Code No: D-2373/N/AICTE

FACULTY OF ENGINEERING

BE (CSE) III – Semester (AICTE) (Main) Examination, March / April 2022

Subject: OOPS Using JAVA

Time: 3 Hours **Max. Marks: 70**

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Questions carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1 (a) What is the significance of each word in "public static void main(String args[])".
(b) Write about the Bitwise Operators in java.
(c) Write about this keyword.
(d) Discuss about Exception handling Fundamentals.
(e) What is a Deadlock.
(f) What is a file, directories.
(g) Write short notes on Abstract Classes.

2 (a) Explain the buzzwords and the three OOP Principles of Java.
(b) Can a Superclass Variable Refer a Subclass Object.Justify Your Answer

3 (a) Explain about Package & Import with a java program.
(b) Explain about Chained Exceptions with a java program.

4 (a) Write a java program to create three threads.
(b) Explain about Synchronization with program.

5 (a) Explain about TreeSet Class with a program.
(b) What is an Iterator and demonstrate it with a program

6 (a) Explain about String Tokenizer.
(b) Explain about Serialization.

7 (a) Write java program to demonstrate the handling of mouse events.
(b) Write a Swing application demonstrating JLabel and JscrollPane.

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FACULTY OF ENGINEERING

B.E. (EEE/EIE) III – Semester (AICTE) (Main) Examination, March / April 2022

Subject: Analog Electronics

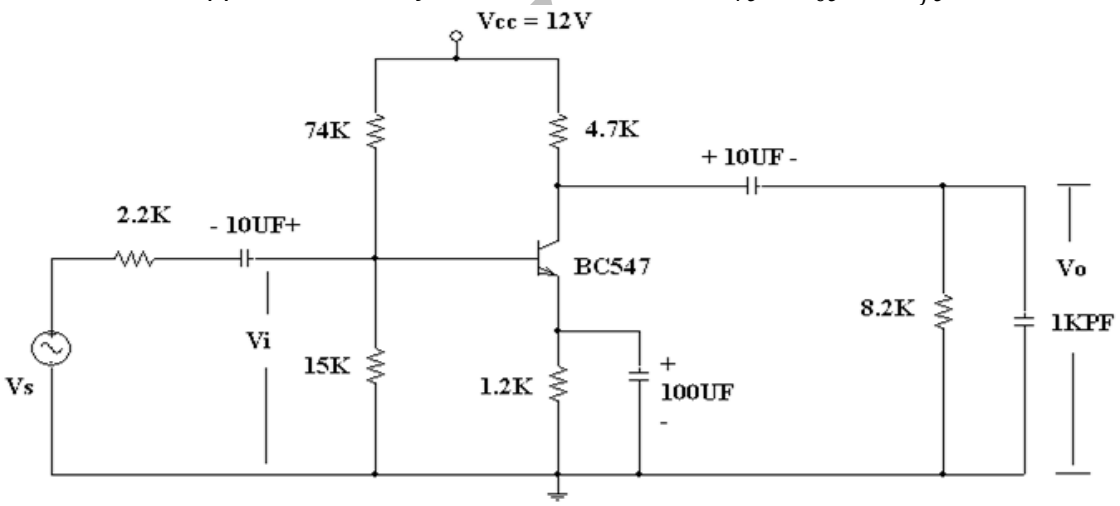
Time: 3 Hours **Max. Marks: 70**

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Question carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1.
(a) Define Diffusion capacitance and Transition capacitance.
(b) Why clamping circuit is also called dc inserter?
(c) JFET called as Voltage Variable resistor. Justify
(d) Explain the effect of negative feedback on gain stability.
(e) What is crossover distortion in power amplifier? How it is eliminated?
(f) Explain a feedback amplifier with help of a block diagram.
(g) What is op-amp sample & Hold circuit? What are its applications?

2. (a) Explain the formation and working of PN junction diode in forward and reverse bias. Draw its V-I characteristics.
(b) Draw the response of a High pass circuit with small, medium and large time constants when input is square wave.

3. (a) For the transistor amplifier shown in figure below, calculate A_I, A_V, R_i, R_o using exact and approximate analysis. Given $hie = 1k\Omega$, $h_{re} = h_{0e} = 0, h_{fe} = 100$.



(b) Compare CB, CE and CC configurations in terms of Ri, Ro, A_v, A_i and phase shift.

4. (a) Derive the input & output impedance of current series amplifier.
   (b) An amplifier has a mid-band gain of 100 and a Bandwidth (BW) of 250 kHz. If 5% negative feedback is introduced, find the new gain BW and gain.

5. (a) Draw the schematic of a two transistor class-B push pull amplifier and show that $P_{d\,max} = \frac{4}{\pi^2} P_{acmax}$.
   (b) In RC phase shift R=6KΩ, C=1500pF, R C =100KΩ, find the frequency of oscillation and condition for oscillation.

6. (a) Explain the operations of inverting and non-inverting amplifier and also derive the expression of gain?
   (b) Design a differentiator to differentiate an input signal that varies in frequency from 20Hz to about 20KHz.

7. Write short notes on:
   (a) Bias Stabilization
   (b) Photo diode
   (c) Wien-bridge oscillator

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Code No. D- 2393/N/AICTE

FACULTY OF ENGINEERING

B.E. (AI&ML) III – Semester (AICTE) (Main) Examination, March / April 2022

Subject: Gender Sensitization

Time: 3 Hours **Max. Marks: 70**

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Question carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1. Answer the following
   (a) Write about gender discrimination.
   (b) Explain 'Being together as equal.'
   (c) What is struggle with discrimination?
   (d) Mention any two negative aspects of sex selection.
   (e) Discuss the concept of 'Share the Load.'
   (f) Explain about Nari Adalat.
   (g) Write about any unacknowledged women artist of Telangana.
2. (a) What do you know about preparing for womanhood in Jamaica Kincaid's 'Girl?'
   (b) Explain 'Just relationships' by quoting the examples of Mary Kom and Onler.
3. (a) What are the reasons for declining sex ratio?
   (b) Write about struggle with discrimination.
4. (a) "My mother does not work." Discuss the invisible labour of a house wife.
   (b) Discuss the unrecognized and unaccounted conditions of work at workplace.
5. (a) Write about Chityala Ailamma.
   (b) How did Bhanwari Devi struggle to get justice?
6. (a) Write about Rosa Parks- The Brave Heart.
   (b) Explain the 'Stop acid attacks' campaign by Laxmi and Alok.
7. (a) 'I want a wife.' Discuss from Judy Brady's perspective.
   (b) Does domestic violence exist now?

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Code No. D-2375/N/AICTE

FACULTY OF ENGINEERING

B.E. (IT) III - Semester (AICTE) (Main) Examination, March / April 2022

Subject: Mathematical Foundation of IT

Time 3 Hours **Max. Marks: 70**

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Question carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1.
(a) Define Tautology give an example of a Tautology.
(b) Discuss Various Properties of a Relation.
(c) Define Equivalence Relation with example.
(d) What is Group Homomorphism?
(e) Define Generating Function and list out its applications.
(f) List out conditions for isomorphic of two graphs.
(g) What is meant by Chromatic Number find the Chromatic Number for W5.

2. (a) Construct Truth table to determine the logical equivalence of Distributive Law.
(b) f:R->R be defined by **f(x)=x+2** then **find** f^{-1}.

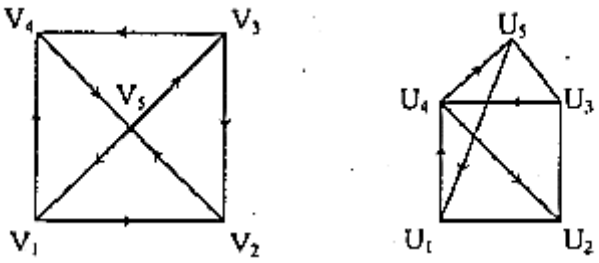
3. (a) List Out Various Properties of a Relation?
(b) Let G={1,2,3,4,5,6,7} Prepare Composition Table w.r.t ' X_8 ' check is it a Group?

4. (a) Prove that set of real numbers is an abelian Group w.r.t ' * ' where * is defined as a*b= ab/2.
(b) Find composite Functions i) **fog** ii) **gof**, iii) **(goh)of** .
f:R->R is defined by **f(x)=x=3** g: R->R is defined by **g(x)=4x²** h:R->R id defined by **h(x)=3x-2**

5. (a) Explain the Extended Pigeon hole principal and show that if 30 people are assembled in a room then 5 of them must have their birthday on the same day of a week?
(b) Prove that in every group G identity and inverse elements are unique?

6. (a) Explain the Procedure for solving Non Homogeneous Recurrence Relations.
(b) Solve the recurrence relation $F_n=10F_{n-1}-25F_{n-2}$ where $F_0=3$ and $F_1=17$.

7. (a) Determine the given two Graphs are Isomorphic or not. Justify Your Answer.



(b) Explain the Procedure for DFS in Graphs with an example.

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Code No. D-2364/N/AICTE

FACULTY OF ENGINEERING

B. E. (MECH) III – Semester (AICTE) (Main) Examination, March / April 2022

Subject: Thermodynamics

Time: 3 hours **Max. Marks: 70**

Note: i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 marks.
ii) Answers to each question must be written at one place only and in the same order as they occur in the question paper.
iii) Missing data, if any, may suitable be assumed.

1. a) What are intensive and extensive properties, give examples.
   b) What do you understand by the term quasi static process?
   c) Define first law of thermodynamics.
   d) Define available and unavailable energy.
   e) What is Clapeyron equation?
   f) Sketch T-S and P-H diagram of vapour compression system and mention the processes.
   g) What is an air standard cycle?
2. a) Define Thermometry.
   b) Explain the working of constant volume gas thermometer.
3. a) Show that enthalpy is a property of the system.
   b) Determine the change in internal energy of gas when it is compressed at constant pressure form 0.4 m^3 and 105 kPa to final state of 0.2 m^3, during the process 42.5 kJ of heat is transferred from the gas.
4. a) Derive Clausius Inequality and state its significance.
   b) A carnot engine operates between two heat reservoirs at 300°C and -5°C. If the engine receives 120kJ of heat from the source, find the net work done and heat rejected to the sink. Also calculate the thermal efficiency of the heat engine.
5. a) Explain T-V diagram for water.
   b) Calculate the enthalpy and internal energy of steam at pressure of 12 bar
      (i) When the steam is having a dryness fraction of 0.8
      (ii) When the steam is saturated.

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6. In an air-standard Bryaton cycle, the air enters the compressor at 1 bar and 25°C. The pressure after compression is 3 bar. The temperature at turbine inlet is 625°C. Calculate per kg of air
   (i) Heat supplied
   (ii) Heat rejected
   (iii) Work available at the shaft
   (iv) Temperature of air leaving the turbine, and
   (v) Cycle efficiency

7. a) Derive expression for work done in adiabatic process.
   b) Compare Otto cycle and Diesel cycle.

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Code No. D-2365/N/AICTE

FACULTY OF ENGINEERING

B. E. (PROD) III – Semester (AICTE) (Main) Examination, March / April 2022

Subject: Machine Drawing

Time: 3 hours **Max. Marks: 70**

Note: i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 marks.
ii) Answers to each question must be written at one place only and in the same order as they occur in the question paper.
iii) Missing data, if any, may suitable be assumed.

1. a) What is the function of cotters?

   b) Mention the different types of rivets.

   c) Draw a simple rivet taking d=10mm.

   d) Draw a hexagonal nut taking D= 10mm.

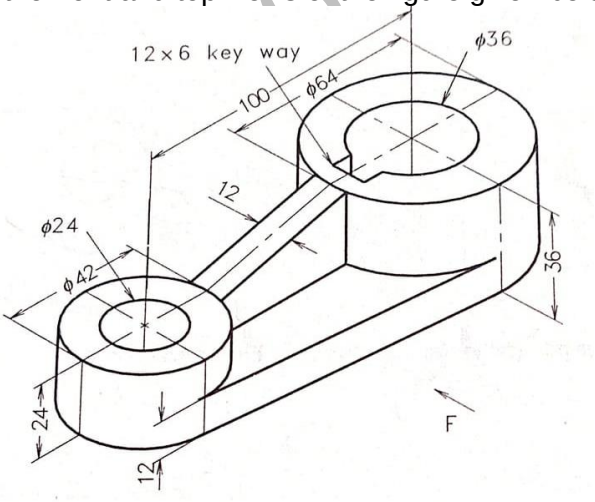
   e) What are the different parts of a screw jack? Name them.

   f) Explain the thread terminology with the help of a figure taking d=10mm.

   g) What do you understand by first angle and third angle projection?

2. (a) Draw the hexagonal nut and bolt assembly taking d=10mm.
   (b) Draw a single rivet lap joint taking t=10 mm.

3. Draw the front and top views of the figure given below.

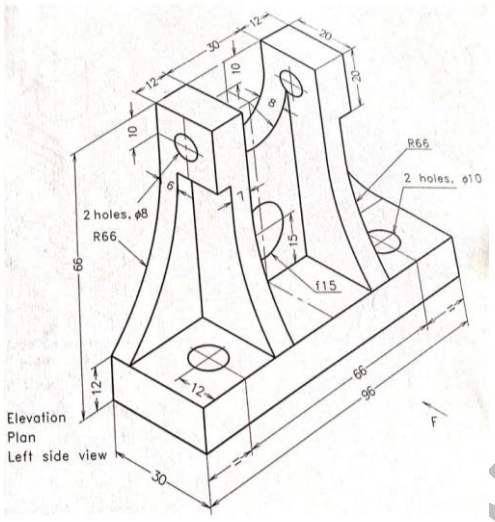


4. Draw a knuckle joint taking D=20 mm.

5. (a) Draw any three types of rivet heads taking d=10mm.
   (b) Mention the advantages of rivets over welded joints.

6. Draw a double rivetted chain lap joint taking t=10mm.

7. Draw the front and top views of the figure given below.



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Code No. D-2367/N/AICTE

FACULTY OF ENGINEERING

B. E. (AE) III – Semester (AICTE) (Main) Examination, March / April 2022

Subject: Thermal Engineering

Time: 3 hours **Max. Marks: 70**

Note: i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 marks.
ii) Answers to each question must be written at one place only and in the same order as they occur in the question paper.
iii) Missing data, if any, may suitable be assumed.

1. a) Define the Thermodynamic System and State.
   b) What is Zeroth law of Thermodynamics, and state its importance.
   c) State Kelvins Planck and Clausius Statement of Second Law of Thermodynamics.
   d) How you distinguish the Refrigerator and Heat pump?
   e) State the differences between Gas Turbine and Steam Turbine?
   f) Define Ton of Refrigeration.
   g) Give the classification of compressors.
2. a) Derive the Steady Flow Energy Equation for a Flow Process.
   b) A turbine operating steady flow conditions receives 4500 kg of steam per hour. The enters at a velocity of 2800m/min, an elevation of 5.5m and a specific enthalpy of 2800 kJ/kg. It leaves the turbine at a velocity of 5600m/min, an elevation of 1.5m and specific enthalpy 2300KJ/Kg. heat losses from the turbine to the surroundings amount to 16000kj/hr. Determine the power output of the turbine.
3. a) A Heat engine receives heat at the rate of 1500kj/min and gives an output of 8.2 kw determine (i) Thermal efficiency (ii) The rate of heat rejection.
   b) Explain the Carnot cycle and its process PV and TS-diagram.
4. a) What are different types of system? And explain with an example.
   b) Write the short note on Quasi-static process with PV-diagram.
5. a) In an oil-gas turbine installation, it is taken at pressure of 1 bar and 27°C and compressed to a pressure of 4 bar. The oil with a calorific value of 42000kj/kg is burst in the combustion chamber to raise the temperature of air to 550°C, if the air flows at the rate of 1.2kg/s; find the net power of the installation. Also find the air fuel ratio. Take C_p=1.05KJ/Kg K.
   b) What is the importance of Intercooling in Gas Turbines explain.
6. a) Explain Vapour Compression Refrigeration cycle with neat sketch.
   b) Compare Joule Cycle and Rankine Cycle.
7. a) Write the short note Pure Substances.
   b) What are the advantages and disadvantages of Hydrogen fuels?

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Code No. D-2430/N/AICTE

FACULTY OF ENGINEERING

B.E. (CME/DS) III - Semester (AICTE) (MAIN) Examination, March / April 2022

Subject: Programming Languages

Time: 3 Hours **Max. Marks: 70**

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1 (a) What do you mean by programming environment?
(b) Differentiate record and array.
(c) What is enumerated data type?
(d) What is a local and global variable?
(e) What is an activation record?
(f) Define Semaphore.
(g) Write about functions in python.

2 (a) Explain BNF and EBNF.
(b) Explain Language evaluation criteria.

3 (a) Differentiate Static type Binding and Dynamic type Binding.
(b) Explain short circuit evaluation in detail.

4 (a) Explain various parameter passing methods implemented in various programming languages.
(b) Discuss about Object Lifetime and Storage management.

5 (a) Explain Object Oriented Programming in Java.
(b) What are Exceptions? How are they handled in Ada and C++?

6 (a) Differentiate functional and imperative languages.
(b) Write about LISP, applications of functional programming languages.

7 (a) Write short notes on: (i) Multiple Inheritance (ii) Context Free Grammars.
(b) Discuss features and importance of the programming languages.

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Code No. D-2383/N/AICTE

FACULTY OF ENGINEERING

B.E. (AI&DS) III - Semester (AICTE) (Main) Examination, March/April 2022

Subject: OOps Using Java

Time: 3 Hours **Max. Marks: 70**

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1 (a) Why is Java known as platform independent?
(b) Define data abstraction.
(c) What is the use of super keyword?
(d) Discuss various methods used to create threads.
(e) What is a stream? What are 2 types of stream that Java defines? List two I/O classes in each category.
(f) Explain the types of exceptions.
(g) What are the merits of swing components over AWT?

2 (a) Write a program to find sum of numbers passed as command line arguments.
(b) What is an array? How arrays are declared and initialized? Explain with example.

3 (a) Does Java support run-time polymorphism. Illustrate with an example.
(b) Write about access specifiers in Java.

4 (a) Differentiate between ArrayList and Vector.
(b) What combination of classes can be used to write and read serializable directs to and from a file? Illustrate with an example.

5 (a) Example about event classes and event listeners interfaces.
(b) Discuss the four types of JDBC driver with suitable diagrams.

6 (a) Explain about servlet life cycle.
(b) Explain various components of Swing.

7 Write short note on:
(a) Packages
(b) Final Keyword
(c) Exception Handling.

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Code No. D-2379/N/AICTE

FACULTY OF ENGINEERING

B.E. (IoT) III - Semester (AICTE) (MAIN) Examination, March / April 2022

Subject: OOPS Using Java Programing

Time: 3 Hours **Max. Marks: 70**

Note: **(i) First Question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 marks.**
(ii) Answers to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may suitably be assumed.

1 (a) Define a string and write any two methods of string handling.
(b) Mention the differences among single inheritance, multiple inheritance and multilevel inheritance?
(c) Differentiate between throw and throws keywords.
(d) Explain in detail the concept of wrapper classes.
(e) List the constructors of BorderLayout() class in Java.
(f) Why is java architectural-neutral?
(g) Relate when is a variable called a “final" variable? Correlate its application.

2 (a) Summarize the concepts of class in java.
(b) What is parameter passing explain with a simple example?

3 (a) Interpret the use of Constructors and mention its types. How are constructors called in Inheritance.
(b) Outline the Packages in Java. Write a program to implement and import packages.

4 (a) Illustrate about exception handling and classify the keywords used.
(b) Write a program to implement Threading using Runnable interface.

5 (a) Assess in brief the major tasks of input and output stream classes?
(b) Compute a program to implement String tokenizer class in java.

6 (a) Distinguish between java AWT and swings.
(b) Determine what is an event and designate the event handling mechanisms in Java?

7 (a) Explain about Constructor Overloading with an example also justify the usage of super Keyword.
(b) When can a deadlock occur in multithreading?

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