

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME – SEMESTER II (NEW) – • EXAMINATION – SUMMER 2016**

**Subject Code: 2720213****Date: 31/05/2016****Subject Name: ADVANCE OPERATING SYSTEM****Time: 10:30 am to 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain: sockaddr\_in socket address structure. What are the different domains (protocol family) and type values available for creating a socket? **07**  
 (b) Name and explain the three primary functions used for process control? **07**
- Q.2** (a) Explain the UNIX system architecture with diagram. **07**  
 (b) What is a race condition? Write a program for demonstrating race condition and to avoid the race condition? **07**
- OR**
- (b) What are inodes in UNIX system. Specify the concept of hard link and symbolic link in UNIX system? **07**
- Q.3** (a) Explain connection establishment and connection termination process using socket between a TCP server and client. **07**  
 (b) Demonstrate the syntax and use of the functions getsockopt( ) ; setsockopt( ) **07**
- OR**
- Q.3** (a) Differentiate between **07**  
 i) wait/waitpid functions needed in a forked application  
 ii) little byte endian order and big byte endian order  
 (b) Write Unix domain program to use the sockets interface to establish a connection and transmit data between client-server using TCP. **07**
- Q.4** (a) Write and explain the syntax of : **06**  
 i. bcmp and memcmp ii. htons and htonl iii. bcopy and memcpy  
 (b) Differentiate between Iterative and Concurrent server. Write a program signifying the difference. **08**
- OR**
- Q.4** (a) Explain kill and raise signal functions in detail for different pid values. **06**  
 (b) Write Unix domain program to use the sockets interface to establish a connection and transmit data between client -server using UDP. **08**
- Q.5** (a) What is the purpose of DNS? Explain the different types of Resource Records in DNS **07**  
 (b) Write a C program that creates a zombie, and then call system to execute the ps(1) command to verify that the process is a zombie. **07**
- OR**
- Q.5** (a) Describe dup and dup2 functions. Explain the equivalence of dup2 and fcntl function **07**  
 (b) Explain the following system calls that a process can use to receive data through a socket: **07**  
 . recv( ) , recvfrom( ) , recvmsg( ).  
 Bring out their differences by giving suitable examples.