Q.] Draw object layout of below code & explain the internal working in detail.

i] Derived class inherits from base publicly
Derived defines its own i & d, which shadow base's i & d.
fun() is overriden in Derived, but not virtual, so no vtable is created

Base Object (bobj)

int i	4 bytes
float f	4 bytes
double d	8 bytes
Total size = 16 bytes	

Derived object (dobj)

Base Class members	
int i (base)	4 bytes
float f (base)	4 bytes
double d (base)	8 bytes
Derived Class members	
int i (derived)	4 bytes
(padding)	4 bytes
double d (derived)	8 bytes
Total Size = 32 bytes	

Derived class inherits from both base1 & base2 using multiple Inheritance.
Derived introduces its own members (i, d) & overrides fun()

base1 object layout

int i	4 bytes
float f	4 bytes
Total Size = 8 bytes	

base2 object layout

int j	4 bytes
float g	4 bytes
Total Size = 8 bytes	

Derived Object layout

Base1 Members
int i (base1)
float f (base1)
Base 2 Members
int j (base2)
float g (base2)
Derived Class Members
int i (derived)
(padding)
double d (derived)

3] Derived class inherits from base publicly

base has: A non-virtual fun()

A virtual gun()

Derived has:

A virtual fun() (overrides base::fun())

A non-virtual gun() (hides base::gun())

A new virtual function sun()

virtual functions create a vtable & vptr

base object layout

int i	4 bytes
float f	4 bytes
vptr	8 bytes
Total Size	16 bytes

Derived Object Layout

Base Class members	
int i (base)	4 bytes
float f (base)	4 bytes
vptr (base)	8 bytes
Derived Class members	
int i (derived)	4 bytes
(padding)	4 bytes
double d (derived)	8 bytes
Total Size = 32 bytes	

vptr in Derived points to Derived's vTable, which overrides base::fun() & adds Derived::sun()
Derived::gun() hides base::gun(), but since base::gun() was virtual, Derived does not override it in a vtable.

Function	base vtable Address:	Derived vtable Address
gun()	2000 (base)	2000 (base)
fun()	Non-virtual, not in vtable	3000 (derived)
sun()	- (Not in base)	5000 (derived

vtable in base contains only gun(), as fun() is non-virtual

4] Derived publicly inherits from base; where:
base has two virtual functions (gun(), sun()) & two non-virtual functions (fun(), run()).

Derived:
Overrides fun(), gun() & run() (making run() virtual)
Hides sun() by redefining it (but does not override)
Virtual function generate vtable & vptr.

base object layout

int i	4 bytes
float f	4 bytes
vptr	8 bytes
Total Size	16 bytes

vptr is added due to virtual functions

vtable in base contains : gun()
son()

Derived Object layout

Base Class Members	
int i (base)	4 bytes
float f (base)	4 bytes
vptr (base)	8 bytes
Derived Class Members	
int i (derived)	4 bytes
(padding)	4 bytes
double d (derived	8 bytes
Total Size = 32 bytes	

Vtable

Function	Base vtable Address	Derived vtable Address
gun()	2000 (base)	6008 (derived)
son()	3000 (base)	3000 (base)
fun()	(Non virtual)	5000 (derived)
run()	(Non virtual)	8008 E (derived)

5] Derived publicly inherits from base, where:
base has two virtual functions (gun(), sun()).
Derived ~~class~~ introduces:
A new virtual function fun()
A non-virtual redefinition of gun()
An override of sun()

base object layout

int i	4 bytes
float f	4 bytes
vptr	8 bytes
Total size = 16 bytes	

derived object layout

Base class members	
int i (base)	4 bytes
float f (base)	4 bytes
vptr (base)	8 bytes
Derived class members	
int i;	4 bytes
(Padding)	4 bytes
double d	8 bytes
Total size = 32 bytes	