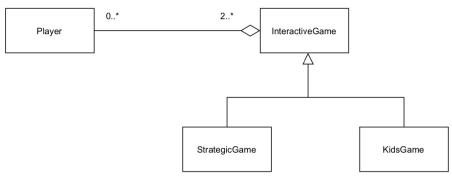
Question 1 – Multiple choice

Maximum score: 3

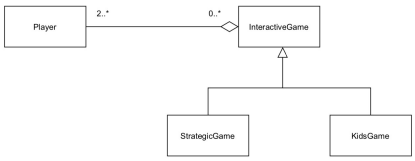
Which of the UML diagrams below best represents the following (partial) description of an online application for playing interactive board games:

```
An interactive game can be played by two or more players. Strategic and kids games are types of interactive
games. Players can play more than one game at a time.
```

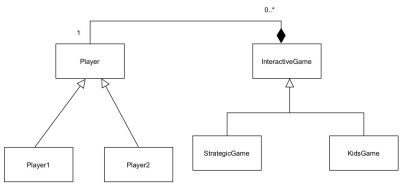
A



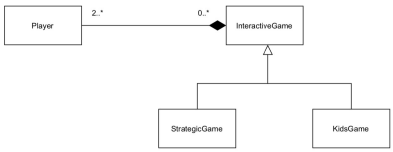
B



C



D

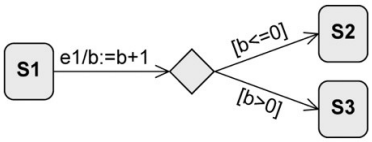


Question 2 – Multiple choice

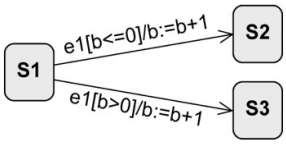
Maximum score: 2

Are the following state machine diagrams equivalent?

State machine diagram 1:



State machine diagram 2:



A No

B Yes

Question 3 – Multiple choice

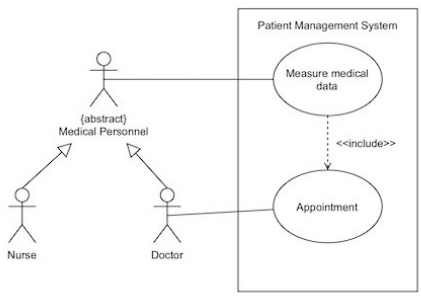
Maximum score: 3

Consider the (partial) description of an application for managing patient files in a doctors' office.

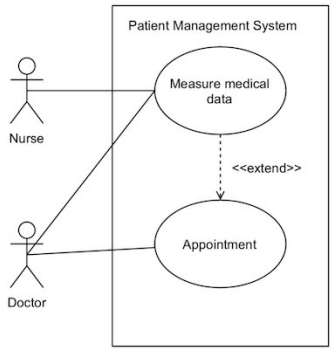
```
A doctor holds appointments, during these appointments a doctor or nurse measures and registers clinical data
(e.g., weight, temperature, etc.) from the patient. These measurements are not always made, and the
measurements can be performed independently of the appointment.
```

Which of the following diagrams describes the above use case more accurately according to the UML specification?

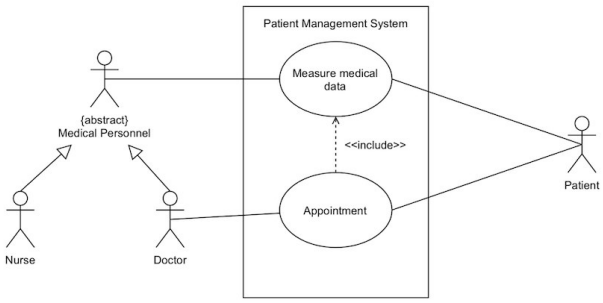
A



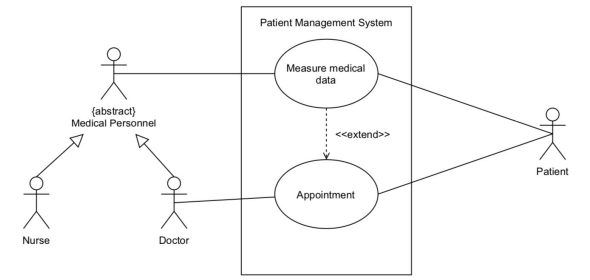
B


Patient Management System
Measure medical data
<<extend>>
Appointment
Nurse
Doctor

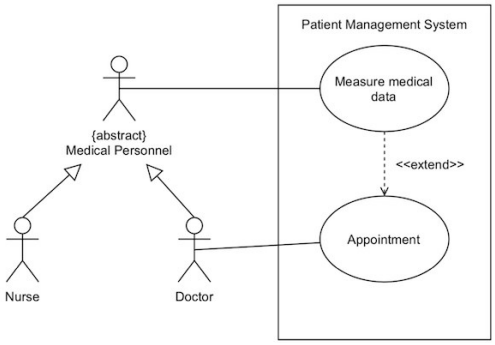
C


Patient Management System
Measure medical data
<<include>>
Appointment
{abstract}
Medical Personnel
Nurse
Doctor
Patient

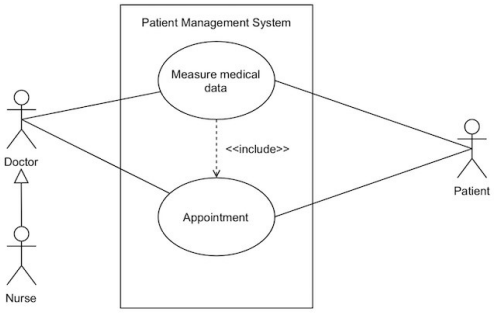
D


Patient Management System
Measure medical data
<<extend>>
Appointment
{abstract}
Medical Personnel
Nurse
Doctor
Patient

E


Patient Management System
Measure medical data
<<extend>>
Appointment
{abstract}
Medical Personnel
Nurse
Doctor

F


Patient Management System
Measure medical data
<<include>>
Appointment
Doctor
Nurse
Patient

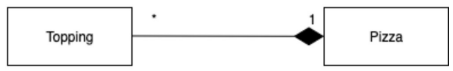
Question 4 – Multiple choice

Maximum score: 3

Which of the diagrams below better depicts the following description according to the UML specification?

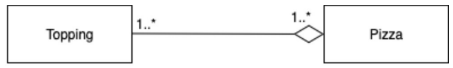
A pizza has 0 to many toppings, toppings belong to maximum one pizza at a given time and toppings can exist without a pizza.

A

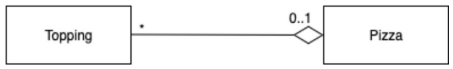


B

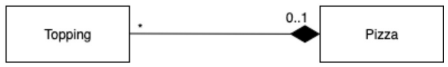
C



D



E



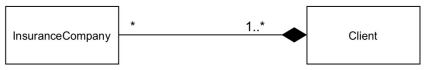
Question 5 – Multiple choice

Maximum score: 3

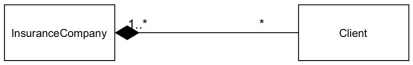
Which of the diagrams below better depicts the following description according to the UML specification?

An insurance company has different clients (needs at least one to survive) and a client can be affiliated to more than one insurance company.

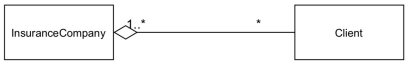
A



B



C



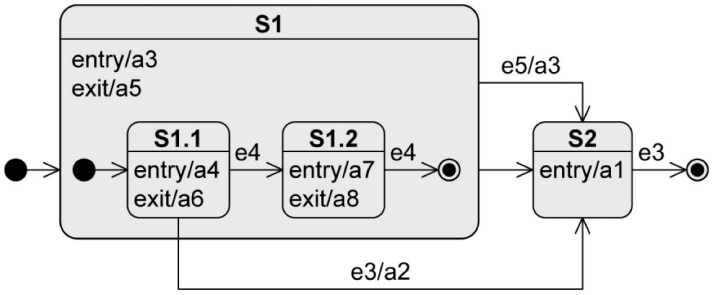
D

E

Question 6 – Multiple choice

Maximum score: 4

Consider the state machine below, and the string of received events **e4,e4**. What is the sequence of activities that are executed as a response to the aforementioned events?



A a4-a6-a7-a8-a1

B a3-a4-a6-a7-a8

C None of the responses presented

D a3-a4-a6-a7-a8-a1

E a3-a4-a6-a7-a8-a5-a1

F a4-a6-a7-a8

G a4-a6-a7-a8-a5-a1

Question 7 – Multiple response

Maximum score: 2

The main activities of the plan-driven and incremental software processes covered in class are:

- **A** Requirements Engineering/Specification
- **B** Design and Implementation
- **C** Interviews
- **D** Evolution/Maintenance
- **E** Planning
- **F** Validation
- **G** Integration

Question 8 – Statement

Maximum score: 6

Select True or False for the following statements

	True	False
UML is only used in plan-driven software projects.		
It is good practice to include information about software functionality in a storyboard.		
You can elicit requirements by applying data science techniques on social media posts.		
In structured interviews, the interviewer thinks about the questions on the fly as the interview develops.		
Class diagrams are used for modeling the behavior of a system.		
UML can be used throughout the software process.		

Question 9 – Multiple response

Maximum score: 2

Which of the following are techniques for eliciting requirements?

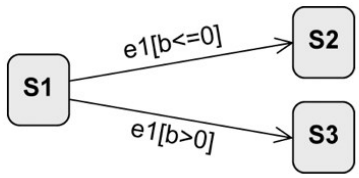
- **A** Background studies
- **B** Storyboards
- **C** Interviews
- **D** Data science on user feedback
- **E** Prototypes
- **F** Workshops

Question 10 – Multiple choice

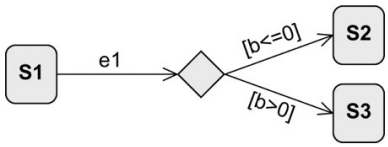
Maximum score: 2

Are the two state machine diagrams below equivalent?

State machine diagram 1:



State machine diagram 2:



A Yes

B No

Question 11 – Multiple response

Maximum score: 2

Some of the reasons for performing requirements engineering in software processes are:

A Polish developers' writing and drawing skills

B Reduce the cost of reworking errors

C Create beautiful documents

D Create a shared understanding between critical stakeholders

E Understand key stakeholders' needs

F Reduce the risk of developing the wrong product

Question 12 – Statement

Maximum score: 9

Select True of False for the following statements.

	True	False
There are some main activities that are shared among all types of software processes.		
A person that is impacted by a software product is a stakeholder of such software.		
The riskier your project, the more requirements engineering is needed.		
It is sometimes not possible to create a shared understanding among all stakeholders.		
There are universal software engineering methods that can be applied in all projects.		
Ethics-related requirements are functional requirements.		
Software engineering is concerned with all aspects of software production.		
You should always give your user exactly what they want.		
The more requirements, the more successful your project will be.		

Question 13 – Statement

Maximum score: 9

Select True or False for the following statements.

	True	False
Scrum is a daily meeting in which members report their main advances and blockers during a sprint.		
An epic is a set of user stories that share a common theme.		
Agile projects are characterized by frequent releases.		
Agile processes are not incremental software processes.		
A product backlog is a set of user stories that you will work on in the next sprint.		
A sprint is a period of time in which a product increment is developed. They typically last 2-3 months.		
Agile processes are the way to go for all types of projects.		
A scrum master is a coach for the team in charge of making sure the team follows the scrum process adequately.		
Plan-driven processes were used in the 70s and are not used anymore, it has been 50 years after all.		