

**MANIPAL UNIVERSITY****FIRST SEMESTER ME (EMBEDDED SYSTEMS & INSTRUMENTATION)  
(ESIGELEC, FRANCE) DEGREE EXAMINATION – NOVEMBER 2015****SUBJECT: ESI 617.2 (ELECTIVE 2) – ADVANCED PROGRAMMING TECHNIQUES**

Friday, November 20, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

1. Explain virtual functions and polymorphism.  
(10 marks)
2. Explain istream and ostream class hierarchy with its member.  
(10 marks)
3. Explain the usage of following functions:
  - 3A. strcmp
  - 3B. strcat
  - 3C. strcpy
  - 3D. strchr

(2½ marks × 4 = 10 marks)
4. Explain enums and null terminated strings in C++.  
(10 marks)
5. Explain the keywords extern, static and register in C++.  
(10 marks)
6. Explain the various ways of arguments passing in java with suitable example.  
(10 marks)
7. Explain with an example for the following stream classes with reference to java:
  - 7A. BufferedReader
  - 7B. InputStreamReader

(5+5 = 10 marks)
8. Explain control statements in java with suitable examples.  
(10 marks)
9. What is an interface? With an example illustrate the use of an interface.  
(10 marks)

10. Explain following keywords in java:

10A. new

10B. this

10C. super

10D. final

(2½ marks × 4 = 10 marks)

