3.
```
Class rows {
    public static void main ( String args [ ]) {
    int s[ ][ ] = new int [4][ ];
     s[0] = new int[1];
     s[1] = new int[2];
     s[2] = new int[3];
     s[3] = new int[4];

     int i,j,k,k=1;
     for ( i=0 ; i<4 ; i++)
          for( j=0; j<i ; j++) {
               s[i][j] = k;
          k++;
          }
     for( i=0 ; i<4 ; i++){
          for (j=0 ; j<i+1 ; j++)
               system.out.print ( s[i][j]+" ");
               system.out.println();

     }
}
```

4.
```
#include <stdio.h>
#include <math.h>
void cylinder();
void cone();
void sphere();
int main()
{
    int ch;
     do
     {
          printf ("1. cylinder 2. cone 3. Sphere 4. Exit \n");
```

```
printf (" Enter your choice \n");
scanf (" %d", &ch);
switch(ch)
{
 case 1:
  cylinder ();
  break;
  case 2:
  cone ();
  break;
  case 3:
  sphere ();
  break ;
  case 4:
  printf ("Exit\n");
  break;
  default:
  printf ("Enter the correct value\n");
  }
  } while (ch!=4);
  return 0;
}
void cylinder ()
{
    float a,v,r,h;
    printf (" Enter the radius and height \n");
    scanf ("%f %f", &r, &h);
    a =(2*3.14*r*h) + (2*3.14*r*r);
    v = (3.14*r*r*h);
    printf (" Area : %f ; volume : %f \n", a,v);
}
```

```
void cone()
{
    float a,v,r,h,x;
    printf("Enter the radius and height\n");
    scanf("%f %f",&r,&h);
    x = sqrt((h*h)+(r*r));
    a = (3.14*r*r(r+x));
    v = (3.14*r*r*(h/3.0));
    printf("Area: %f, Volume: %f\n",a,v);
}

void sphere()
{
    float a,v,r;
    printf("Enter the radius and height\n");
    scanf("%f",&r);

    a = 4*3.14*r*r;
    v = (4.0/3.0)*3.14*r*r*r;
    printf("Area: %f; Volume: %f\n",a,v);
}
```

5.

```
class grades
{
public static void main(String[]args)
{
    int cie,see;
    double z,total;
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter cie marks out of 50");
    cie = sc.nextInt();
    System.out.println("Enter see marks out of 100");
    see = sc.nextInt();
```

```
z = see/2.0;
total = z+cic;
if ( total >=90 && total <=100)
system.out.println (" Grade: s");
else if ( total >=80 && total <=89)
system.out.println (" Grade: A");
else if ( total >=70 && total <=79)
system.out.println (" Grade :B");
else if (total >=60 && total <=69)
System.out.println(" Grade: C");
else if (total >=50 && total <=59)
system.out.println(" Grade: D");
else if ( total >=40 && total <=49)
System.out.println (" Grade: E");
else
System.out.println (" Grad F");
}
}
```

1.

```
#include <stdio.h>
void prime (int x, int y);
int main()
{
    int a, b;
    printf(" Enter 2 numbers such that first number
            is less than the second \n");
    scanf(" %d %d", &a, &b);
    prime (a,b);
    return 0;
}
void prime (int x, int y)
{
    for ( int i= x ; i<=y ; ...)
```

```
z = see/2.0;
total = z + cic;
if ( total >=90 && total <=100)
system.out.println ("Grade: s");
else if ( total >=80 && total <=89)
system.out.println ("Grade: A");
else if ( total >=70 && total <=79)
system.out.println ("Grade: B");
else if ( total >=60 && total <=69)
System.out.println("Grade: C");
else if (total >=50 && total <=59)
system.out.println("Grade: D");
else if ( total >=40 && total <=49)
System.out.println ("Grade: E");
else
System.out.println ("Grad F");
}
}
```

1-

```
#include <stdio.h>
void prime (int x, int y);
int main()
{
    int a, b;
    printf(" Enter 2 numbers such that first number
            is less than the second \n");
    scanf("%d %d", &a, &b);
    prime (a,b);
    return 0;
}
void prime (int x, int y)
{
    for ( int i= x; i<=y; i++)
```

```
{
  int flag = 0;
  if(i == 1)
  printf("1 neither composite nor prime no\n");
  else
  {
   for(int j=2; j<=2; j++)
   {
    if(i%j==0)
    {
     flag = 1;
     break;
    }
   }
   if(flag!=1)
   printf("%d\n",i);
  }
}
```

7.

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

int main()
{
  char name[5][20];
  int el[20];
  int i, j, x, ct1, ct2, ct3;
  ct1 = ct2 = ct3 = 0;
  for(i=0; i<5; i++)
  {
    printf("Enter the name of student %d\n", i+1);
    scanf("%s", name[i]);
```

```
printf ("--- choice of electives ---\n");
printf (" 1. Internet of things\n");
printf (" 2. Advanced java and J2EE\n");
printf (" 3. Advanced ata structures\n");
printf (" Enter your choice !\n");
scanf ("%d", &ele[i]);i
}
printf(" --- choice of electives ---\n");
printf (" 1. Internet of things\n");
printf (" 2. Advanced java and J2EE\n");
printf (" 3. Advanced Data structures\n");
printf (" Enter the elective for which you
        want to display the studat :\n");
scanf ("%d", &x);
for( i=0; i<5; i++)
{
    if( ele[i] == x)
    {
        printf("Name %d : %s\n", i+1, name[i]);
    }
}
for( i=0; i<5; i++)
{
    if (ele[i] == 1)
        ct1++;
    else if (ele[i] == 2)
        ct2++;
    else
        ct3++;
}
printf (" course one has been floated\n");
for( i=0; i<5; i++)
{
    if( ele[i] == 1)
```

```
printf("The number of students in elective 1 are: %d\n", ct1);
printf("The number of students in elective 2 are: %d\n", ct2);
printf("The number of students in elective 3 are: %d\n", ct3);

if (ct1 < 2)
{
    printf("Course 1 has been flooted\n");
    for (i=0 ; i<5 ; i++)
    {
        if (ele[i] == 1)
        {
            printf("2. Advanced Java and J2EE\n");
            printf("3. Advanced Data Structures\n");
            printf("Enter your choice\n");
            scanf("%d", &ele[i]);
        }
    }
}
else if (ct1 < 2)
{
    printf("Course 2 has been flooted\n");
    for (i=0; i<5; i++)
    {
        if (ele[i] == 2)
        {
            printf("1. Internet of things\n");
            printf("3. Advanced Data Structures\n");
            printf("Enter your choice\n");
            scanf("%d", &ele[i]);
        }
    }
}
else
```

```
{
    printf("course 3 has been floated \n");
    for(int i=0; i<s; i++)
    {
        if(ele[i]==3)
        {
            printf("1. Internet of things \n");
            printf("Advanced of java and J2EE \n");
            printf("Enter your choice! \n");
            scanf("%d", &ele[i]);
        }
    }
}
ct1 = ct2 = ct3 = 0;
for(i=0; i<s; i++)
{
    if(ele[i]==1)
        ct1++;
    else if(ele[i]==2)
        ct2++;
    else
        ct3++;
}
printf("The number of students in elective1 are: %d\n", ct1);
printf("The number of students in elective2 are: %d\n", ct2);
printf("The number of students in elective3 are: %d\n", ct3);

if(ct1 != 0)
{
    printf("--- Students in elective 1 ---\n");
```

```
for (i=0; i<s; i++)
{
    if (ele[i]==1)
        printf("Name %d: %s\n", i+1, name[i]);
}
if (ct2!=0)
{
    printf("--- The Student in elective 2 ---\n");
    for (i=0; i<s; i++)
    {
        if (ele[i]==2)
            printf("Name %d: %s\n", i+1, name[i]);
    }
}
if (ct3!=0)
{
    printf("--- The Students in elective 3 ---\n");
    for (i=0; i<s; i++)
    {
        if (ele[i]==3)
            printf("Name %d: %s\n", i+1, name[i]);
    }
}
return 0;
}
```