Computer Science: Paper I - Advanced Operating Systems.

Time: 2 ½ Hours   **Marks: 75**

N.B.
l) All questions are compulsory.
2) Figures to the right indicate marks.
3) Illustration, in depth answers and diagram will be appreciated.
4) Mixing of sub-questions is not allowed.
5) Each question carries 5 marks.

Q.1 Attempt **Any Three** of the following.   15 Marks

a) Explain the different types of kernel

b) Discuss how the following pairs of scheduling criteria conflict in certain setting.

   i) CPU utilization and response time

   ii) Average turnaround time and maximum waiting time

   iii) I/O Device utilization and CPU utilization

c) What is the difference between kernel mode and user mode? Why is the difference

   important to an Operating System?

d) Explain any two scheduling algorithm in details.

e) Explain in details GRUB Boot Process.

f) Explain in Details Interprocesses communication.

Q.2 Attempt **Any Three** of the following.   15 Marks

a) Write a short note on Linux Memory Management.

b) What is difference between physical address and virtual address?

c) Explain the difference between internal and external fragmentation which one occur in

paging system? Which one occurs in system using pure segmentation?

d) Explain the concept of segmentation and state its characteristics.

e) Discuss on optimal page replacement algorithm.

f) Write a short note on segmentation hardware.

Q.3 Attempt **Any Three** of the following.   15 Marks

a) Make a list of six security concern for a bank's computer system. For each item an list.

   State whether this concern relate to physical, human or operating system security.

b) Explain what DMA is and why it is used?

c) Write a short note on File System Implementation.

d) Write a short note on RAM Disks.

e) Explain how deadlock can be avoided in operating system.

f) Write a short note on terminals.

Q4. Attempt **Any Three** of the following.   15 Marks

a) Write a short note Android libraries.

b) Write a short note on SQLite.

c) Write a short note on Location Manager.

d) Explain Android Activity Lifecycle

e) Write a short note on Telephony Manager

f) Write about Dalvik Virtual Machine

Q5. Attempt **Any Three** of the following.   15 Marks

a) Explain the Application Framework.

b) What is multiprogramming?

c) Explain Page Replacement algorithm.

d) Write a short note on content provider.

e) What do you mean by paging?

f) Discuss the various design issues for paging system

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