Roll No. ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚   **Total No. of Pages : 02**

Total No. of Questions : 09

M.Sc.(Computer Science) (2015 & Onwards)   (Sem.–1)
OPERATING SYSTEMS
Subject Code : MSC-104
Paper ID : [A2190]

Time : 3 Hrs.   **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :
1. **SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.**
2. **SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.**
3. **Use of non-programmable scientific calculator is allowed.**

SECTION-A

Q1 What are threads? How they are beneficial in operating system? Explain their synchronization issues with its various applications.

Q2 Discuss the various types of operating system.

SECTION-B

Q3 Discuss various CPU multi processor scheduling algorithms.

Q4 a) Write short note on Inter-Process Communication.

   b) Discuss message passing model.

SECTION-C

Q5 What is virtual memory? Explain the need of demand paging.

Q6 a) Explain Thrashing.

   b) Write short note on Segmentation.

SECTION-D

Q7 Discuss the need of File management system & discuss its various access methods.

Q8 a) Write short note on firewall.

b) Write short note on Access controls and authentications.

SECTION-E

Q9 Answer briefly :

a) Write short note on Belady Anomaly.

b) Write short note on system programs.

c) Explain Bootstrapy.

d) Explain objectives of File managements.

e) Elaborate context switching.

f) What do you mean by thread scheduling?

g) Write short note on paging.

h) Discuss File Authentication.

i) Explain basics of Directory system.

j) Discuss I/O devices and Controllers.