UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, May 2021

Course: Mainframe Clustering   **Semester: VIII**
Program: B. Tech (CSE + MFT)   **Time   : 03 hrs.**
Course Code: CSMT4002   **Max. Marks: 100**

SECTION A
1. Each Question will carry 5 marks, there are six questions in this section.

S. No.		Marks	CO

Q. 1	i. Which one of the following is a correct combination?
	  a. CO = HA + CA
	  b. HA = CO + CA
	  c. CA = CO + HA
	ii. What is the downtime corresponding to 99.999% availability?
	  a. 5 minutes
	  b. 53 minutes
	  c. 8 hours 46 minutes
	  d. 32 seconds
		5	CO1

Q. 2	i. What is the maximum number of Systems and LPARs in a Parallel Sysplex?
	  a. 32 Systems and 60 LPARs
	  b. 60 Systems and 32 LPARs
	  c. 32 Systems and 1,920 LPARs
	  d. 60 Systems with 1,920 LPARs.
	ii. The component that differentiates a Parallel Sysplex from a Sysplex is?
	  a. Coupling Links
	  b. Coupling Facility
	  c. XCF and XES
	  d. Sysplex Timer and Server Time Protocol
		5	CO1

Q. 3	i. Select all the applicable types of communications available in a Mainframe ecosystem.
	  a. Communication between Servers
	  b. Communication within a Coupling facility
	  c. Communication within a Server
	  d. Communication between Server and external networks
	ii. Identify all the elements of CSS.
	  a. System Assist Processor (SAP)
	  b. Channel Path
	  c. Subchannels
		5	CO2

	d. Control Unit		

Q. 4	i. What is the maximum bandwidth possible with an OSA Express Card?
	  a. 10 Gbps
	  b. 5 Gbps
	  c. 1 Gbps
	  d. 6 Gbps
	ii. What are the components of z/VM?
	  a. CP
	  b. CMS
	  c. CP and CMS
	  d. CP, CMS and LPAR
		5	**CO2**

Q. 5	i. What connects an ESCON to a FICON?
	  a. ESCON Director
	  b. ESCON Bridge
	  c. FICON Bridge
	  d. FICON Director
	ii. What facilitates partitioning a system?
	  a. LPAR
	  b. z/VM
	  c. z/OS
	  d. PR/SM
		5	**CO3**

Q. 6	i. Select all the types of policy couple data sets?
	  a. Coupling facility resource management (CFRM) couple data set
	  b. Sysplex failure management (SFM) couple data set
	  c. Automatic restart management (ARM) couple data set
	  d. Lock Manager (LOCK) couple data set
	ii. What are the main categories of services offered by Sysplex?
	  a. List, Lock and Cache
	  b. XCF and XES
	  c. Communication, Recovery and Data Sharing
	  d. Structures
		5	**CO4**

SECTION B

1. **Each question will carry 10 marks, there are five questions in this section.**
2. **Instruction: Write short / brief notes.**

Q. 7	Explain the use of Parallel Sysplex with suitable example.	**10**	**CO1**
Q. 8	Describe the need of Inter system channels and Integrated cluster bus in communication between servers.	**10**	**CO2**
Q. 9	Give an account of technologies that play significant role for implementing disaster recovery solution.	**10**	**CO3**

Q. 10	As per the given picture, calculate loss of connectivity and find out whether rebuild will be automatic or not if SFM policy connectivity failure occurs corresponding to S04. (OR) Discuss the role of Hiper Sockets in respect of communication within server. Write the benefits of using Hiper sockets function.	10	CO5

Q. 11	Describe the use of following system parameters:
	   i. CLOCK System parameter
	   ii. DRMODE System parameter
		10	CO4

SECTION-C

1. Each Question carries 20 Marks.

2. Instruction: Write long answer.

Q 12	a. Explain "group services", "signaling services", "client/server services "and "status monitoring services" in respect of XCF communication services.
	 (OR)
	 b. Illustrate the use of following Sysplex commands:
	     iii. SETXCF COUPLE command
	     iv. SETXCF START command
	 c. Illustrate how one can avoid single point of failure.
	 d. Compare Reallocating and Rebuilding of Structures with suitable example.
		20
		
		 (10+5+5)
			CO5