

Roll No.

Total Pages : 03

MCAE/D-23

24024

OBJECT-ORIENTED ANALYSIS AND
DESIGN USING UML
MCA-20-15

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

1. Answer the following questions in brief : **5×3=15**

- (a) What is Model ? Why do you model ?
- (b) Explain decision and merge node, fork and join node in activity diagram with suitable examples.
- (c) What is signal generalization ? Explain with an example.
- (d) Explain life line, activation box and synchronous message in sequence diagram with examples.
- (e) Distinguish between partitions and layers in a system.

Unit I

2. (a) Explain the following :
typing, hierarchy, object, adornments, notes,
dependency. **12**
- (b) What are extensibility mechanisms in UML ?
Explain with suitable examples. **3**
3. (a) What are structural things in UML ? Explain each
with a suitable example. **8**
- (b) What are views in UML ? Explain purpose of
different views of UML in brief. **7**

Unit II

4. Explain the following with suitable examples :
multiplicity, self-reflective association, association class,
composition, bag, multilevel inheritance, abstract class,
reification and metadata. **15**
5. (a) Explain the following w.r.t. state modeling: time
event, entry and exit conditions, do activity,
concurrency within object. **8**
- (b) What is state diagram ? What are limitations of
one-shot state diagram ? Draw a nested state diagram
for automatic transmission of car. **7**

Unit III

6. (a) What is usecase diagram ? Explain different
relationships among the elements of usecase diagram
with suitable examples. **2**
- (b) Find all actors and at least ten usecases for
WhatsApp and then draw the usecase diagram. **8**
7. (a) What is Sequence Diagram ? Draw a sequence
diagram to send an e-mail. **7**
- (b) What is activity diagram ? Draw an activity diagram
to send an SMS on cell phone. **8**

Unit IV

8. (a) What is system design ? Explain the following
design decisions : **8**
making reuse plan and handling global resources.
- (b) What is class design ? Explain the following
activities of class design :
algorithm design and design optimization. **7**
9. (a) What is domain class model ? How do you find
classes and associations in this model ? Explain. **8**
- (b) What is application class model ? Explain steps of
application class model in brief. **7**