R. J. College of Arts, Science & Commerce (Autonomous)
Semester End Examination Nov 2022

Class: TY BSc IT

Subject: Next Generation Technologies (RJSUIT5P7)

Max Marks: 60

Semester: V

Day & Date: Saturday, 19 Nov 2022

Duration: 2 Hrs

Note:
All Questions are compulsory.
Each question carries equal marks.

Q. 1.   Attempt any Two of the following.   [12]
- a) What is Big Data? What are the characteristics of Big Data?
- b) Explain CAP theorem and BASE approach of NoSQL.
- c) How is data stored in NoSQL? Discuss the various database types of NoSQL.
- d) Which kinds of databases are required to store structured, semi structured and unstructured information?

Q. 2.   Attempt any Two of the following.   [12]
- a) Explain the MongoDB database model with a neat diagram and an example.
- b) Explain the document insertion methods of MongoDB. Also illustrate an example for each.
- c) Demonstrate the selection and projection operations with suitable examples.
- d) Write a short note on Hash Based Partitioning.

Q. 3.   Attempt any Two of the following.   [12]
- a) Define and describe the following terms:
    4. Default data directory used by mongod.
    5. Namespace(.ns File)
    6. Extent
- b) Explain GridFS with an example.
- c) Discuss the backup and recovery process of the MongoDB database.
- d) What are mongoimport and mongoexport utilities?

Q. 4.   Attempt any Two of the following.   [12]
- a) What is In-Memory database? Compare In-Memory database with traditional database.
- b) Explain the core components of Berkeley Analytics Data Stack (BADS).
- c) What are the JQuery selectors? Explain each with an example.
- d) What is AJAX? How to use jQuery with AJAX?

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Q. 5.   **Attempt any Two of the following.**   [12]

a) What is JSON parsing? How does it work?

b) Explain the various JSON data types.

c) How to use the JSON array into the JSON document?

d) Write a code to send the JSON file data to the HTML table.

************* END **************

R. J. College of Arts, Science & Commerce (Autonomous)
Semester End Examination November 2022

Class T.Y.B. Sc.IT   SEMESTER: V
SUBJECT: RJSUIT501 / Software Project Management   DAY & Date: Thursday, 10 / 11 / 2022
Max Marks: 60 Marks   TIME: 2Hrs

Note.   1. All questions are compulsory.
2. Each question carries equal marks.

Q.1.   Attempt any two from the following.   **[12M]**
A   What do you mean by Project Charter? Explain in detail.

B   Explain following step of project planning.
1) Identify Project Scope and Objectives
2) Identify Project Infrastructure
3) Analyze Project Characteristics

C   Nice Ltd wants to expand its business and so it is willing to invest Rs 10,00,000.
The investment is said to bring an inflow of -
Rs. 100,000 in first year, Rs. 250,000 in the second year,
Rs. 350,000 in third year, Rs. 265,000 in fourth year and
Rs. 415,000 in fifth year.
Assuming the discount rate to be 9%. Calculate NPV using the formula.

D   How will you manage the Allocation of Resources within Programs.

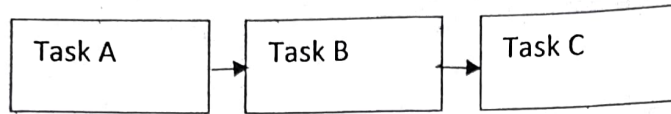**Q.2.   Attempt any two from the following.**   **[12M]**
A   What do you mean by Estimation? Explain various stages of estimation.
B   What is Albrecht Function point analysis? Explain in detail
C   Consider a software project with the following information domain characteristic for calculation of function point metric.
  - Number of external inputs (EI) = 30
  - Number of external output (EO) = 60
  - Number of external inquiries (EQ) = 23
  - Number of files (ILF) = 08
  - Number of external interfaces (EIF) = 02
- The complexity weighting factors for EI, EO, EQ, ILF and EIF are 4, 5, 4, 10 and 7, respectively.
- Out of fourteen value adjustment factors that influence the development effort,
  - four factors are not applicable,
  - each of the other four factors have value 3,
  - and each of the remaining factors have value 4.
Computed the value of function point.

D   What do you understand by Norden and Putnam work of staffing pattern? Describe your answer.

Q.3. **Attempt any two from the following.** [12M]

A How would you outline the rules for constructing precedence networks?

B What is forward pass? Explain with example.

C Using PERT techniques solve and fill the missing gaps? What would be the expected duration of the chain A + B + C? and standard deviation for A + B+ C?

Task A	Task B	Task C

Task	a	M	b	T_e	s
A	10	12	16	?	?
B	8	10	14	?	?
C	20	24	38	?	?

D Explain the different stages of project planning.

Q.4. **Attempt any two from the following.** [12M]

A Discuss the involved steps in managing the contracts.

B What are the stages in contract management or control placement? elucidate in detail.

C Explicate stress management in detail with suitable diagram.

D Describe the recruitment process for choosing the right person for a job.

Q.5. **Attempt any two from the following.** [12M]

A Based on your understanding how you will form a team describe it in detail.

B Explain capability maturity models with diagram.

C Explain ISO 9126 external software quality characteristics and its sub characteristics.

D What do you understand by project closure? Do you think it is important? If yes then discuss its importance?

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Class: TYBSc IT

Subject: RJSUIT502/Internet of Things

Max Marks: 60

Semester: V

Day & Date: Saturday 12/11/2022

Time: 2 Hrs

Note:
1. All Questions are compulsory.
2. Each question carries equal marks.

Q1. Attempt any Two of the following. [12]

a) Differentiate between Embedded System and Internet of Things. Give examples of each.
b) Write a note on privacy of data in iot applications.
c) Discuss various trends in information and communication technology with respect to IOT.
d) State the responsibilities of users of internet of things. (What should first class citizens of virtual world do to maintain harmony?)

Q2. Attempt any Two of the following. [12]

a) Compare the following application layer protocols when used with an IOT application. You can use example to support your answer. – HTTP and HTTPS
b) Discuss the role of dynamic host allocation for an IOT application. How will this protocol help addressing the challenge of ever increasing need of IP addresses for IOT.
c) Why should the process of prototyping start with sketching? How is using breadboard cost saving in building prototype from a sketch?
d) Compare "open source" and "closed source" approaches of making a prototype.

Q3 Attempt any Two of the following. [12]

a) What are actuators? Why are they needed in an IOT application? Give any one example and explain the role of actuator in your example.
b) How can a designer use Arduino to build a smart door? List the components that can be used.
c) Discuss challenges in making IOT prototype
d) What different privacy measures can be implemented in RPi based visitor monitoring system?

Q4. Attempt any Two of the following. [12]

a) Define business model. List the factors involved in study of business model.
b) Explain the need of memory management for IOT applications. Discuss the deterministic approach of utilization of RAM
c) Discuss about battery life of IOT application. How can it be made better?
d) List different debugging methods and options for IOT program using – Arduino IDE

Q5. Attempt any Two of the following. [12]

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Q5. **Attempt any Two** of the following. [12]

a) Explain the processes and methods involved in mass production of IOT devices

b) What is the process in making of a professional PCB?

c) What is the concept of disrupting control due to IOT devices? How can a solution be found in crowdsourcing?

d) Discuss following ethical issues in developing IOT project – Privacy and control

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R. J. College of Arts, Science & Commerce (Autonomous)
Semester End Examination Nov 2022

Class: TY BSc IT   **Semester: V**
Subject: RJSUIT503/ Advanced Web Programming
Day & Date: Tuesday, 15/11/2022
Max Marks: 60   **Time: 2 Hrs.**

Note:
1. All Questions are compulsory.
2. Each question carries equal marks.

Q1. **Attempt any Two** of the following.   [12]
a) Draw and explain .NET framework architecture.
b) Compare simple inheritance and multilevel inheritance with an example.
c) What is namespace? Explain with the help of a program code.
d) Explain static members and partial class.

Q2. **Attempt any Two** of the following.   [12]
a) What is a web application? What are the advantages of a web application?
b) Explain in brief about application events.
c) List and explain 6 web server controls.
d) Explain AdRotator control with an example in ASP.NET.

Q3. **Attempt any Two** of the following.   [12]
a) What is error handling? Explain the techniques of error handling.
b) What is application-level tracing? Explain with an example.
c) List and explain two types of state management techniques.
d) Write the steps to demonstrate use of Master Page with applying Styles and Themes for page beautification.

Q4. **Attempt any Two** of the following.   [12]
a) What is ADO.NET? Explain SqlDataSource in ADO.NET.
b) Differentiate between DataReader, DataSet, DataAdapter and DataTable
c) Explain with an example single valued data binding in ASP.NET.
d) What is GridView? Write a code to connect gridview with SqlDataSource.

Q5. **Attempt any Two** of the following.   [12]
a) What is XML? What is the difference between XML and HTML?
b) Define Authentication and Authorization. Give types of Authentication.
c) Define AJAX. What are the various AJAX controls?
d) Write a short note on: **i.** Auto Complete Extender Control   **ii.** Accordion

************** END **************

R. J. College of Arts, Science & Commerce (Autonomous)
Semester End Examination November 2022

Class: TYBSc IT

Subject: RJSUIT505/Linux System Administration

Max Marks: 60

Semester: V

Date: Thursday,17/11/2022

Time: 2 Hrs

Note:

1. All Questions are compulsory.
2. Each question carries equal marks.

Q. 1 Attempt any two from the following. [12]

a. What are the duties of a Linux system administrator? Explain in brief.
b. List and explain the various commands to view the contents of the text files?
c. Explain different parameters of top command to monitor the current system activity.
d. What is the procedure for setting up our own repository? Why there is a need for setting a repository?

Q. 2 Attempt any two from the following. [12]

a. List and explain the different types of partitions in Linux.
b. Write short note on the following commands:
   (i)   chown
   (ii)   chgrp
c. State the use of tune2fs and dumpe2fs command. Illustrate with an example.
d. Explain how to secure an SSH server.

Q. 3 Attempt any two from the following. [12]

a. How to configure firewall setting with iptables command along with various options.
b. Write steps to create a self-signed certificate.
c. Define NFS. Explain how to configure an NFS to share files between two system.
d. What is Network Address Translation? How to configure a Network Address Translation in Linux?

Q. 4 Attempt any two from the following. [12]

a. Explain the parameters defined in Apache's configuration file.
b. Describe in detail how to secure the web server with TLS certificate.
c. Explain how to configure a primary DNS server.
d. How to configure POP and IMAP using dovecot.

Q. 5 Attempt any two from the following. [12]

a. What are control structures? Explain if then else statement with an example.

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