Final Theoretical Exam

Name: _____   Number: _____

_____

Q1: Consider the following code,

Section1

```
public class MainActivity extends AppCompatActivity {

@Override protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

 setContentView(R.layout.activity_main);

Button button= new Button(this);

button.setOnClickListener(new View.OnClickListener() {

@Override public void onClick(View v) {

AsyncTask connectionAsyncTask = new AsyncTask (MainActivity.this);
connectionAsyncTask.execute("http://www.mocky.io/v2/5702bdeb270000fd0306aeb2"); } });
```


Section2

```
protected void onPreExecute() {

// block of code  X

}

protected void onProgressUpdate(String... values) {

// block of code  y

}
```

```
protected void onPostExecute(String s) {

// block of code  Z

}

protected String doInBackground(String... params) {

// block of code  M

Return "welcome "

}
```

1-Find the error in section 1 and fix it. (4 marks)

2- When connectionAsyncTask.execute("google.com") method is executed , which block will execute (X,Y,Z,M) ? What is the order of execution? (6 marks)

3- Which block will execute in UI thread? (4 marks)

4- Which block will execute in Back ground thread? (4 marks)

5-What is the value of String s in onPostExecute method ? (2 marks)

6- Explain the meaning of "String... params". (2 marks)

7-Explain ANR (application not responding) error in android context and suggest two ways to solve it. (9 marks)

Q2: Consider the following part of web.xml,

```
<servlet>
<servlet-name>rest</servlet-name>
<servlet-class>
org.springframework.web.servlet.DispatcherServlet
</servlet-class>
<load-on-startup>1</load-on-startup>
</servlet>
<servlet-mapping>
<servlet-name>rest</servlet-name>
<url-pattern>--*</url-pattern>
</servlet-mapping>
```


1-Explain the function of DispatcherServlet ,HandlerMaping and url-pattern ? (8 marks)

2-What is the function of Maven Dependency Management Tool? (3 marks)

3- How to solve the dependency between ClassA and ClassB in the following code ?

```
public class ClassA
{
        int X;
        private ClassB  b;
        public ClassA()
        {
                b= new ClassB(X);
                b.method_B();
        }
}
```

```
public class ClassB
{
        private ClassA  a;
        public ClassB(int X)
        {
                a= new ClassA();
        }
        Public Void method_B()
        {
        }
}
```
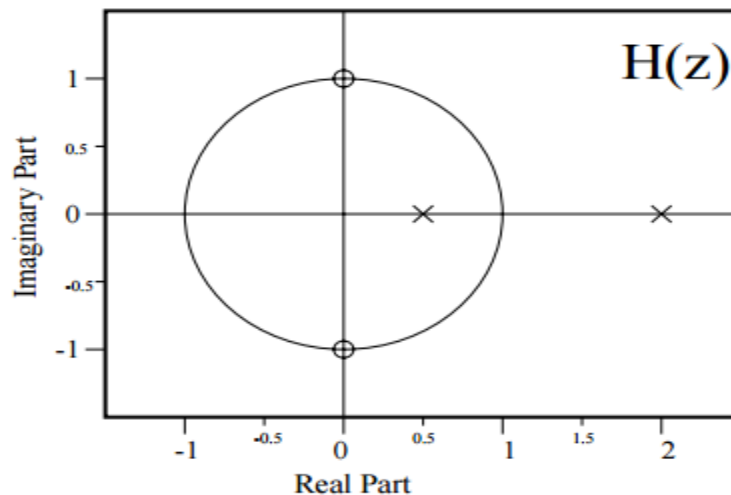
Q3.A

Let X[n]={ **4**, 1, 2, 5 } and h[n]={ 1, **2** ,-1 }

1-Determine the convolution y(n) = x(n) * h(n).(10 marks)

2-Write the MATLAB code used to find the y(n) .(8 marks)

Q3.B

For the pole-zero plot given below answer the following questions:

1-Specify a transfer function H(z) of the system consistent with this pole-zero plot? (7 marks)

3- Write the MATLAB code used to produce the same output in the Figure? (5 marks)

Q4. Consider the discrete causal system with the following difference equation:

$$2y(n)-4y(n-1)+3 \; y(n-2)= 2x(n-2)$$

1. Determine if the system is IIR or FIR system.(2 marks)
2. Determine the transfer function of the signal in z-form.(5 marks)
3. Determine if the system causal, and stable.(3 marks)