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Total No. of Questions : 09] **[Total No. of Pages : 02**

MCA (Sem. – 3rd)

SOFTWARE ENGINEERING

SUBJECT CODE : MCA - 402

Paper ID : [B0114]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours **Maximum Marks : 60**

Instruction to Candidates:

1) Attempt any **One** question from Sections - **A**, **B**, **C** & **D**.
2) Section-**E** is **Compulsory**.
3) Use of Non-Programmable **Scientific Calculator** is allowed.

Section – A *(1 × 10 = 10)*

Q1) What is software? Discuss its characteristics? Explain various principles of software engineering.

Q2) What is software process model? Explain various characteristics features of waterfall and spiral model.

Section - B *(1 × 10 = 10)*

Q3) Write notes on the following:

a) COCOMO Model
b) Software equation

Q4) a) What is structured analysis? Discuss various principles of structured analysis.

b) Define DFD? Explain its role in structured analysis.

Section – C *(1 × 10 = 10)*

Q5) What is software design? Discuss various software design methodologies.

Q6) Explain the following terms:

a) Encapsulation
b) Dynamic binding.

Section – D

(1 × 10 = 10)

Q7) What is testing? How it is different from debugging? Explain the differences between white box and black box testing.

Q8) What is verification? How it is different from validation.

Section - E

Q9) ***(10 × 2 = 20)***

a) What is metrics? Explain its role in software engineering.

b) What is software crisis? Explain.

c) What are objectives of software project planning?

d) What is data dictionary? Explain its role in structured analysis.

e) What is procedural design?

f) What is stress testing?

g) What are advantages of fourth generation techniques?

h) List various application of software.

i) What are advantages of object oriented systems?

j) What is weak and strong entity in ER diagram?