C Complicated Declaration Questions

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1. What is the output of this C code?

```
1.  #include <stdio.h>
2.  int main()
3.  {
4.      struct student
5.      {
6.          int no;
7.          char name[20];
8.      };
9.      struct student s;
10.     no = 8;
11.     printf("%d", no);
12.     return 0;
13. }
```

a) Nothing
b) Compile time error
c) Junk
d) 8

2. What is the output of this C code?

```
1.  #include <stdio.h>
2.  struct student
3.  {
4.      int no;
5.      char name[20];
6.  };
```

```
7.  int main()
8.  {
9.      struct student s;
10.     s.no = 8;
11.     printf("hello");
12.     return 0;
13.  }
```

a) Run time error
b) Nothing
c) hello
d) Varies

3. What is the output of this C code?

```
1.  #include <stdio.h>
2.  struct student
3.  {
4.      int no = 5;
5.      char name[20];
6.  };
7.  int main()
8.  {
9.      struct student s;
10.     s.no = 8;
11.     printf("hello");
12.     return 0;
13.  }
```

a) Nothing
b) Compile time error

c) hello
d) Varies

4. What is the output of this C code?

```
1.  #include <stdio.h>
2.  struct student
3.  {
4.      int no;
5.      char name[20];
6.  };
7.  int main()
8.  {
9.      student s;
10.     s.name = "hello";
11.     printf("hello");
12.     return 0;
13. }
```

a) Nothing
b) hello
c) Compile time error
d) Varies

5. What is the output of this C code?

```
1.  #include <stdio.h>
2.  int main()
3.  {
4.      struct student
5.      {
```

```
6.          int no;
7.          char name[20];
8.      };
9.      struct student s;
10.     s.no = 8;
11.     printf("%s", s.name);
12.     return 0;
13. }
```

a) Nothing
b) Compile time error
c) Junk
d) 8

6. What is the output of this C code?

```
1.  #include <stdio.h>
2.  struct student
3.  {
4.      int no;
5.      char name[20];
6.  };
7.  struct student s;
8.  int main()
9.  {
10.     s.no = 8;
11.     printf("%s", s.name);
12.     return 0;
13. }
```

a) Nothing
b) Compile time error
c) Junk
d) 8

7. What is the output of this C code?

```
1.  #include <stdio.h>
2.  int main()
3.  {
4.      int *((*x)())[2];
5.      x();
6.      printf("after x\n");
7.  }
8.  int *((*x)())[2]
9.  {
10.     int **str;
11.     str = (int*)malloc(sizeof(int)* 2);
12.     return str;
13. }
```

a) Compile time error
b) Undefined behaviour
c) After x
d) None of the mentioned

8. What does this declaration say?
int (*(*y)())[2];

a) y is pointer to the function which returns pointer to integer array
b) y is pointer to the function which returns array of pointers
c) y is function which returns function pointer which in turn returns pointer to integer array
d) y is function which returns array of integers

9. What does int (*f1)(float) mean?

10. What does int (*(*f2)(double))(float) mean?

11. What does int (*(*(*f3)(int))(double))(float) mean?

12. What is the output of this C code?

```
1.  #include <stdio.h>
2.  void (*(f)())(int, float);
3.  void (*(*x)())(int, float) = f;
4.  void ((*y)(int, float));
5.  void foo(int i, float f);
6.  int main()
7.  {
8.      y = x();
9.      y(1, 2);
10.     return 0;
11. }
12. void (*(f)())(int, float)
13. {
14.     return foo;
15. }
16. void foo(int i, float f)
17. {
18.     printf("%d %f\n", i, f);
19. }
```

a) 1 2.000000
b) 1 2
c) Compile time error

d) Segmentation fault/code crash

13. What is the output of this C code?

```
1.  #include <stdio.h>
2.  void (*(f)())(int, float);
3.  typedef void (*(*x)())(int, float);
4.  void foo(int i, float f);
5.  int main()
6.  {
7.      x = f;
8.      x();
9.       return 0;
10. }
11. void (*(f)())(int, float)
12. {
13.     return foo;
14. }
15. void foo(int i, float f)
16. {
17.     printf("%d %f\n", i, f);
18. }
```

a) Compile time error
b) Undefined behaviour
c) 1 2.000000
d) Nothing

14. What is the output of this C code?

```
1.  #include <stdio.h>
```

```
2.  void (*(f)())(int, float);
3.  typedef void (*(*x)())(int, float);
4.  void foo(int i, float f);
5.  int main()
6.  {
7.      x p = f;
8.      p();
9.      return 0;
10. }
11. void (*(f)())(int, float)
12. {
13.     return foo;
14. }
15. void foo(int i, float f)
16. {
17.     printf("%d %f\n", i, f);
18. }
```

a) Compile time error
b) Undefined behaviour
c) 1 2.000000
d) Nothing

17. Read the following expression?
void (*ptr)(int);

a) ptr is pointer to int that converts its type to void
b) ptr is pointer to function passing int returning void
c) ptr is pointer to void that converts its type to int
d) ptr is pointer to function passing void returning int

18. Which of the following expression is true for the following?

ptr is array with 3 elements of pointer to function returning pointer of int
a) int **ptr[3]();
b) int *(*ptr[3])();
c) int (*(*ptr[3])());
d) None of the mentioned

19. What do the following declarations denote?
int **ptr;

a) ptr is a function pointer that returns pointer to int type
b) ptr is a pointer to an int pointer
c) ptr is a pointer to pointer to type int
d) None of the mentioned

20. What do the following declarations denote?
char *str[5];

a) str is an array of 5 element pointer to type char
b) str is a pointer to an array of 5 elements
c) str is a function pointer of 5 elements returning char
d) None of the mentioned

21. Comment on the following declaration?

int (*ptr)(); // i)
char *ptr[]; // ii)
a) Both i) and ii) and cannot exist due to same name
b) i) is legal, ii) is illegal
c) i) is illegal, ii) is legal
d) Both i) and ii) will work legal and flawlessly

22. What is the output of this C code?

```
1. #include <stdio.h>
2. struct student
3. {
4.     int no;
5.     char name[20];
6. }
7. int main()
```

```
8.  {
9.      struct student s;
10.     s.no = 8;
11.     printf("hello");
12.     return 0;
13. }
```

a) Compile time error
b) Nothing
c) hello
d) Varies

23. What is the output of this C code?

```
1.  #include <stdio.h>
2.  struct student
3.  {
4.      int no = 5;
5.      char name[20];
6.  };
7.  void main()
8.  {
9.      struct student s;
10.     s.no = 8;
11.     printf("hello");
12. }
```

a) Nothing
b) Compile time error
c) hello
d) Varies

24. What is the output of this C code?

```
1.  #include <stdio.h>
2.  struct student
3.  {
4.      int no;
5.      char name[20];
6.  };
7.  int main()
8.  {
9.      student s;
10.     s.no = 8;
11.     printf("hello");
12.     return 0;
13. }
```

a) Nothing
b) hello
c) Compile time error
d) Varies

25. What is the output of this C code?

```
1.  #include <stdio.h>
2.  int main()
3.  {
4.      struct student
5.      {
6.          int no;
7.          char name[20];
```

```
8.      };
9.      struct student s;
10.     s.no = 8;
11.     printf("%d", s.no);
12.     return 0;
13.  }
```

a) Nothing
b) Compile time error
c) Junk
d) 8

26. Is the below declaration legal?
int* ((*x)())[2];
a) true
b) false
c) Undefined behaviour
d) Depends on the standard

References

1) http://www.sanfoundry.com/c-interview-questions-answers/