MCA (Dual Degree)
(SEM - IV) THEORY EXAMINATION 2017-18
SOFTWARE ENGINEERING

Time: 3 Hours   *Total Marks: 100*

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1.   Attempt *all* questions in brief.   **2 x 10 = 20**

a.   What is software engineering?
b.   When you know programming, what is the need to learn software engineering concepts?
c.   What is software process or Software Development Life Cycle (SDLC)?
d.   How can you gather requirements?
e.   Differentiate validation and verification?
f.   What are SDLC models available?
g.   What is black-box and white-box testing?
h.   Mention some project management tools.
i.   What is software project management?
j.   What are various types of software maintenance?

SECTION B

2.   Attempt any *three* of the following: **10 x 3 = 30**

a.   What is Software development life cycle? Discuss the generic waterfall model.
b.   Define the term "Software Engineering". Explain the major differences between software engineering and other traditional engineering disciplines.
c.   Distinguish between generic and customized software products. Which one has large share of market and why?
d.   Discuss different components of the Software Engineering involved in the development process.
e.   Discuss software process and product metrics with the help of examples.

SECTION C

3.   Attempt any *one* part of the following: **10 x 1 = 10**

(a)   List advantages of software requirement specification. Describe characteristics of a good software requirement specification.
(b)   What do you understand with the term "requirement elicitation"? Discuss any two techniques.

4.   Attempt any *one* part of the following: **10 x 1 = 10**

(a)   Define the S/W metrics and distinguish the term Measures, Metrics and Indicators.
(b)   Explain various types of coupling and define module coupling.

5. **Attempt any *one* part of the following:**   **10 x 1 = 10**

    (a)   What is black-box testing? List its advantages and disadvantages.

    (b)   What is bottom up design? Discuss its benefits and limitations.

6. **Attempt any *one* part of the following:**   **10 x 1 = 10**

    (a)   Why project scheduling is required? Write three techniques of software project scheduling.

    (b)   What are various debugging approaches? Discuss them with the help of examples.

7. **Attempt any *one* part of the following:**   **10 x 1 = 10**

    (a)   Explain all levels of COCOMO model. Assume that the size of an organic software product has been estimated to be 32,000 lines of code. Determine the effort required to develop the software product and the nominal development time. What is software project estimation? What is COCOMO model? Explain.

    (b)   What are benefits of using CASE tools? Explain in detail.