can be added is so, there are basica - the stoo types note inline functions, automatic and manual that inside clark defined function isoal prototy perthetous have to make if intime invitage it's auto intime. muidong into make it's auto intime. Advantages: Papameternited - macrossodinent base companed to invine functions as what madros can be used wronly by ministratemy spratting them in faise

be used wronly the trivitate my spetting them in take be used wronly the functions are functions, so when areas, but as invine functions are functions and that teywood is used, it will give compile ennon you the invine functions also don't have space overheads so, in white functions also don't give memory vimit exceed it won't delay on men won't give memory vimit exceed while invine functions are small while invine functions are small

\* O top. fab = qx

1(b) If annobjective spanned as donne gudain function parameters, sitt ruis illa bitwise copy itself reman when theretions book mis don't suthe beginnmeter object will dans it is destructor and it will refer the memory of igo blut here will the problems of this pis a pointer sob teap liter; bitwise copy was some pointern so, when program sende so that oresizent will call it's destruction monte of hat turners afready to threed so, the boundary program Britterabehonsetemdefinely here apeas, but at intine humetions are timotions, so when # copy constructors sup lie ti possoni parayest toy invine tunctions along don't have appace overheads so, invine tunctions along the contract delay or mei delay or mei delay or mei p= (int\*) mallo & (Bize of) (First)) soveri elile \*p = Obj.get();

100 Friend functions invaidant is used not a member function of that class troisend functions ean't be called by objects of that class. Friend functions are mostly used when operators ovenloading is needed; when applicators overloading 18 done, we sometimes need other classes data on (int + class) when these cases arise, friend functions are the only roption. By doing so, we can access those classes private members outside of that class and order ours expersioned the way we want. But = operators cont be overladed with finiend functions works in works in works of contractions Forward declaration: Las aboutes no si class my class;

spele per

1(d). Reference is the Odness of something (Vamilable of Class). When we write a variable of reference it becomes off-value famid roits or value lechenous changed, it stortchange by address los ed timo and exottonit her fresh seener io- 1 grotpiken copy: constructions is not then 1 10 - 25 when we want mouse the neturn value out La Marine (sept) + fri) que value out pointers row all boologist, openators because it accesses
Reference use that, openators because it accesses the class and objects and not pointers. we know that when class is accessed at the pointers, (->) o peroton is needed but reference access it as objects and this rusels arocum of who have you dot operator.

scal Default argument can oveload construction because in different cases, it behaves differently like when default argument is added to a construction. Like below,

my class (int a. intb=0, int 0=0)?----?

we can call. this class's constructors like, my class (213,4)

so, here my class constructors is overlaaded. If we didn't use default constructors here we would've needed three constructors so, this constructor is overloaded.

This function prototype is incorrect or we know that, if one parameters is made default, pass that parameters, all of them should be default. So, connect way i6,

double anea (double width = 0, double length-of

epolition descriptions of the course of the a constructors. Like (belows 111) neturn dempos, we can cell this chipis, construction like, my closs (2,3,4), my closs (2,3), my closs (2,3,4)

so here, my closs constructor is overlaaded.

M. we, didn't use de aut constructor, here

M. we, didn't use sue in ould've needed three broom without coord openation + (int in coord & ob) This time tion prototory remperation of incition will Knows that, if one parameter is made default, tempty parient toby; cornect to sty page to the stop double double designations :

(in) voids set x (int 1=0) of y 3720 set by Coint of = 0) De of the out of out of the ou So, one can access it in denined class upithout exposing it () pot-spectageth woodd. The protected access specifien is view useful in Holoms of which in Holoms of inhemitence and when a function on members inhemitence and when a function on members. in protected, it stoys hidden in outen would cout 22 set A11 C1967 22 set w (10) \$2 & LOG 4061 (i) L= L : X = 1 ( ( ) ) | Set le ( ) | Set coond openation + (int i) (a) who 255 friend abond openaton + (inti, coord (06); void set x (int i=0); void set y (int i=0).
int getx(); int gety();

200 & Protected access specifiers is needed because when we want to access a class in this mode public members in that class is made to protecte. So, one can access it in derived class without exposing it to the outen would. The protected access specifier is very use fup in Herms of inheritence and when a function on members is protected, it stays hidden in outer would but can be used in derived class.

B(a). cout ZZ setw(10), ZZ s ZZendl;

cout ZZ setfil('%') ZZ setw(10) ZZ s ZZendl;

cout ZZ left, ZZ setfil('%') ZZ setw(10) ZZszcen

cout ZZ left, ZZ setfil('%') ZZ setw(10) ZZszcen

cout ZZ set precision(1) ZZ B ZZ endl;

cout ZZ set precision(1) ZZ left ZZ setfil('%')

ZZsetw(16) ZZ endl;

(day basson, that) + milestago (basson bersigh

( of this y has been to have y 450 biller

3(b). Ostream & Setup (ostream &os int wo, int process) Os. set w (+ os width (10); 05, precision (4); os. All ('\*'); retupn os; closs queue: public list of void stone (int i) Acop Forming that well : pribrid plant form. mode snum = 7; thouse ment = nutt; - Brist (head == null) Had = node mit Wigmos i) Diffet below dti (ii) Close points : wind = Fill skettle will i motorion season with (ii) brimb 2000 tailre modet access depired class. completions of conseppon it always tate base chample: class Rase of vinilual internal of a void show of source internal of a void show of source internal of a void show of source internal of Dimudelede node sould (vi)

int hethleve ( ) for 200 mounted) grapes 2 mosaled if (head= null) return 0; Atbiw 20 Co setw (t : ( \* ) 11 A. 20 , go wanton int top = head = num; head = head - next; neturn trip; late Binding 4(a). Fanly Binding O It is done in 1) It is done in compile time ii) dynamic binding (1) It's called Static (iii) By using virtual, (iii) When Base pointer it can access derived class function access derived closs, it always take base (iv) Hene we just write class function. example: Class Base of World Show () & Coutce Base"? Vintual infront of show function. **CS** CamScanner

dan demired : public Base void show Extended from the prime of so in main () { Base \* ptn = new demineds} Firetton ( Weston I point I K. V. X Smap) I rather it 4(b) Template Zelons T> class Input } Tondatagn = Hi ( Onigod. gom = Hi otus) nox Input (Storing S, T min, T max) + 1 cout 22 5 24 ende : femilio . H cin >> data shoroses. Hi monter while (data > max 11 data / min) cout << 5 Llend1; () V crantail cin >7 data;

acc) ousuming the map is public words bion Templane Z class K3 class V Sevinob war = orta x sent } Onio V function ( Vector & Pair, & K, V >> & map, K key For (auto it= map. begin(); it != map.end(1; Insert ( String & T mins Trace ( +++) if ( it. first == Key) = = = was return it second stop sono while ( dota > max III dala return V(); 1640 22 8 25 1000