

(b) `int list [5], *p ,
p = list ,
p = p*2 ,
cout << *p ,`

(c) `float &fval ,`

- 2 (a) What is the scope of private, protected and public members in
(i) the same class
(ii) derived class
(iii) the object of the class **6**
- (b) Define constructors for a class string that accept the following : **6**
(i) `String S1 ("This is my new string") ,`
(ii) `String S2(345) ,`
(iii) `String S3 ,`
- (c) List three types of inheritance ? Give an example of each **6**
- (d) How is polymorphism achieved at compile time and run time ? Explain with appropriate example **5**
- (e) What is the purpose of exception handling ? What type of exceptions can be handled by this mechanism ? **5**
- 3 Write output for the following code segments **3 × 5 = 15**
- (a)
`main ()
{
 int a=100, b=200, c ,
 c = (a==100 || b>200) ,
 cout << c << endl ,
}`

```

(b)
int v = 10
void f(void)
{
    int v = 465 ,
    cout << "v = " << v <<endl ,
    cout << "v = " <<  v <<endl ,
    int v = 0 ,
    cout << "v = " << v <<endl ,
    cout << "v = " <<  v <<endl ,
}

```

```

(c)
# include <iostream h>
# include <iomanip h>
main ( )
{
    cout <<setprecision(4) <<18 269<<endl ,
    cout<<'['<<setw(5) <<setfill('#')<<18<<']'<<endl ,
}

```

```

(d)
main ( )
{
    enum status {low, medium, high} ,
    enum status rain ,
    rain = 0 ,
    if (rain == low)
    cout << rain << endl ,
}

```

```

(e)
main ( )
{
    struct num
    {
        unsigned bit0  1 ,
        unsigned bit1  1 ,

```

```

unsigned bit2  1 ,
unsigned rest  5 ,
};
union a
{
    struct num n ,
    char ch ,
} b ,
b ch = 32 ,
cout <<b n.bit0<<b n bit1 << b n bit2 <<
b n.rest << endl ,
}

```

- 4 (a) Construct the binary expression tree for the following expression.
 $(A + B) - (C + D)$ For $A = 1, B = 2, C = 3, D = 4$ Rewrite the expression in postfix notation and evaluate it using stacks **6**
- (b) What is recursion ? Write a recursive program to calculate factorial of the given number **4**
- (c) What are the advantages and disadvantages of representing a group of items—as an array versus a linear linked list ? **4**
- (d) What is a priority queue ? Give an application of priority queue Explain how the insertion and deletion operations in a priority queue are different from a normal queue **5**
- (e) Write an algorithm to search a number in the sorted list using non recursive binary search What is the complexity of algorithm ? **6**