DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER VII [INFORMATION TECHNOLOGY]
SUBJECT: (IT-717) Distributed Computing

Examination	**: External – Regular (online)**	**Seat No**	**: _____**
Date	**: 24/11/2021**	**Day**	**: Wednesday**
Time Duration	**: 90 Minutes**	**Max. Marks**	**: 60**

INSTRUCTIONS:
1. Answer each section answer book with DDU's logo which was shared earlier.
2. Figures to the right indicate maximum marks for that question.
3. The symbols used carry their usual meanings.
4. **Assume suitable data, if required & mention them clearly.**
5. Draw neat sketches wherever necessary.
6. Follow the following file name convention for uploading the document: **RollNo_ B Tech_Semester_IDNo_ subject code_subject name, e.g. IT001-B.TECH_7_18ITUOS001_IT717_DC [All capital Letters]**

SECTION – II

Q.3 Attempt *Any Three* the following questions. **[15]**

(a) Draw and discuss the behavior of Transport Layer Protocol (TCP) in context of data exchange in following scenarios: **[05]**
1) When close() system call is called
2) When shutdown is called instead if close() system call.

(b) Write down code to implement the File Transfer application using TCP Client – Server. Where client send file name from command line and server open file and returns content of file to client. **[05]**

(c) Write down XML schema definition for Call Detail Record of mobile phone user having following details. **[05]**
Name of User, Callee Number, called number, Call Duration, Date and Time. Each value must appear only once per call. Write necessary restriction over XML Schema. Also write XML document for given schema with reference to Schema document.

(d) Draw and discuss the WSDL file structure in detail. **[05]**

(e) Draw and discuss the map-reduce flowchart of wordcount application for the following input considering three input-splits each having three lines (records) as data. **[05]**

Q.4 Attempt the following questions. **[15]**

(a) Draw and Discuss the JMS API Programming Model and its participating objects with role of each participating objects in the actual message exchange scenario. **[05]**

(b) Discuss the @Path and @PathParam annotation in context of Restful Services. **[02]**

(c) Write Steps and code to implementing BPEL process to get solution of Sin (a) + Sin(b). **[08]**
1. Create two separate web services one for computing Sin(x) and second for Addition operation for computed value along with code. **[04]**
2. Draw BPEL process and discuss involved activities and their sequences and mapping of variables. **[02]**
3. Write down steps to use BPEL process as a web service **[02]**

OR

Q.4 Attempt the following questions. **[15]**

(a) Write Steps and Code for Implementing Restful Webservice with Get and Post Method operations. **[08]**
1) Create User Class with UserId, UserName, UserCity. (Use annotations of XML e.g @XMLRoot, and @XMLElement) **[02]**
2) Create Separate class to store and retrieve the list of Users from the File System (Stored **[02]**

in “Users.dat” file) **[02]**

3) Create a Service class using the Jersy annotations @Path and @Get, @Post and @Produce to create response in XML, Json, and HTML string. **[02]**

4) Write steps to run the application.

(b) Explain in detail: architecture of Hadoop and functionalities of different components of Hadoop. **[05]**

(c) Draw the components is SOA. Also list down the key principles of SOA. **[02]**

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