

(30)



ARKAJAIN
University
Jharkhand

6th Semester End Term Examination: 2021-22.

Subject : Mobile Application Development **Roll No:**

Course : BCA

Full Marks : 70

Time : 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Start writing from 2nd page onwards; **Don't Write On The 1st Page Backside.**
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PART - A

Multiple Choice Questions

[12x1=12]

1. What are the wake locks available in android?
 - a) PARTIAL_WAKE_LOCK
 - b) SCREEN_BRIGHT_WAKE_LOCK
 - c) SCREEN_DIM_WAKE_LOCK
 - d) FULL_WAKE_LOCK
2. What is sleep mode in android?
 - a) Only Radio interface layer and alarm are in active mode
 - b) Switched off
 - c) Air plane mode
 - d) None of the Above
3. Android is based on Linux for the following reason.
 - a) Security
 - b) Networking
 - c) Portability
 - d) All of these

4. What is the time limit of broadcast receiver in android?
 - a) 10 sec
 - b) 5 sec
 - c) 15 sec
 - d) 1 hour
5. Difference between android api and google api?
 - a) The Google API includes Google Maps and other Google-specific libraries. The Android one only includes core Android libraries
 - b) The google API one only includes core android libraries. The Android includes Google Maps and other Google-specific libraries
 - c) None of the above
 - d) All of the above
6. What are the indirect Direct subclasses of Services?
 - a) RecognitionService
 - b) SpellCheckerService
 - c) RemoteViewsService
 - d) InputMethodService
7. How many applications are there in a given task in android?
 - a) Two
 - b) Many
 - c) One
 - d) Zero
8. What is the application class in android?
 - a) A class that can create only an object
 - b) Anonymous class
 - c) Java class
 - d) Base class for all classes
9. How many broadcast receivers are available in android?
 - a) sendIntent()
 - b) onRecieve()
 - c) implicitBroadcast()
 - d) sendBroadcast(),sendOrderBroadcast(),and sendStickyBroadcast()
10. What is AAPT?
 - a) Android Asset Processing Tool.
 - b) Android Asset Providing Tool.
 - c) Android Asset Packaging Tool.
 - d) Android Asset Packaging Technique
11. Which company developed android?
 - a) Apple
 - b) Android Inc
 - c) Google
 - d) Nokia

12. The android library that provides access to UI pre-built elements such as buttons, lists, views etc. Is
 - a) android.text
 - b) android.view
 - c) android.os
 - d) android.webkit

PART - B

Answer any FOUR out of SIX

[4x7=28]

1. What is android? Why to develop apps for android?
2. With neat diagram, explain the high-level picture of Android app development process.
3. Define
 - a) View
 - b) View group
 - c) Layout in detail.
4. What are Intent, intent objects and fields? List and explain types of Intents.
5. What is Activity lifecycle? Explain with diagram the lifecycle of the activity.
6. List the different Android input controls and explain them.

PART - C

Answer any TWO out of FOUR

[2x15=30]

1. How do you create, save and restore the Shared preferences files? Explain.
2. Explain :
 - a) Linear Layout positioning
 - b) Relative Layout Positioning.
3. What is the difference between activity and fragment?
 - What is a Loader? Explain its characteristics. Explain Loader architecture with a neat diagram.
4. What do you mean by Fragments? Explain the lifecycle of Fragment.



6th Semester End Term Examination: 2021-22.

Subject : Time Series Analysis **Roll No:**
Course : BCA
Full Marks : 70 **Time : 3 Hours.**

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PART - A

Multiple Choice Questions

[12x1=12]

1. In moving average method we cannot find trend values of some
 - a. End Period
 - b. Starting and End Period
 - c. Middle Period
 - d. Starting Period
2. The commonly used Mathematical method for measuring the trend is
 - a. Semi average
 - b. Free Hand curve
 - c. Moving Average
 - d. Least Squares
3. A rise in price of Lemon is an example of
 - a. Cyclical Trend
 - b. Irregular Trend
 - c. Secular Trend
 - d. Seasonal Trend
4. Which of the following is not an example of a time series model?
 - a. Naïve approach
 - b. Moving Average
 - c. Exponential Smoothing
 - d. None of the above
5. Time Series Data consist of
 - a. No mathematical model
 - b. One mathematical model
 - c. One mathematical model
 - d. Two mathematical models

- In a straight line equation $Y = a + bX$; a is the
 - X - intercept
 - Y - intercept
 - Slope
 - None of them
- In semi average method, we divide the data into
 - Two parts
 - Three parts
 - Two equal parts
 - None of them
- MA is used for the measurement of trend when:
 - Trend is linear
 - Trend is curvilinear
 - Trend is Non Linear
 - None of them
- When the Trend is of Exponential Type, the moving averages are to be computed by using
 - Arithmetic mean
 - Harmonic mean
 - Geometric mean
 - Weighted mean
- In autoregressive models _____?
 - Current value of dependent variable is influenced by current values of independent variables
 - Current value of dependent variable is influenced by current and past values of independent variables
 - Current value of dependent variable is influenced by past values of both dependent and independent variables
 - None of the above
- The PACF is necessary for distinguishing between _____.?
 - The AR and MA model is ___ solution: False
 - The AR and ARMA is ___ solution: True
 - The MA and ARMA model is ___ solution: False
 - Different Models from within the ARMA family
- Second Differencing in time series can help to eliminate which trend?
 - Quadratic Trend
 - Linear Trend
 - Both a & b
 - None of the above

PART - B

Answer any FOUR out of SIX

- Define the following
 - Covariance
 - Autocovariance
 - Autocorrelation
 - Z-statistic value
 - Correlation
 - Partial Autocovariance
 - Stationarity Series

[4x7=28]

- Briefly elaborate the alternative models used in place of AR Model?
- Explain the plotting of Partial Autocorrelation and correlation Function using Python?
- Briefly explain the Steps involved in Creating ARCH- Model?
- What is VARMA? How do we implement VARMA with Auto ARIMA?
- Calculate a 7 year moving average for the following data on the number of commercial and industrial failure in a country during 1983-1998

Year	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
No. of Failure	23	26	28	32	20	12	12	10	9	13	11	14	12	9	3	1

PART-C

Answer any TWO out of FOUR

[2x15=30]

- Briefly explain the steps involved in Box-Jenkins Model?
- List out the Steps involved in the moving average process? How do we implement MA models using Python?
- What do you understand by Autocovariance? Give the Derivation for the Autocovariance Function?
- Calculate using Ratio to trend method

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1991	178.2	156.7	164.2	153.2	157.5	172.6	185.9	185.8	165	163.6	169	183.1
1992	196.3	162.8	168.6	156.9	168.2	180.2	197.9	195.9	176	166.4	166.3	183.9
1993	197.3	173.7	173.2	159.7	175.2	187.4	202.6	205.6	185.6	175.6	176.3	191.7
1994	209.5	186.3	183	169.5	178.2	186.7	202.4	204.9	180.6	179.8	177.4	188.9
1995	200	188.7	187.5	168.6	175.7	189.4	216.1	215.4	191.5	178.5	178.6	195.6
1996	205.2	179.6	185.4	172.4	177.7	202.7	220.2	210.2	186.9	181.4	175.6	195.6



6th Semester End Term Examination: 2021-22.

Subject : Deep Learning
Course : BCA [DS]
Full Marks : 70
Roll No:
Time : 3 Hours.

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PART - A

Multiple Choice Questions

[12x1=12]

1. Which of the following is/are Limitations of deep learning?
 - a. Data labelling
 - b. None of the above
 - c. Obtain huge training datasets
 - d. Both a and b
2. How many layers Deep learning algorithms are constructed?
 - a. 2
 - b. 4
 - c. 3
 - d. 5
3. Which of the following gives non-linearity to a neural network?
 - a. Stochastic Gradient Descent
 - b. Convolution function
 - c. Rectified Linear Unit
 - d. None of the above
4. For an image recognition task, which architecture of neural network would be better suited to solve the problem?
 - a. Multi-Layer Perceptron
 - b. Recurrent Neural network
 - c. Convolutional Neural Network
 - d. Perceptron

PART - B

Answer any FOUR out of SIX

[4x7=28]

1. What is an Auto-encoder? Write down the uses of Auto-encoders in Deep Learning?
2. Explain the application of LSTM model.
3. What do you understand by learning rate in a neural network model? What happens if the learning rate is too high or too low?
4. What are the steps involved in training a perceptron in Deep Learning?
5. What are the limitations of Sigmoid and Tanh Activation Functions?
6. What are the differences between a Feed Forward Neural Network and Convolutional Neural Network?

PART - C

Answer any TWO out of FOUR

[2x15=30]

1. Draw and explain architecture of Recurrent Neural Network. What is the Difference Between Batch Gradient Descent and Stochastic Gradient Descent?
2. Draw and explain the architecture of Convolutional Neural Network. What are the differences between a Feed Forward Neural Network and Recurrent Neural Network?
3. What is the Cost Function? Explain how does the ReLU activation function works? Why Sigmoid or Tanh is not preferred to be used as the activation function in the hidden layer of the neural network?
4. What is gradient descent and how does it work? What is Rectified Linear Activation Function? What are the applications of deep learning?

5. RNNs stands for
 - a. Receives neural networks
 - b. Report neural networks
 - c. Recording neural networks
 - d. Recurrent neural networks
6. CNN is mostly used when there is an?
 - a. Structured data
 - b. Unstructured data
 - c. None of the above
 - d. Both a and b
7. Batch Normalization is helpful because
 - a. It normalizes (changes) all the input before sending it to the next layer
 - b. It returns back the normalized mean and standard deviation of weights
 - c. It is a very efficient back propagation technique
 - d. None of these
8. In a neural network, which of the following techniques is used to deal with overfitting?
 - a. Dropout
 - b. Batch Normalization
 - c. Regularization
 - d. All of these
9. Name the component of a Neural Network where the true value of the input is not observed.
 - a. Hidden Layer
 - b. Activation Function
 - c. Gradient Descent
 - d. Output Layer
10. Process of improving the accuracy of a Neural Network is called
 - a. Forward Propagation
 - b. Random Walk
 - c. Cross Validation
 - d. Training
11. What is the best Neural Network Model for Temporal Data?
 - a. Recurrent Neural Network
 - b. Convolution Neural Networks
 - c. Temporal Neural Networks
 - d. Multi-Layer Perceptron
12. De-noising and Contractive are examples of _____.
 - a. Shallow Neural Networks
 - b. Auto encoders
 - c. Convolution Neural Networks
 - d. Recurrent Neural Networks



6th Semester End Term Examination: 2021-22.

Subject : Software Engineering
Course : BCA [IOT]
Full Marks : 70
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PART - A

Multiple Choice Questions

[12x1=12]

1. State whether True or False for Rapid Application Development (RAD)
i) RAD is not appropriate when technical risks are high.
ii) For large but scalable projects, RAD requires sufficient human resources to create the right number of RAD teams.
a. True, False
b. True, True
c. False, True
d. False, False
2. Reliability in a software system can be achieved using which of the following strategies.
a. Fault avoidance
b. Fault detection
c. Fault tolerance
d. All the above
3. involves modifying the system so that the fault does not recur.
a. Failure detection
b. Fault recovery
c. Damage assessment
d. Fault repair

4. The main design activities in the software design process are
- System specification
 - Component design
 - Interface design
 - Algorithm design
- ii, iii and iv only
 - i, iii and iv only
 - i, ii and iii only
 - All i, ii, iii and iv

5. Which of the following are valid step in SDLC framework?
- Requirement Gathering
 - Software Design

6. What is the major drawback of using RAD Model?
- Highly specialized & skilled developers/designers are required
 - Increases reusability of components
 - Encourages customer/client feedback
 - Increases reusability of components, Highly specialized & skilled developers/designers are required.

7. It is the process in which developers discuss with the client and end users and know their expectations from the software.
- Requirements gathering
 - Negotiation & discussion
 - Organizing Requirements
 - Documentation

8. Size Metrics denoted by?
- LOC
 - GLOC
 - KLOC
 - ZLOC

9. The context diagram is also known as _____.
- Level-0 DFD
 - Level-2 DFD
 - Level-1 DFD
 - All of the above

10. Which of the following is not true about Software Validation?
- Validation ensures the product under development is as per the user requirements.
 - Validation do not emphasizes on user requirements.
 - Validation emphasizes on user requirements.
 - Validation is carried out at the end of the SDLC.

11. What are Requirements refined and analyzed to assess their clarity, completeness, and _____
- Consistency
 - Concurrency
 - Correctness
 - None of these

12. COCOMO stands for
- Consumed COst Model
 - Common COntrol Model
 - COnstructive COst Model
 - COmposition COst Model

PART - B

Answer any FOUR out of SIX

[4x7=28]

- Explain the concept of critical system with its type.
- What are the different types of software requirements?
- Explain the concept of requirement engineering process.
- Explain the concept of Verification and validation with the help of diagram?
- Explain about the software design process.
- What are the estimation techniques in software development?

PART - C

Answer any TWO out of FOUR

[2x15=30]

- What is software development life cycle? Explain the phases of SDLC with the help of the diagram.
- Explain the concept of software project management.
- Describe the concept of RAD model with its diagram.
- Write short notes on:
 - System Testing
 - Component Testing
 - Project Planning
 - Requirement elicitation and analysis
 - Behavioral Model



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Subject : Artificial Neural Network

Course : BCA [IOT]

Full Marks : 70

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PART - A

Multiple Choice Questions

[12x1=12]

1. What is the trend in software now a days?
 - a) To bring computer more & more closer to user
 - b) To solve complex problems
 - c) To be task specific
 - d) To be versatile
2. What's the main point of difference between human & machine intelligence?
 - a) Human perceive everything as a pattern while machine perceive it merely as data
 - b) Human have emotions
 - c) Human have more iq & intellect
 - d) Human have sense organs

3. Artificial neural network used for

- a) Pattern Recognition
- b) Classification

12. Which instruments are used for perceiving and acting upon the environment?

- a) Sensors and Actuators
- b) Perceiver
- c) Sensors
- d) None of the mentioned

PART - B

Answer any FOUR out of SIX

[4x7=28]

1. Explain the models of artificial neuron & activation functions
2. Explain the working of single layer Perceptron with a neat diagram.
3. What is Gradient decent algorithm? Explain in brief.
4. Write down the biological inspiration of neural network
5. Explain Hebbian Learning.
6. Write down the advantages and disadvantages of neural network.

PART-C

Answer any TWO out of FOUR

[2x15=30]

1. What are the design parameters of ANN? What are the design steps to be followed for using ANN for your problem? Write the advantages and disadvantages of Artificial Neural Networks.
2. What is a Single layer Perceptron? Draw and explain the architecture of a single layer perceptron (SLP). Mention its advantages and disadvantages.
3. What is Artificial Neural Network? Explain the characteristics of neural network. When to consider neural network? Implement the following Boolean function using neural network:-
 - i. AND
 - ii. OR
4. Discuss the Perceptron training rule. Under what conditions the Perceptron rule fails and it becomes necessary to apply the delta rule? What are the limitations of Perceptron Training Rule?

4. Example of an unsupervised feature map?

- a) Text recognition
- b) Image recognition
- c) Voice recognition
- d) None of the mentioned

5. Neural Networks are complex _____ with many parameters.

- a) Linear Functions
- b) Discrete Functions
- c) Nonlinear Functions
- d) Exponential Functions

6. What is Artificial intelligence?

- a) Putting your intelligence into Computer
- b) Programming with your own intelligence
- c) Making a Machine intelligent
- d) Playing a Game

7. Which is not the commonly used programming language for AI?

- a) PROLOG
- b) LISP
- c) Java
- d) Perl

8. What is an activation value?

- a) Weighted sum of inputs
- b) Threshold value
- c) Main input to neuron
- d) None of the mentioned

9. What is an auto-associative network?

- a) A neural network that contains no loops
- b) A neural network that contains feedback
- c) A neural network that has only one loop
- d) A single layer feed-forward neural network with pre-processing

10. What is perceptron?

- a) Single layer feed-forward neural network with pre-processing
- b) An auto-associative neural network
- c) A double layer auto-associative neural network
- d) A neural network that contains feedback

11. The first artificial neural network was invented in _____.

- a) 1957
- b) 1959
- c) 1958
- d) 1960