



# ARKA JAIN University, Jharkhand

5<sup>th</sup> Semester Final Examination – 2019-20

Subject: Enterprise Java

Time: 3 Hours

Course: BCA/BSc-IT

Full Marks: 70

Pass Marks: 28

- 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 compulsory.
- **Part- B** contains **SIX** questions out of which **FOUR** questions are to be answered.
- **Part- C** contains **SIX** questions out of which **THREE** questions are to be answered.

## PART A

Q1.) All questions are compulsory:-

A) Objective Answer Type (10x1=10)

- i) Which services are provided to EJB components by the EJB container?
- a) Transaction support
  - b) Persistence support
  - c) Naming support
  - d) All mentioned above
- ii) Abbreviate the term JMS?
- a) Java Messaging Service
  - b) Java Monitor Service
  - c) Java Message Session
  - d) Java Monitor Session
- iii) Which object of HttpSession can be used to view and manipulate information about a session?
- a) session identifier
  - b) creation time
  - c) last accessed time
  - d) all above mentioned
- iv) Which methods are used to bind the objects on HttpSession instance and get the objects?
- a) setAttribute()
  - b) getAttribute()
  - c) Both a and b
  - d) None of the above

v) Which cookie is valid for single session only and it is removed each time when the user closes the browser?

- a) Persistent cookie
- b) Non persistent cookie
- c) All of the above
- d) None of the above

vi) How many reserved keywords are currently defined in the Java language?

- a) 48
- b) 49
- c) 50
- d) 47

vii) Which two interfaces does the javax.servlet.jsp package have?

- a) JspPage
- b) HttpJspPage
- c) PageContext
- d) Both a and b

viii) Which tag is used to execute java source code in JSP?

- a) Declaration Tag
- b) Scriptlet Tag
- c) Expression Tag
- d) None of the above

ix) Which JSP action tag is used to include the content of another resource, it may be jsp, html or servlet?

- a) jsp:include
- b) jsp:forward
- c) jsp:plugin
- d) none of the above

x) A JSP page consists of which tags?

- a) Html tags
- b) JSP tags
- c) Both a and b
- d) none of the above

**B] Short Answer Type (5x2=10)**

- i) Mention any two advantages of JSP over Servlet.
- ii) Write down the names of any 4 interfaces of `javax.servlet.http` package.
- iii) What is EJB stateless bean?
- iv) What are JSP directives?
- v) List down 2 advantages of EJB.

**PART B**

(4x5=20)

**Q2.) Answer any four:**

- i) With the help of a labelled diagram explain the lifecycle of a JSP page.
- ii) Write a short note on Java EE Containers and its services.
- iii) What is a Servlet. Explain its life cycle.
- iv) What is JNDI? Explain with its architecture diagram.
- v) Explain the Publisher Subscriber Messaging Domain with the help of a block diagram.
- vi) Draw lifecycle diagram of a Stateful Session Bean.

**PART C**

(3x10=30)

**Answer any Three:**

**Q1.)** Write a program in JSP to print the current date and time.

**Q2.)** With the help of a diagram explain the hibernate architecture. Discuss the elements of hibernate architecture.

**Q3.)** Write a note on JPA Object Relational Mapping.

**Q4.)** Write a program in JSP to demonstrate decision making statements.

**Q5.)** What is JMS. With the help of diagrams explain the two models of JMS.

**Q6.)** What is the significance of page directive? List down at least 8 attributes associated with the page directive.



# ARKA JAIN University, Jharkhand

5<sup>th</sup> Semester Final Examination – 2019-20

Subject: Advanced Web Programming

Course: BCA/BSc-IT

Full Marks: 70

Time: 3 Hours

Pass Marks: 28

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## PART A

**Q1.) All questions are compulsory:-**

**A] Objective Answer Type (10x1=10)**

i) Which file contains settings for all .NET application types, such as Windows, Console, ClassLibrary, and Web applications?

- a) Web.config
- b) Machine.config
- c) Global.asax
- d) None of the above

ii) Which of the following is not an ASP.NET page event?

- a) init
- b) load
- c) import
- d) none of the above

iii) What is the name of the Page object's property that determines if a Web page is being requested without data being submitted to server?

- a) Is Callback
- b) Is Reusable
- c) Is Valid
- d) IsPostBack

iv) What is/are true about master page?

- a) Master page contains a <%@ Master %> directive instead of the normal <%@ Page %> directive.
- b) Content Placeholder control can be added only on master page.
- c) You can add as many Content Placeholders to a Master Page as you need.
- d) All of the above.

v) When does the garbage collector run?

- a) It runs automatically

- b) Every day
  - c) Every alternate day
  - d) When IIS restarts
- vi) Why should you write the cleanup code in finally block?
- a) Compiler throws an error if you close the connection in try block.
  - b) Resource cannot be destroyed in catch block.
  - c) Finally blocks run whether or not exception occurs.
  - d) All of the above
- vii) For locking the data with synchronization which class will be used?
- a) Lock
  - b) Monitor
  - c) Synclock
  - d) Deadlock
- viii) What are the Command Object Methods?
- a) ExecuteNonQuery
  - b) ExecuteReader
  - c) ExecuteScalar
  - d) All of the above
- ix) Which of the following directive is used to link an assembly to a page or user control?
- a) @Page
  - b) @Import
  - c) @Assembly
  - d) @Reference
- x) The first event triggers in an .aspx page is
- a) Page\_Init()
  - b) Page\_Load()
  - c) Page\_Click()
  - d) none of the above

**B] Short Answer Type (5x2=10)**

- i) How many types of connection architectures are there in ADO.net? Explain each briefly.
- ii) What is the significance of CLR in ASP.NET architecture?
- iii) What are assemblies?
- iv) What is a SiteMapPath control used for?
- v) When do the following exceptions occur?
  - a) ArrayTypeMismatch Exception
  - b) InvalidCastException

## PART B

**Q2.) Answer any four:**

**(4x5=20)**

- i) List down 5 properties of HttpRequest class.
- ii) What is a RangeValidator control? Explain with a syntax. List down its 3 important properties.
- iii) Write a short note on Session state.
- iv) List down any 5 ADO.NET framework data providers and write a short description of each.
- v) What are the important classes in ADO.net? Explain each briefly.
- vi) What is XML? Write down 5 uses of XML.

## PART C

**Answer any Three:**

**(3x10=30)**

**Q3.)** What is the significance of Page class? What is its namespace, assembly and class hierarchy? Explain its 6 objects briefly.

**Q4.)** Write a program in C# to accept a number and i) display the sum of the digits ii) display the reverse of the number.

**Q5.)** Write a C# program that displays the below number triangle.

```
Enter the Range=5
  1
 121
12321
1234321
123454321
```

**Q6.)** Write a program in C# to convert a decimal number to its binary equivalent.

**Q7.)** Write a program in C# to count the number of vowels and consonants from a given input string.

**Q8.)** Write a program in C# to illustrate NullReference exception.



# ARKA JAINUniversity, Jharkhand

5<sup>th</sup> Semester Final Examination – 2019-20

Subject: Artificial Intelligence

Course: BCA/BSc-IT

Full Marks: 70

Time: 3 Hours

Pass Marks: 28

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## PART A

Q1.) All questions are compulsory:-

A] Objective Answer Type (10x1=10)

- Robot machine might have cameras and infrared range finders for ..... and various motors of .....
  - Sensors, Agents
  - Agents, Actuators
  - Actuators, Sensors
  - Sensors, Actuators
- Values of alpha-beta search get updated...
  - At the end
  - along the path of search
  - Initial state itself
  - None of the mentioned
- State space is...
  - Representing your problem with variable and parameter
  - Problem you design
  - Your Definition to a problem
  - The whole problem
- Artificial intelligence is
  - Making a Machine intelligent
  - Playing a Game
  - Putting your intelligence into Computer
  - Programming with your own intelligence
- The types of agents in artificial intelligence are...
  - 3
  - 4
  - 2
- Which search method takes less memory in mention below
  - optimal Search
  - linear search
  - Depth-First search
  - Breadth-First Search

- vii. There exist only two types of quantifiers, Universal Quantification and Existential Quantification.  
a) True  
b) False
- viii. How can be the goal is thought of in backward chaining algorithm?  
a) Queue  
b) List  
c) Vector  
d) Stack
- ix. What are used in backward chaining algorithm?  
a) Conjuncts  
b) Substitution  
c) Composition of substitution  
d) None of the mentioned
- x. Which of the following is not the style of inference?  
a) Forward Chaining  
b) Backward Chaining  
c) Resolution Refutation  
d) Modus Ponens

**B] Short Answer Type (5x2=10)**

- i) What is artificial intelligence? Explain the application areas of AI.  
ii) What is knowledge representation?  
iii) What is heuristic function?  
iv) What is alpha & beta values?  
v) What is forward chaining?

**PART B**

**Q2.) Answer any four:**

**(4x5=20)**

- i. What are the agents in artificial intelligence? Explain the application areas of AI.  
ii. What is local search algorithm with example?  
iii. Explain the wumpus world.  
iv. Difference between propositional and first order predicate logic.  
v. How categories are useful in knowledge representation?  
vi. Explain informed search. What is hill climbing?

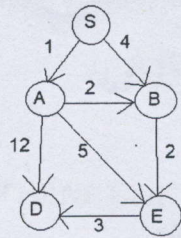
**PART C**

**Answer any Three:**

**(3x10=30)**

- Q3.) Explain the structure of agents with the examples. What do you mean by nature of environment in details?  
Q4.) Define A\*. Solve





Values:

S-7

A-6

B-2

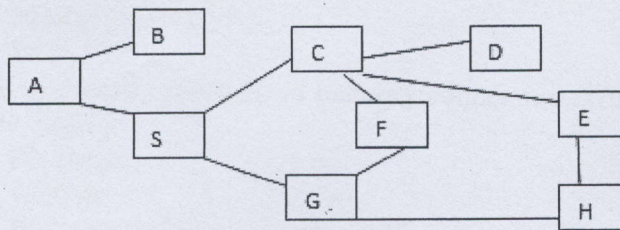
C-1

D-0

**Q5.)**What do you understand by game playing? Explain alpha-beta pruning.

**Q6.)**What are basic elements of first order logic? What are atomic sentences? Gives examples

**Q7.)**Define breadth first search. Solve



**Q8.)** Write Short notes on

- Forward chaining.
- Backward chaining.
- Resolution.
- Syntax and semantics



# ARKA JAIN University, Jharkhand

5<sup>th</sup> Semester Final Examination – 2019

Subject : INTERNET OF THINGS

Time : 3 Hours

Course: BCA & B.Sc IT

Full Marks : 70

Pass Marks: 28

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- Question Paper is divided into **Three Parts –A, B & C**
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## PART A

**Q1. All questions are compulsory**

**A) Multiple Choice Questions :**

**(10x1=10)**

1. The huge number of devices connected to the internet of things has to communicate automatically, not via humans, what is this called?
  - a) Skynet
  - b) Bot 2 Bot
  - c) Machine 2 Machine
  - d) Intercloud
2. Internet of things needs a lot of network connection. What is the proposed “white space” radio standard called?
  - a) Bluetooth
  - b) WiMax
  - c) Weightless
  - d) ZigBee
3. Which environment does global sensor network on?
  - a) C++
  - b) JAVA
  - c) HTML
  - d) C
4. The core element is operated by \_\_\_\_\_.
  - a) PaaS
  - b) IOT service Provider
  - c) SaaS
  - d) IaaS
5. How many digital pins are there on the UNO board?
  - a) 14
  - b) 12
  - c) 16
  - d) 20
6. IaaS stands for \_\_\_\_\_
  - a) Infrastructure as a Service
  - b) Infrastructure as a Software
  - c) Internet as a Service
  - d) Internet as a Software

7. MQTT is \_\_\_\_\_ Protocol.

- a) Machine to Machine
- b) Internet of Things
- c) M2M and IOT
- d) Machine Things

8. Who invented term internet of things?

- a) Bill Gates
- b) Kevin Ashton
- c) Steve Jobs
- d) McDonald

9. Operating voltage of Arduino is \_\_\_\_\_.

- a) 5v
- b) 3v
- c) 12v
- d) 10v

10. SaaS stands for \_\_\_\_\_.

- a) Service as a Smartphone
- b) Service as a software
- c) Smartphone as a Service
- d) Software as a Service

**B] Very Short question**

**(5x2=10)**

1. Define IOT?
2. What is an Arduino?
3. What are GPIO Pins?
4. What is ZigBee protocol?
5. Wearable Devices in IOT?

**PART B**

**Q2. Answer any four:**

**(4x5=20)**

1. Explain what is the job does the system play in the Internet of Everything?
2. What is the difference between IOT devices and embedded devices?
3. What do you mean by industry 4.0?
4. What are the common Challenges in IOT?
5. What is application of IoT in Environmental Monitoring?
6. How does the Internet of Everything relate to the Internet of Things?

**PART C**

**Q3. Answer any three:**

**(3x10=30)**

1. What sensor and actuator are used to control any home appliances from any IOT devices in wired mode?
2. What is contrast between Wireless Sensor Network (WSN) and Internet of Things (IoT) arrange (sensor)?
3. What are the distinctive parts where the Internet of Things can really enhance the present procedures?
4. How to implement the Phased Application of Security in an operational Environment.
5. What do you figure the Internet of Things can totally supplant the human personality and take its very own choices?
6. What is the difference between the Internet of Things (IoT) and the Sensor Business?