Candidate seat No: _____

Charotar University of Science and Technology [CHARUSAT]
Faculty of Technology and Engineering
U & P U Patel Department of Computer Engineering
Subject: IT205 Operating System
First Internal Exam

Semester: 4th Sem B. Tech. (Computer) **Maximum Marks: 30**
Date: 28/01/2013 (Monday) **Time: 11:15 to 12:15 p.m.**

Instructions:
(i) Attempt ***all*** the questions.
(ii) Figures to the right indicate ***full*** marks.
(iii) Make suitable assumptions and draw neat figures wherever if required.

Q-1 (a) Differentiate modular kernel and layered approach. **[02]**

(b) "Processes cannot directly access the kernel" True/False? Justify your answer. **[02]**

OR

(b) Explain how dispatcher will switches the processor from one process to another.

(c) Explain working flow of Peterson's solution when interrupt is occurred at the position Interested [process] =True. **[03]**

(d) List major operating system services. Explain any one of them in detail. **[03]**

(e) Which are the basic types of process? Draw and explain process address space component. **[03]**

(f) What do you mean by critical section? How do we avoid race condition? **[02]**

Q-2 (a) What is the need for the evolution of memory abstraction? **[02]**

[OR]

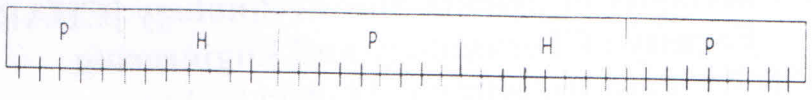
(a) Explain the use of base register and limit register with example.

(b) State difference between **[04]**
(1)Internal fragmentation and External fragmentation.

[OR]

(1)Write down the shell script for word count of particular file in current directory.
(2)Page and Page frame

(c) Draw bitmaps (8-bit/entry) and link lists for the given memory. [02]



Here, P indicates process and H indicates hole.

(d) Consider a swapping system in which memory consist of the following hole sizes in memory order 10KB,4 KB,20 KB,18 KB,7 KB,9 KB,12 KB and15 KB. Which hole is taken for the successive segment request of [04]

(a)12 KB, (b)10 KB, (c)9 KB

for first fit? Now repeat the question for best fit, worst fit, and next fit.

(e) For each of the following decimal virtual addresses, compute the virtual page number and offset for a 4- KB page and for an 8 KB page: 20000, 32768, and 60000. [03]

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