Savitribai Phule Pune University

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**

Q.1   Write a Java Program to implement I/O Decorator for converting uppercase letters to lower case letters.   [15 M]

Q.2   Write a program to sense the available networks using Arduino   [15 M]

Q.3   Viva   [05M]

Savitribai Phule Pune University

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture &
Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**

Q.1   Write a Java Program to implement Singleton pattern for multithreading

[15 M]

Q.2   Write a program to measure the distance using ultrasonic sensor and make LED blink
using Arduino.

[15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**

- -

Q.1   Write a JAVA Program to implement built-in support (java.util.Observable) Weather station with   members temperature, humidity, pressure and methods mesurmentsChanged(), setMesurment(), getTemperature(), getHumidity(), getPressure()   [15 M]

Q. 2 Write a program to detects the vibration of an object with sensor using Arduino.
                                                                                          [15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(**CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)**

Duration : 3 Hours   **Maximum Marks: 35**

- -

Q.1   Write a Java Program to implement Factory method for Pizza Store with createPizza(), orederPizza(), prepare(), Bake(), cut(), box(). Use this to create variety of pizza's like NyStyleCheesePizza, ChicagoStyleCheesePizza etc.   [15 M]

Q.2   Write a program to sense a finger when it is placed on the board Arduino.   [15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**
- -

Q.1   Write a Java Program to implement Adapter pattern for Enumeration iterator

[15 M]

Q.2   Write a program to connect with the available Wi-Fi using Arduino.

[15 M]

Q.3   Viva   [05M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(**CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)**

Duration : 3 Hours   **Maximum Marks: 35**
- -

Q.1   Write a Java Program to implement command pattern to test Remote Control

[15 M]

Q.2   Write a program to get temperature notification using Arduino.

[15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**
- -

Q.1   Write a Java Program to implement undo command to test Ceiling fan.   [15 M]

Q.2   Write a program for LDR to vary the light intensity of LED using   [15 M]
        Arduino.

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(**CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture &
Design Pattern and Internet of Things)**

Duration : 3 Hours   **Maximum Marks: 35**
- -

Q. 1 Write a Java Program to implement State Pattern for Gumball Machine.
  Create instance variable that holds current state from there, we just need to handle all
  actions, behaviors and state transition that can happen   [15 M]

Q.2 Start Raspberry Pi and execute various Linux commands in command terminal window:
  ls, cd, touch, mv, rm, man, mkdir, rmdir, tar, gzip, cat, more, less, ps, sudo, cron, chown,
  chgrp, pingetc.

  [15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**
- -

Q.1   Design simple HR Application using Spring Framework   [15 M]

Q.2   Write python programs on Pi :
      a) Read your name and print Hello message with name
      b) Read two numbers and print their sum, difference, product and division.
      c) Word and character count of a given string.
      d) Area of a given shape (rectangle, triangle and circle) reading shape and appropriate
      values from standard input.   [15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**
- -

Q.1   Write a Java Program to implement Strategy Pattern for Duck Behavior. Create instance variable that holds current state of Duck from there, we just need to handle all Flying Behaviors and Quack Behavior   [15 M]

Q.2   Write python programs on Pi like:
a) Print a name 'n' times, where name and n are read from standard input, using for and while loops.
b) Handle Divided by Zero Exception.
c) Print current time for 10 times with an interval of10seconds.
d) Read a fileline byline and print the word count of each line   [15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**

Q.1   Write a java program to implement Adapter pattern to design Heart Model to Beat
        Model   [15 M]

Q.2   Run some python programs on Pi like
        a) Light an LED through Python program
        b) Get input from two switches and switch on corresponding LEDs
        c) Flash an LED at a given on time and off time cycle, where the two times are taken
        from a file

                                                                                                        [15 M]
Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**

Q.1   Write a Java Program to implement Decorator Pattern for interface Car to define the assemble() method and then decorate it to Sports car and Luxury Car   [15 M]

Q.2   Write a program to sense the available networks using Arduino   [15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture &
Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**

- -

Q.1   Write a Java Program to implement an Adapter design pattern in mobile charger.
Define two classes – Volt (to measure volts) and Socket (producing constant volts of
120V). Build an adapter that can produce 3 volts, 12 volts and default 120 volts.
Implements Adapter pattern using Class Adapter   [15 M]

Q.2   Write a program to measure the distance using ultrasonic sensor and make LED blink
using Arduino.   [15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(**CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)**

Duration : 3 Hours   **Maximum Marks: 35**

- -

Q.1   Write a Java Program to implement Command Design Pattern for Command Interface with execute() . Use this to create variety of commands for LightOnCommand, LightOffCommand, GarageDoorUpCommand, StereoOnWithCDComman.   [15 M]

Q.2   Write a program to detects the vibration of an object with sensor using Arduino.

[15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**

Q.1   Write a Java Program to implement Facade Design Pattern for Home Theater

[15 M]

Q.2   Write a program to sense a finger when it is placed on the board Arduino.   [15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture &
Design Pattern and Internet of Things)

Duration : 3 Hours   **Maximum Marks: 35**

Q.1   Write a Java Program to implement Observer Design Pattern for number conversion.
       Accept a number in Decimal form and represent it in Hexadecimal, Octal and Binary.
       Change the Number and it reflects in other forms also   [15 M]

Q.2   Write a program to connect with the available Wi-Fi using Arduino.   [15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(**CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)**

Duration : 3 Hours   **Maximum Marks: 35**

Q.1   Write a Java Program to implement Abstract Factory Pattern for Shape interface.

[15 M].

Q.2   Write a program to get temperature notification using Arduino.

[15 M]

Q.3   Viva   [05 M]

S.Y.M.Sc(Comp. Sci.) Practical Examination
**Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture &
Design Pattern and Internet of Things)**

Duration : 3 Hours   **Maximum Marks: 35**

- -

Q.1   Write a JAVA Program to implement built-in support (java.util.Observable) Weather
station with members temperature, humidity, pressure and methods
mesurmentsChanged(), setMesurment(), getTemperature(), getHumidity(),
getPressure()   **[15 M]**

Q.2   Write a program for LDR to vary the light intensity of LED using Arduino.

                                                                   [15 M]

Q.3   Viva   **[05 M]**

S.Y.M.Sc(Comp. Sci.) Practical Examination
**Practical Paper(CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture &
Design Pattern and Internet of Things)**

Duration : 3 Hours   **Maximum Marks: 35**

- -

Q.1   Write a Java Program to implement Factory method for Pizza Store with createPizza(),
orederPizza(), prepare(), Bake(), cut(), box(). Use this to create variety of pizza's
like NyStyleCheesePizza, ChicagoStyleCheesePizza etc.   [15 M]

Q.2   Start Raspberry Pi and Execute various Linux commands in command   [15 M]
terminal window: ls, cd, touch, mv, rm, man, mkdir, rmdir, tar, gzip, cat,
more, less, ps, sudo, cron, chown, chgrp, pingetc.

Q.3 Viva   [05 M]

Savitribai Phule Pune University

S.Y.M.Sc(Comp. Sci.) Practical Examination
Practical Paper(**CS-604-MJP) :Lab Course on CS-601-MJ and CS-603-MJ (Software Architecture & Design Pattern and Internet of Things)**

Duration : 3 Hours   **Maximum Marks: 35**

Q.1   Write a Java Program to implement I/O Decorator for converting uppercase letters to
       lower case letters.   [15 M]

Q.2   Write python programs on Pi like:
       a) Read your name and print Hello message with name
       b) Read two numbers and print their sum, difference, product and division.
       c) Word and character count of a given string.
       d) Area of a given shape (rectangle, triangle and circle) reading shape and appropriate
       values from standard input.

                                                                                    [15 M]

Q.3 Viva   [05 M]