ARKA JAIN University
Jharkhand

5th Semester Examination –2021-22

Subject : Enterprise Java	Roll No: ………..
Course : BCA	
Full Marks : 70	Time: 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into Three Parts –A, B & C.
- Part-A is containing 12 multiple choice questions.
- Part- B containing SIX questions out of which FOUR questions are to be answered.
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PART A

MULTIPLE CHOICE QUESTIONS

(12x1=12)

1. In the elements of Hibernate architecture is a factory of session and client of Connection Provider, It holds the second level cache (optional) of data is _____.
   a. Session   b. Session Factory   c. Transaction   d. Connection Provider

2. Which server-side component is required to be deployed on the server?
   a. EJB   b. RMI   c. Both a & b   d. None of the above

3. Which statement describe about Message-Driven Beans is correct?

   a. Message-Driven Beans are stateful

   b. An EJB 3.0 message-driven beans can itself be the client of another message-driven beans

   c. The bean mediates between the client and the other components of the application, presenting a simplified view to the client.

   d. None of the above

4. *Hibernate is an?*
   a. Open Source   b. Lightweight   c. ORM   d. All mentioned above

5. How many types of session beans are available in EJB?
   a. 2   b. 3   c. 4   d. 5`

6. Which method is used to send the same request and response objects to another servlet in Request Dispatcher?

   a. forward()   b. sendRedirect()   c. Both a & b   d. None of the above

7. **What type of servlets use these methods doGet(), doPost(),doHead, doDelete(), doTrace()?**
   a. Genereic Servlets b. HttpServlets   c. All of the above   d. None of the above

8. **Which method in session tracking is used in a bit of information that is sent by a web server to a browser and which can later be read back from that browser?**
   a. Http Session   b. URL rewriting   c. Cookies   d .Hidden form field

9. **Which method of the request object is used to extract values of the input fields in a form when it is submitted?**
   a. getParameter   b. getParameterNames   c. getValues   d. putValue

10. **Which method of the servlet is/are called several times in its life?**
    a. init()   b. doPost()   c. destroy()   d. Both (a) and (b) above

11. **Which of the following is not true for <jsp:useBean> tag in JSP page?**
    a. Locates a bean instance
    b. Stores object reference of the bean in a variable
    c. Creates an instance if fails to locate the bean instance
    d. Does not execute the body tag if any

12. **Which session bean maintain their state between client invocations but are not required to maintain their state across server crashes or shutdowns?**
    a. Stateful Session Bean
    b. Stateless Session Bean
    c. Singleton Session Bean
    d. None of the above

PART B

ANSWER ANY FOUR OUT OF SIX

(4x7=28)

1. Explain about javax.servlet and javax.servlet.http with its class, methods and interfaces.
2. Briefly explain the methods used in Session Tracking.
3. What are the components of Hibernate?
4. Explain about JDBC Architecture with its working.
5. Explain about Java Server Pages? Write down the characteristics of JSP.
6. What is Request Dispatcher? Explain in detail.

PART C

ANSWER ANY TWO OUT OF FOUR

(2x15=30)

1. Define Enterprise Application? With the help of a neat diagram illustrate the tiers of an Enterprise Architecture.
2. Explain Cookies. How cookies are created using Servlet list out various method and syntax used to create Cookies? Also list out methods used in Cookies.
3. List out different types of Collection Operation Used in Unified EL?
4. With the help of neat diagram, illustrate Lifecycle of Enterprise Java Bean?
   a. Stateful session Bean
   b. Stateless Session Bean
   c. Singleton session Bean

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5th Semester Examination –2021-22

Subject	: Internet of Things	Roll No: ……….
Course	: BCA(DS)	
Full Marks	: 70	Time : 3 Hours.

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PART A

MULTIPLE CHOICE QUESTIONS   (12x1=12)

1. How many numbers of the element in the open IoT architecture?

    a. Four elements   b.Six elements   c.Five elements   d.Seven elements

2. Which of the following is the way in which an IoT device is associated with data?

    a. Internet   b.Cloud   c.Automata   d.Network

3. Which of the following IoT networks has a very short range?

    a. Short Network   b.LPWAN   c.SigFox   d.Short-rangeWireless Network

4. What is the full form of the LPWAN
    a. Low Protocol Wide Area Network
    b. Low Power Wide Area Network
    c. Long Protocol Wide Area Network
    d. Long Power Wide Area Network

5 .An IoT network is a collection of _____ devices.
    a. Sigma   b.Machine to Machine   c. Interconnected   d.Network to Network

6. Which one of the following is not an IoT device?
    a. Amazon echo voice controller   b. Google Home
    c. Nest Smoke Alarm   d. None of these

7. **What is the main purpose of WoT (Web of Things) in the IoT?**
   a. Improve the usability and interoperability   b. Reduce the security
   c. Complex the development   d. Increase the cost

8. **What is the Arduino UNO?**
   a. Software   b. Hardware device   c. Network   d. Protocol

9. **_____ allows the user to control electronic components.**
   a. Android API   b. RETful API   c. MQTT API   d. CoAP API

10. **Which of the following is not an application of IoT?**
    a. Wearables   b. Smart Grid   c. Arduino   d. Smart City

11. **How many messages will HQTTP will send in 1024?**
    a. All   b. 256   c. 240   d. 514

12. **How many messages will HTTP will send per hour?**
    a. 1,708   b. 160,278   c. 3,628   d. 263,314

PART B

ANSWER ANY FOUR OUT OF SIX   (4x7=28)

1. What are Subscribers and Publishers in MQTT?
2. What impacts will the Internet of Things (IoT) have on Energy Sector?
3. Draw simplified IOT architecture
4. What is ZigBee protocol?
5. What is Clockodillo?
6. What is Sketching? Explain its benefits.

PART C

ANSWER ANY TWO OUT OF FOUR   (2x15=30)

1. Explain Arduino. What are the things need to be considered for developing on the Arduino?
2. Define the following:
   a. Microcontrollers
   b. System-on-chips
3. What is Internet of Things (IoT). What are components required to design IoT Device and which

   device we called IoT device explain with example

4. Explain with example: Wearable - Smart Cities- Smart Home – Smart Healthcare
   Agriculture - Smart Grid.

5th Semester Examination –2021-22

Subject	: Introduction to Cyber Security	Roll No: ……….	
Course	: BCA (IoT)		
Full Marks	: 70	Time	: 3 Hours.

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PART A

MULTIPLE CHOICE QUESTIONS   (12x1=12)

1. _____ in a system is given so that users can use dedicated parts of the system for which they've been given access to.
   a) Machine Access Control   b) Mandatory Accounts Control
   c) Mandatory Access Control   d) Mandatory Access Controlling

2. _____ is a special form of attack using which hackers' exploit – human psychology.
   a) Cross Site Scripting   b) Insecure network
   c) Social Engineering   d) Reverse Engineering

3. Which of the following do not comes under Social Engineering?
   a) Tailgating   b) Phishing   c) Pre texting   d) Spamming

4. The full form of Malware is _____
   a) Malfunctioned Software   b) Multipurpose Software
   c) Malicious Software   d) Malfunctioning of Security

5. Who deploy Malwares to a system or network?
   a) Criminal organizations, Black hat hackers, malware developers, cyber-terrorists
   b) Criminal organizations, White hat hackers, malware developers, cyber-terrorists
   c) Criminal organizations, Black hat hackers, software developers, cyber-terrorists
   d) Criminal organizations, gray hat hackers, Malware developers, Penetration testers

6. _____ is a code injecting method used for attacking the database of a system / website.
   a) HTML injection   b) SQL Injection
   c) Malicious code injection   d) XML Injection

7. This attack can be deployed by infusing a malicious code in a website's comment section. What is "this" attack referred to here?
   a) SQL injection   b) HTML Injection
   c) Cross Site Scripting (XSS)   d) Cross Site Request Forgery (XSRF)

8. When there is an excessive amount of data flow, which the system cannot handle, _____ attack takes place.
   a) Database crash attack
   b) DoS (Denial of Service) attack
   c) Data overflow Attack
   d) Buffer Overflow attack

9. Compromising a user's session for exploiting the user's data and do malicious activities or misuse user's credentials is called _____
   a) Session Hijacking
   b) Session Fixation
   c) Cookie stuffing
   d) Session Spying

10. _____ is a device which secretly collects data from credit / debit cards.
   a) Card Skimmer
   b) Data Stealer
   c) Card Copier
   d) Card cloner

11. _____ is a technique used when artificial clicks are made which increases revenue because of pay-per-click.
   a) Clickjacking
   b) Clickfraud
   c) Keylogging
   d) Click-hacking

12. _____ is the way or technique through which majority of the malware gets installed in our system.
   a) Drive-by click
   b) Drive-by redirection
   c) Drive-by download
   d) Drive-by injecting USB device

PART B

ANSWER ANY FOUR OUT OF SIX

(4x7=28)

1. What do you understand from Cyber-Attacks and Vulnerabilities
2. Write short notes on:
   a) Malware threats,
   b) Sniffing,
3. What is the Role of forensics Investigator?
4. What is the difference between E-Commerce and E-Governance?
5. Differentiate among Black Hat, White Hat & Gray Hat.
6. Write about Cyber security-Organizational Implications.

PART C

ANSWER ANY TWO OUT OF FOUR

(2x15=30)

1. Introduction to ISO 27001:2013.
2. What is E-Commerce? Explain its different categories.
3. What are the Social Engineering Targets & What are the defense Strategies followed?
4. What are the Intellectual Property Rights in Cyberspace?

ARKA JAIN University
Jharkhand

5th Semester Examination –2021-22

Subject : Embedded C with Arduino
Course : BCA (IOT)
Full Marks : 70

Roll No : ....

Time : 3 Hours.

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PART A

MULTIPLE CHOICE QUESTIONS   (12x1=12)

1. Which microcontroller is used in Arduino UNO?
a) ATmega328p   b) ATmega2560   c) ATmega32114   d) AT91SAM3x8E

2. Which is the software or a programming language used for controlling of Arduino?
a) Assembly Language   b) C Languages   c) JAVA   d) Any Language

3. What is the default boot loader of the Arduino UNO?
a) Opti boot boot loader   b) AIR-boot   c) Bare box   d) GAG

4. Delay(100000) results in a delay of _____.

a) 100000 seconds   b) 100 seconds   c) 1 second   d) 10 seconds

5. A program written with the IDE for Arduino is called _____
a) IDE source   b) Sketch   c) Cryptography   d) Source code

6. How many digital pins are there on the UNO board?
a) 14   b) 12   c) 16   d) 20

7. What does this line of code do? Counter++;
a) Increment counter by an amount that depends on its definition.
b) This is not a legal statement in the Arduino language.
c) Adds 1 to the variable counter
d) Returns true if the variable counter has a positive value.

8. Select the function that you can use to detect a button press on the Arduino

a) buttonRead()   b) buttonPress()   c) analogRead()   d) digitalRead()

9. The core processor of the Arduino Uno (Atmega328p) has a 16MHz crystal oscillator for the Processor clock.

a) True   b) False

10. How can you hook up multiple Arduinos to your local network?

a) Give them a unique MAC address
b) Give them a unique IP address
c) Give them a unique MAC address and a unique IP address
d) Give them a unique MAC address and match your router's IP address

11. Any code that's written inside the if block shown below will:

```
if(1)

{

}
```

a) Show an error   b) Show a warning but not an error   c) execute infinitely   d) print '1'

12. What is the speed of operation in Pi 3?
a) 900MHz   b) 1.2GHz   c) 1GHz   d) 500MHz

PART B

ANSWER ANY FOUR OUT OF SIX

(4x7=28)

1. Explain the different types of Arduino Communication.
2. What are the various Instruction Set Architectures in Computer System? Write down the differences between RISC and CISC architecture?
3. What is Raspberry PI? Explain the characteristics of Raspberry Pi Board.
4. Explain the concept of Data analytics for IOT.
5. What do you mean by Machine Learning? What are the common instances of Machine learning?
6. What is a Microcontroller? Why ARM Cortex A53 microcontroller is used in raspberry pi?

PART C

ANSWER ANY TWO OUT OF FOUR

(2x15=30)

1. What is Arduino? List the characteristics of an Arduino UNO development Board. What are the different versions of Arduino development Board? Explain in Brief.
2. What is the concept of loops in Embedded C? What are the various types of loops used in Embedded C? Explain different types of loops in Embedded C with examples.
3. Define and also explain the following with suitable diagram:
    i) ASIC   ii) UART   iii) Buzzer   iv) 7-Segment displa
4. Explain the architecture of IOT with neat diagram.

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5th Semester Examination –2021-22

Subject	: NO SQL Databases
Course	: BCA (DS)
Full Marks	: 70

Roll No : ....

Time : 3 Hours

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PART A

MULTIPLE CHOICE QUESTIONS

(12x1=12)

1. **What is the aim of NoSQL?**
   a. Not suitable for storing structured data
   .b. Allow storing non-structured data.
   c. New data format to store large datasets.
   d. An alternative to SQL databases to store textual data.

2. **The core principle of NoSQL is _____.**
   a. Low availability
   b. High availability
   c. Both a and b
   d. None of the above

3. **Which architecture does NoSQL follow?**
   a. Shared Memory
   b. Shared Nothing
   c. Shared Disked.
   d. Shared Nothing Architecture

4. **Which of the following is not a NoSQL database?**
   a. MongoDB
   b.SQL Server
   c. Cassandra
   d. None of them

5. **Which of the following are the simplest NoSQL databases?**
   a. Document
   b. Wide column
   c. Key value
   d. All of them

6. **Following represent column in NoSQL_____**
   a.Field
   b. Document
   c. Database
   d. Collection

7. **In which year NoSQL was released**
   a.1996
   b.1997
   c.1998
   d.1999

8. **Who developed by NoSQL?**
   a.Alen Turing
   b.Carlo
   c.Strozzi Mayank K.
   d. None of them

9. Which of the following is a NoSQL Database Type ?
   a.SQL   b.JSON   c.Document databases   d.All of the above

10. Why MongoDB is known as the best NoSQL database?
    a. Easily Scalable High
    c. Rich Query language
    b.Performance
    d. All of the above

11. List the different kinds of NoSQL data stores?
    a. Key-value store
    c. Graph store
    b. Column family store
    d. All of the above

12. Which of the following is a primary classification for nosql architectures
    a. Document & Graph Database
    c. Column-oriented database
    b. Key / value database
    d.All of the Above

PART B

ANSWER ANY FOUR OUT OF SIX

(4x7=28)

1. What are the features of Apache HBase?

2. Compare HBase with Cassandra?

3. Compare HBase with Hive?

4. What are the omponents of the Sharded cluster?

5. What is MongoDB?

6. What is the use of MongoDB? What is CAP Theorem? How it is applicable to NOSQL systems?

PART C

ANSWER ANY TWO OUT OF FOUR

(2x15=30)

1. Explain with example any four operation with MongoDB

2. Compare SQL and NoSQL database system

3. List and explain any four basic datatype of MongoDB

4. Explain Basic Operation of MongoDB Shell. What is shading in MongoDB?