OOD Documentation

OOA	OOD
Use case / use case diagram	Use case / use case diagram
Object diagram (ERD)	Object diagram (ERD)
Class diagram	Class diagram (including packages)
CRC	CRC
{Collaboration diagram {State diagram	GUI design
or	Collaboration diagram
	Sequence diagram
{Event trace {Event flow	State diagram
	Activity diagram

960 × 720

Online Exams

Sri Lanka Institute of Information Technology

"The list of responsibilities on the CRC card is exactly same as the list of methods in the class." Is this statement true or false? Briefly explain your answer.

Next page

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Sri Lanka Institute of Information Technology

There is a popular music app called Spotify. In this app there are playlists that contains a collection of songs categorized based on their genre. Some of the main categories include Rock, Popular, Classical. Under these categories you can find different playlists. "90's rock" is a playlist found under Rock, "Hip-pop" is another playlist under popular music category.

Based on the above scenario. If you are to convert the above application into objects and classes. Among the classes of "Song", "Genre", identify which of these classes are dependent classes and which of these classes are associated classes.

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ENG INTL 8:36 PM 6/6/2021

Identifying the Classes' Responsibilities

Responsibilities relate to actions. You can generally identify responsibilities by selecting the verbs from the summary of the requirements.

The list of responsibilities on the CRC card is not the list of methods in the class.

- A responsibility may be realized by several methods.
- e.g. An Item class in a Supermarket may have the responsibility of "Store Details of Item"
  - We may need the following methods to realize the responsibility
  - addItems(), updateItems(), deleteItems()

What

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e.g. An Ite
"producin
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Item class

```
m *team;
ard *w;

//Team class (association-bi/composition-whole)
class Team{

public:
    string name;
    ConsultantDoctor *cd;
    Doctor *d;
    Patient *p[SIZE];

};

//Ward class (association-bi/composi
class Ward{

private:
    string name;
    string gender;
    int capacity;
    Patient *p[SIZE];

};
```

ion 1
et answered
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ag question

Functions that can be inherited from base class

Select one:

- a. Constructor
- b. Destructor
- c. Static Functions
- d. a, b, and c
- e. None of the above

Next page

Sri Lanka Institute of Information Technology

Question **33**

Not yet answered

Marked out of 1.00

Flag question

Which public method cannot be inherited to the child class from parent class?

Select one:

- a. Constructor
- b. Destructor
- c. overloaded methods
- d. Both (a) and (b)
- e. None of the above

Next page

Quiz navigation

MCQ- 40 MARKS

STRUCTURED- 20 MARKS

Sri Lanka Institute of Information Technology

Question **38**

Not yet answered

Marked out of 1.00

Flag question

Which of the following relationships indicates that objects of specific class can occur independently?

Select one or more:

- a. Aggregation
- b. Association
- c. Composition
- d. Dependency
- e. Inheritance

Next page

Quiz navigation

MCQ- 40 MARKS

STRUCTURED- 20 MARKS

Question **52**

Not yet answered

Marked out of 1.00

Flag question

Read the following description and write the coding of **5 classes** you have identified using a class diagram. You need not upload or / draw the class diagram here. You have to only write the coding of the classes showing the relationships clearly. You need not write all methods of the classes or the attributes. You may need to include the necessary methods and the attributes only to show the correct relationships between the classes. (Do not use the TAB key while you type in the answer box as it may go to next Question) - (20 marks)

Client

Archi

Stat → Meet - - - → Appoint

Meet - - → Stat

The time scheduling system should let the architects register their daily appointments details with their clients. the information to be stored include the name of the client, with whom the appointment/ meeting is arranged, venue, the time, duration and the description of the appointment. When a meeting involves many architects the system should automatically find a common slot in the daily appointment files (diaries) of each concerned architect, and arrange the meeting. (i.e. make relevant entries in the diaries of all the concerned architects) at the time of registration. While the concerned architects should be informed of the details about the scheduled meetings through emails the schedule file should also be updated on every scheduled meeting.

Every day, in the morning the time scheduling system should send a reminding email to all architects about their appointments for the corresponding day. Besides registering their appointments or meetings, the architects might mark periods of which they plan to be on leave in the diary. Also, architects might them mention in their diaries any other engagements they have.

not language

Time scheduling system should be able to provide several types of statistics (several documents) for the top level managers, such as which architects spent how much time on a meeting, for which project how many meetings were organized and for what duration and how many man hours were devoted for such meetings.

The time scheduling system should let the architects register their daily appointments details with their clients. the information to be stored include the name of the client, with whom the appointment/ meeting is arranged, venue, the time, duration and the description of the appointment.

When a meeting involves many architects the system should automatically find a common slot in the daily appointment files (diaries) of each concerned architect, and arrange the meeting. (i.e. make relevant entries in the diaries of all the concerned architects) at the time of registration.

While the concerned architects should be informed of the details about the scheduled meetings through emails the schedule file should also be updated on every scheduled meeting.

Every day, in the morning the time scheduling system should send a reminding email to all architects about their appointments for the corresponding day. Besides registering their appointments or meetings, the architects might mark periods of which they plan to be on leave in the diary. Also, architects might them mention in their diaries any other engagements they have.

Time scheduling system should be able to provide several types of statistics (several documents) for the top level managers, such as which architects spent how much time on a meeting, for which project how many meetings were organized and for what duration and how many man hours were devoted for such meetings.

Pure Virtual function can be written as

Select one:

- a. void virtual show()=0
- b. void virtual show()==0
- c. virtual void show()=0
- d. virtual void show()==0
- e. None of the above

Read the following description and write the coding of **5 classes** you have identified using a class diagram. You need not upload or / draw the class diagram here. You have to only write the coding of the classes showing the relationships clearly. You need not write all methods of the classes or the attributes. You may need to include the necessary methods and the attributes only to show the correct relationships between the classes. (Do not use the TAB key while you type in the answer box as it may go to next Question) - (20 marks)

A new Cable TV company called VTV is providing over 100 entertainment TV channels to customers. Any person can become a customer by registering with VTV. The customer has to provide customer details and the package (channels he wishes to see) during the registration. The customer is provided with a unique customer number. The customer details are stored in the customer table and the package details selected by the customer are stored in the subscription table. Once a month the VTV sends the customer a detailed bill. This is produced using the data stored in the Subscription Table, Customer Table, and Channel details Table. The customer can login to VTV's website and perform several online tasks. The customer can add new channels to the subscription he has. He can remove channels from his subscription. In both cases the Subscription Table should be updated. In addition the customer can provide a list of channels that he wants to get a detailed weekly TV schedule by email. These details are also stored in the Subscription Table. The customer can pay the monthly bills online using a credit card. He has to provide the credit card details and the amount to the system. The payment details are stored in the Payments Table. Every week VTV sends customers who have requested detailed TV schedules the details by email. TV schedules are stored in the Channel details Table.

Quiz navigation

MCQ - 40 MARKS

1 2 3 4

8 9 10 11

15 17 18

22 23 24 25

29 30 31

36 37 38 39

41 42 43 44 45

48 49 50

Consider the given scenario and write 5 CRC cards. You can identify 5 classes and use the template of the CRC card (Table) and fill the details necessary. (Do not use TAB key to move to columns in the table as it may lead to next question in the exam) - (20 marks)

The Software system is supposed to manage information about Doctors. Doctors can be of two categories, namely General Practitioners and Specialists. So, that, you have decides to add three classes called Doctor, General Practitioner and Specialists to your application. A Doctor has a name, address, phone number and a registered number as properties. A general Practitioner has a name, address, phone number, registered number and hourly rate as properties. A Specialist has a name, address, phone number, registered number and doctor's charge per patient as properties.

At the end of the every month, the system must calculate the total payments for each Doctor. General Practitioners are paid based on the number of visiting hours during the month and Specialists are paid based on the number of patients consulted during a month. Total payment for General Practitioner is equal to the multiplication between hourly rate and the number of visiting hours during the month. Total payment for a Specialist is equal to the multiplication between doctor charge and the number of patients consulted during the month. You may take the number of patients consulted as parameter.

class name	
Responsibilities	Collaborations

class name	
Responsibilities	Collaborations

class name	
Responsibilities	Collaborations

Online Exams

Sri Lanka Institute of Information Technology

48
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There is a popular music app called Spotify. In this app there are playlists categorized based on their genre. Some of the main categories include Rock, Popular, Classical. Under these categories you can find different playlists. "90's rock" is a playlist found under Rock, "Hip-pop" is another playlist under popular music category.

Based on the above scenario. If you are to convert the above application into objects and classes. Identify the relationship between the classes of "Popular", "Hip-pop"?

Answer: Inheritance

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Quiz navigation

MCQ- 40 MARKS

1 2 3 4 5
9 10 11 12 13
17 18 19 20 21
25 26 27 28 29
33 34 35 36 37

STRUCTURED - 20 MARKS

41 42 43 44 45
49 50

ESSAY- 40 MARKS

51 52

FEEDBACK

53

Sri Lanka Institute of Information Technology

John and Mike are working as programmers of an object-oriented project. John is responsible in creating the system using the real entities of the system. Mike is responsible in creating the classes required for the system. Name who must do the implementation first.

Answer: MIKE

Online Exams

Sri Lanka Institute of Information Technology

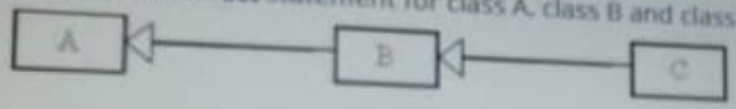
Question **37**

Not yet answered

Marked out of 1.00

Flag question

Select the **incorrect** statement for class A, class B and class C given below.



Select one:

- a. Specialization takes place from class B to class A.
- b. Generalization takes place from class C to class B.
- c. Specialization takes place from class A to class C.
- d. Generalization takes place from class B to class A.
- e. None of the Above

Quiz navigation

Next page

Online Exams

Sri Lanka Institute of Information Technology

28
nswered
out of
question

What is the main reason to have relationships between classes?

Select one:

- a. To use the functionality of one class into other
- b. To enhance the communication between classes
- c. To increase code re-usability
- d. All of the mentioned

Which statement is FALSE about Dependency?

Select one:

- a. A Weaker type of relationship, where the class uses-an otherwise unrelated object
- b. In dependency, one sub class uses another class to perform a task.
- c. The dependent class typically is not a member of the class using it.
- d. None of the above
- e. All of the above

Activity 4 – Identify Verbs (potential methods)

- A customer in an online store needs to first register providing details such as name, address.
- The online store administrator can add new items to the store, restock (increase quantity), generate a list of items that need to be restocked.
- A Customer can place an Order from an online store. An Order consists of multiple items.
- The customer can see the status of the Orders placed, and get a list of previous orders made.
- The customer specifies a payment method (credit card, debit card, paypal) for each order.
- Once the customer confirms the order and the payment is validated the order is placed and items are updated.

Activity 4 – Identify Verbs (potential methods)

- A customer in an online store needs to first register providing details such as name, address.
- The online store administrator can add new items to the store, restock (increase quantity), generate a list of items that need to be restocked.
- A Customer can place an Order from an online store. An Order consists of multiple items.
- The customer can see the status of the Orders placed, and get a list of previous orders made.
- The customer specifies a payment method (credit card, debit card, pay pal) for each order.
- Once the customer confirms the order and the payment is validated the order is placed and items are updated.

Activity 4 – Verbs are methods

- A customer in an online store needs to first register ~~providing~~ details such as name, address.
- The online store administrator can add new items to the store, restock (increase quantity), generate a list of items that need to be restocked.
- A Customer can place an Order from an online store. An Order consists of multiple items.

Sri Lanka Institute of Information Technology

on 43

"Jessica, Lilia, Kyson and Kaden are Employees". Name all potential objects in this phrase.

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Mid Repeat Exam - 2021 - May

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OOC-2021- June - Assignment-01

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Internet & Web Technologies - IT1100

Object Oriented Concepts - IT1050

Type here to search

8:20 AM 6/7/2021

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Home My courses Object Oriented Concepts - IT1050

Final Exam - 2021 - Semester 1

Final Exam - 2021 - Sem 1 - 7th June at 8:30 AM

Not attempted

Due 7 June 2021

Please note the following:

1) This exam requires Lock Down Browser

2) Backward navigation is NOT possible

3) Answer all Questions

4) If any issue in questions please write in the Feedb

Type here to search

Moodle

NetExam

Sri Lanka Institute of Information Technology

Final Exam - 2021 - Sem 1 - 7th June at 8.30 AM

Please note the following:

1) This exam requires Lock Down Browser
2) Backward navigation is NOT possible
3) Answer all Questions
4) If any issue in questions please write in the Feedback question with question number

ned quiz

Quiz has a time limit of 2 hours 10 mins. Time will count down from the moment you start your attempt and y

Start attempt

Cancel

Sri Lanka Institute of Information Technology

What will be the output of the following code?

```
#include <iostream>
using namespace std;
class Animal {
protected:
        char name[20];
public:
        Animal() {}
        Animal(char tname[]) {
                strcpy(name, tname);
        }
        virtual void speak() = 0;
        void song() {
                cout<< "My Song" <<endl;
        }
};
int main()
{
        Animal a;
        a.song();
        return 0;
}
```

My Song

Error

NetExam

Sri Lanka Institute of Information Technology

Question **44**

Not yet answered

Marked out of 2.00

Flag question

Labrador class is the child class of Dog class. Dog class has the following function.

void setOwner()

Following function is added in Labrador class.

void setOwner()

Adding the setOwner() function in in Labrador class is called as:

overiding

class Dog{

protected:

private y;

class Labrador :public Dog {

private

public

y;

inal Exam - 2021 - Sem 1 - 7th June at 8.30 AM

Please note the following;

1) This exam requires Lock Down Browser
2) Backward navigation is NOT possible
3) Answer all Questions
4) If any issue in questions please write in the Feedback question with question number

This quiz has been configured so that students may only attempt it using the Respondus LockDown Browser.

Attempts allowed: 1

The quiz will not be available until Monday, 7 June 2021, 8:30 AM

This quiz will close on Monday, 7 June 2021, 11:00 AM.

Time limit: 2 hours 10 mins

Respondus LockDown Browser is required for this exam.

NetExam

Sri Lanka Institute of Information Technology

If Face and Eye are two classes, what should be the relationship among these two classes?

~~Inheritance~~

Composition

Sri Lanka Institute of Information Technology

The library management system has a Student class and Payment class. Student class uses an object of Payment class in the payFine() function. What is the relationship between Student and Payment classes?

association

Dependency

Next page

NetExam

Sri Lanka Institute of Information Technology

Lecturer class is the child class of Employee class. Employee class has the following function.

double calcSalary()

Following function is added in Employee class.

double calcSalary(float OThrs, Float OTrate)

Adding the second calcSalary function in Employee class is called as:

Overload

NetExam

Sri Lanka Institute of Information Technology

Student class has age as a property with the data type as integer. What is the return type for the getter of age property in Student class?

Integer

Next page

NetExam

Sri Lanka Institute of Information Technology

What is the relationship among class A and class B according to the below code?

```
class A {
    private:
        B *b;
    public:
        A(){
            b = new B();
            room[1] = new ClassRoom(102);
        };
};
```

Composition

NetExam

Sri Lanka Institute of Information Technology

Minato and Kushina are members of the academy library. The academy library has a library management system. Mention a class in the above statement for the academy library management system.

Member

Next page

NetExam

Sri Lanka Institute of Information Technology

What is the relationship among class M and class N according to the below code?

```
class M {
    private:
        Q *qArray[2];
    public:
        void addQs(Q *q1, Q *q2){
            aArray[0]= q1;
            aArray[1]= q2;
        };
        void nMethod(N *n){
            n->display();
        };
};
```

Dependency

Read the description below and answer the questions.

Due to lockdown of the country because of COVID-19 pandemic, all school children were forced to do education online. ABC college wanted to develop an online platform for the school children to do their studies online. This online platform should allow students to register in the system by providing an email address, name, grade and the class (A/B/C/D) and the parent's email address and contact number. The students can login and get view their Time Tables weekly. The system links with zoom app and the students can join a class by clicking the link provided in the Time Table. The student can also download the lecture materials such as slides uploaded by a teacher or pdf documents. The student can also go to the course materials page to view/download any materials or watch videos related to modules which are uploaded by teacher by selecting the class they are registered for. The students can also do exams by clicking the links that opens google forms which are published by the teachers and submit. The students can view their results published by the teacher. The student profile will be updated by the results for each exam they did and the attendance for online classes.

A staff member can be an administrator or the teacher. The teacher can register in the system by providing the email address, and the classes or modules they are teaching. A teacher can be a class teacher or a Module teacher (A teacher who teaches a certain subject. eg : Music). A teacher can upload teaching materials, links for online classes and links for exams. A class teacher can update the marks of the students in her class and generate the daily attendance reports.

An administrator can create reports of each student at the end of each term and send emails to parents with the details of the student profile which contains marks for each term and the attendance for online classes.

a) Identify all the nouns / noun phrases of the description above and write in the table below. In front of each noun write the rejecting rule if the noun is rejected. Indicate the nouns that can be taken as classes. (15 marks)

b) For the classes identified in part a) write FIVE CRC cards (10 marks)

c) Write the definition of 5 of the classes you have identified above to represent the relationships among the classes. (You don't need to add attributes or methods and only show the necessary attributes and methods required to present the relationship only) (15 marks)

Quiz navig

Finish attempt ...

Time left 0:24:07

MCQ- 40 MARKS

1 2 3 9 10 11 17 18 19 25 26 27 33 34 35

STRUCTURED- 20

41 42 43 49 50

ESSAY- 40 MARKS

51

NetExam

Sri Lanka Institute of Information Technology

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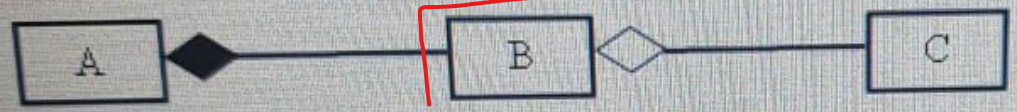
yet answered

ked out of

Flag question

What is the relationship between class B and class C in the following diagram?



Assume B

C

NetExam

Sri Lanka Institute of Information Technology

Question **48**

Not yet answered

Marked out of 2.00

Flag question

Obito is the manager of the organization. Obito has many workers who are working under him. The organization has an employee management system. Mention an object in the above statement for the employee management system.

Obito

Next page

NetExam

Sri Lanka Institute of Information Technology

Question **49**

Not yet answered

Marked out of 2.00

Flag question

Lecturer class is the child class of Employee class. Employee class has the following function.

double calcSalary()

Following function is added in Employee class.

double calcSalary(float OThrs, Float OTrate)

Adding the second calcSalary function in Employee class is called as:

parents class

Durkwal

NetExam

Sri Lanka Institute of Information Technology

The library management system has a Student class and Payment class. Student class uses an object of Payment class in the payFine() function. What is the relationship between Student and Payment classes?

Dependency

Next page

NetExam

Sri Lanka Institute of Information Technology

What is the relationship among class Q and class R according to the below code?

```
class Q: public R {
   private:
        Y *yArray[2];
   public:
        void addYs(Y *y1, Y *y2){
            yArray[0]= y1;
            yArray[1]= y2;
        };
};
```

Interview

Read the description below and answer the questions.

Faculty of Computing wants to maintain an online research paper portal to manage the research papers published by the faculty. T portal can be used by students and staff. Student can login to the system using their university email address and enter their details such as name, year, semester, degree program and the specialization. Once a student logs in they can upload details of the papers published including, paper tile, conference name, date published, area of research, co-authors and supervisor's name and email address. The paper should be uploaded in pdf format. Once the details are entered to the system, the student can submit the entry which will be directed to the supervisor for approval. Once the supervisor who is a staff member of the faculty approves the submission then the paper will be visible to other users. A staff member can also register in the system by providing the official email address, name, designation, department and contact number. The staff member can also upload papers by entering the paper details with the paper. The Research committee chair who is also a staff member can view research papers sorted in the year they are published, subject area, particular student or staff member. Any user can view research papers by entering the keywords such as the paper title, subject area or an author's name.

This system also provides a facility for the students to join ongoing research projects done by the staff. Students can view staff profile and find current project that the staff has and send a request by email through the system. When the staff member receives the request then they can reply to the student and if a student joins the research and the number of collaborations are exceeded then the staff member can place a message on the system that no more vacancies are available.

a) Identify all the nouns / noun phrases of the description above and write in the table below. In front of each noun write the rejecting rule if the noun is rejected. Indicate the nouns that can be taken as classes. (15 marks)

b) For the classes identified in part a) write FIVE CRC cards (10 marks)

Moodle

Question 51
Not yet answered
Marked out of 40.00
Flag question

Read the description below and answer the questions.

YummyFoods restaurant decided to invest on a mobile app to provide the customers with online ordering facility and delivery due to COVID-19 pandemic. YummyFoods is a restaurant specialized for Burgers and Pizzas. A customer can download the app and register themselves by entering the mobile number, name and the address. Once the Customer logs in they can view the items to be ordered. The Items can be regular items or daily deals. The regular items and the quantity can be selected from a given list and then be added to the cart. The customer can also add options such as cool drinks or utensils. If a daily deal is selected then the customer will not be able to add additional items. They can also select special packaging for food to be in sealed boxes or normal unsealed bags. If a special packaging is selected an additional Rs. 150/= will be added to the bill. Once the Customer select the items, then the system will ask to enter the delivery address and the delivery instructions (leave at door or meet at door). Once the Customer selects the option then the system will proceed to payment. The Customer can select to pay online or at the delivery. The Customer can select a payment method such as Cash or Card. If payment is done online by card, then the customer is directed to enter the card details and then the verification is done. Once the payment is successful then the customer will be sent a SMS with order confirmation and delivery details.

The administrator can update the items and daily details. He can also update delivery charges and add delivery service details such as the delivery man's name and contact number. The administrator can change daily deals and add discounts. At the end of the day, he should be able to get a report of daily orders, orders by items, and delivery service details (who has done how many deliveries).

The system can also keep track of customer orders and provide loyalty points to regular customers and add points to each order they make. The system can send coupon numbers for these customers via SMS so they can redeem them when they make the next order.

a) Identify all the nouns / noun phrases of the description above and write in the table below. In front of each noun write the rejecting rule if the noun is rejected. Indicate the nouns that can be taken as classes. (15 marks)

b) For the classes identified in part a) write FIVE CRC cards (10 marks)

c) Write the definition of 5 of the classes you have identified above to represent the relationships among the classes. (You don't need to add attributes or methods and only show the necessary attributes and methods required to present the relationship only) (15 marks)

a)

Quiz navigation

Finish attempt ...

Time left 0:11:02

MCQ- 40 MARKS

1 2 3 4 5
9 10 11 12 13
17. 18 19 20 21
25 26 27 28 29
33 34 35 36 37

STRUCTURED- 20 MARKS

41 42 43 44 45
49 50

ESSAY- 40 MARKS

51

FEEDBACK

52

What is the relationship among class X and class Y according to the below code?

```
class X {
    private:
        Y *yArray[2];
    public:
        void addYs(Y *y1, Y *y2){
            yArray[0]= y1;
            yArray[1]= y2;
        };
};
```

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Flag question

...ption below and answer the questions.

AutoMart is an online vehicle Auction System, which both buyers and sellers can participate in buying and selling of vehicles online. In this system, the user should first register with the system by providing their details such as the National ID number, name, address, contact number and the email address. They can update their details once they are registered in the system. A user can be a Buyer or a seller. If the user is a seller, they can upload the details of the vehicle they sell, including few pictures. They must also enter an expected price for the vehicle. The seller can update the details of the Vehicle before the auction starts. A buyer can login to the system and search for vehicles by entering the type of vehicle or price as keywords. Once the system shows all the entries that matches his search, then the Buyer can place the bid to the selected vehicle/s. If a buyer wishes to bid, then the buyer should deposit an amount of Rs. 5000/= through credit card or PayPal account, before the auction starts. If a buyer doesn't buy any Vehicle, then Rs. 4500/= will be refunded and if the buyer buys a Vehicle then, Rs. 5000/= will be deducted from the payment. The system administrator can start and stop the auctions daily with the predefined times. The administrator can place the vehicles for the auction and remove vehicles once they are sold. After the auction closes, the system should generate reports such as bidding prices for a single vehicle and the daily auctioned items. The Vehicle owner will be notified of the highest bid by the administrator and the owner can inform the administrator of his choice. If the vehicle is sold the administrator will inform the buyer to do the payment within 3 working days.

a) Identify all the nouns / noun phrases of the description above and write in the table below. In front of each noun write the rejecting rule if the noun is rejected. Indicate the nouns that can be taken as classes. (15 marks)

b) For the classes identified in part a) write FIVE CRC cards (10 marks)

c) Write the definition of 5 of the classes you have identified above to represent the relationships among the classes. (You don't need to add attributes or methods and only show the necessary attributes and methods required to present the relationship only) (15 marks)

≡ Quiz navigation

50

Finish attempt ...

Time left 0:14:54

MCQ- 40 MARKS

1 2 3 4 5 6 8 9 10 11 12 13 15 16 17 18 19 20 22 23 24 25 26 27 29 30 31 32 33 34 36 37 38 39 40

20

STRUCTURED- 20 MARKS

41 42 43 44 45 46 47 48 49 50

30

45

ESSAY- 40 MARKS

51

NetExam

Sri Lanka Institute of Information Technology

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t answered

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ag question

If Student and CV (Curriculum Vitae) are two classes, what should be the relationship among these two classes?

A Composition

Next page

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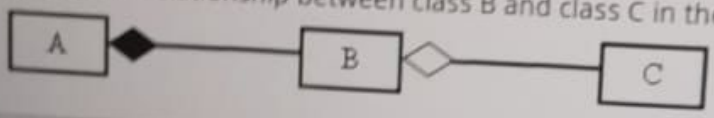
Sri Lanka Institute of Information Technology

What is the relationship between class B and class C in the following diagram?



Agn

What will be the output of the following code?

```
#include <iostream>
using namespace std;
class Animal {
protected:
      char name[20];
public:
      Animal() {}
      Animal(char tname[]) {
            strcpy(name, tname);
      }
      virtual void speak() = 0;
      void song() {
            cout<< "My Song" <<endl;
      }
};
int main()
{
      Animal a;
      a.song();
      return 0;
}
```

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tion

Minato and Kushina are members of the academy library. The academy library has a library management system. Mention a class in the above statement for the academy library management system.

Member

Next page

Common Nouns and proper nouns

- Common Nouns - correspond to classes
  - A common noun (e.g. person) is a name of a class of beings or things.

- Proper Nouns - Correspond to objects
  - A name used for an individual person, place, or organization, spelled with an initial capital letter,

    e.g. Jagath, Dehiwala, keels.

Rules for Rejecting nouns

Think about library system of a University.

1. Redundant - In a Library system member and user refers the same person.

2. An event or an operation - search book is the operation of library system.

3. outside scope of system - University department (CSSE 177) is outside scope of library.

4. Meta-language (Meta language is words or symbols for talking about language itself.) - in a library system people who are using library system can call as member.

5. An attribute - ISBN of a book is an attribute

Read the description below and answer the questions.

Faculty of Computing wants to maintain an online research paper portal to manage the research papers published by the faculty. This portal can be used by students and staff. Student can login to the system using their university email address and enter their details such as name, year, semester, degree program and the specialization. Once a student logs in they can upload details of the papers published including, paper tile, conference name, date published, area of research, co-authors and supervisor's name and email address. The paper should be uploaded in pdf format. Once the details are entered to the system, the student can submit the entry which will be directed to the supervisor for approval. Once the supervisor who is a staff member of the faculty approves the submission then the paper will be visible to other users. A staff member can also register in the system by providing the official email address, name, designation, department and contact number. The staff member can also upload papers by entering the paper details with the paper. The Research committee chair who is also a staff member can view research papers sorted in the year they are published, subject area, particular student or staff member. Any user can view research papers by entering the keywords such as the paper title, subject area or an author's name.

This system also provides a facility for the students to join ongoing research projects done by the staff. Students can view staff profile and find current project that the staff has and send a request by email through the system. When the staff member receives the request then they can reply to the student and if a student joins the research and the number of collaborations are exceeded then the staff member can place a message on the system that no more vacancies are available.

a) Identify all the nouns / noun phrases of the description above and write in the table below. In front of each noun write the rejecting rule if the noun is rejected. Indicate the nouns that can be taken as classes. (15 marks)

b) For the classes identified in part a) write FIVE CRC cards. (10 marks)

c) Write the definition of 5 of the classes you have identified above to represent the relationships among the classes. (You don't need to add attributes or methods and only show the necessary attributes and methods required to present the relationship only) (15 marks)

a)

Read the description below and answer the questions.

Due to COVID-19 Pandemic, the "On the GO" grocery shop decided to go online and start a delivery business. They want to develop a website to allow the customers to order goods online. The system allows the Customers to register to the system by entering the National ID number, name, address and the contact number. Once the Customer registers to the system and logs in, they will be able to see the products and the prices sold by the Grocery. The customer can select the items and the quantity and add the items to the shopping cart. He can view and update the shopping cart by adding more items, deleting items, or changing the quantity. After finalizing the items, the customer is prompted to enter the delivery address and then he can proceed to pay. The customer should select and option to pay such as cash on delivery or by credit card. If the option "Card payment" is selected, then the customer should enter the Card details and wait for the verification by the bank. Once the card details are verified then the customer will be issued a reference number for the order made and a SMS and an email will be sent to the customer with the order confirmation.

The administrator can update the items on the website and add discount to certain items. This can be updated daily, and the items can be removed if they are not available. The system should be able to generate reports with daily sales, and daily inventory of the status of the items (such as quantity sold / quantity available). The administrator should be able to view customer orders and take printouts. Also, the administrators should be able to view the customer details and the order history.

a) Identify all the nouns / noun phrases of the description above and write in the table below. In front of each noun write the rejecting rule if the noun is rejected. Indicate the nouns that can be taken as classes. (15 marks)

b) For the classes identified in part a) write FIVE CRC cards (10 marks)

Quiz navigation

Finish attempt ...

Time left 0:32:36

MCQ- 40 MARKS

1 2 3 4 5

8 9 10 11 12

15 16 17 18 19

22 23 24 25 26

29 30 31 32 33

36 37 38 39 40

STRUCTURED- 20 MARKS

41 42 43 44 45

Moodle

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Question **49**

Not yet answered

Marked out of 2.00

Flag question

Lecturer class is the child class of Employee class. Employee class has the following function.

double calcSalary()

Following function is added in Employee class.

double calcSalary(float OThrs, Float OTrate)

Adding the second calcSalary function in Employee class is called as:

Next page

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If Student and CV (Curriculum Vitae) are two classes, what should be the relationship among these two classes?

Sri Lanka Institute of Information Technology

Question 42

Not yet answered

Marked out of 2.00

Flag question

Labrador class is the child class of Dog class. Dog class has the following function.

void setOwner()

Following function is added in Labrador class.

void setOwner()

Adding the setOwner() function in in Labrador class is called as:

Overriding

Next page

Moodle

NetExam

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Question **48**

Not yet answered

Marked out of 2.00

Flag question

If Student and StudentCommitee are two classes, what should be the relationship among these two classes?

Aggregation.

Next page

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Minato and Kushina are members of the academy library. The academy library has a library management system. Mention a class in the above statement for the academy library management system.

Next page

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Student class has age as a property with the data type as integer. What is the return type for the getter of age property in Student class?

int

Next page

NetExam

Sri Lanka Institute of Information Technology

n 42

answered

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g question

Employee class has salary as a property with the data type as double. What is the return type for the setter of salary property in Employee class?

Void

Next p

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Lecturer class is the child class of Employee class. Employee class has the following function.

double calcSalary()

Following function is added in Employee class.

double calcSalary(float OThrs, Float OTrate)

Adding the second calcSalary function in Employee class is called as:

Overload

48
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question

What will be the output of the following code?

```
#include <iostream>
using namespace std;
class Animal {
protected:
        char name[20];
public:
        Animal() {}
        Animal(char tname[]) {
                strcpy(name, tname);
        }
        virtual void speak() = 0;
        void song() {
                cout<< "My Song" <<endl;
        }
};
int main()
{
        Animal a;
        a.song();
        return 0;
}
```

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The library management system has a Student class and Payment class. Student class uses an object of Payment class function. What is the relationship between Student and Payment classes?

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Lanka Institute of Information Technology

at is the relationship among class X and class Y according to the below code?

```
class X {
    private:
        Y *yArray[2];
    public:
        void addYs(Y *y1, Y *y2){
            yArray[0]= y1;
            yArray[1]= y2;
        };
};
```

Aggregation

ASUS VivoBook

Labrador class is the child class of Dog class. Dog class has the following function.

void setOwner()

Following function is added in Labrador class.

void setOwner()

Adding the setOwner() function in in Labrador class is called as:

Next page

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Sri Lanka Institute of Information Technology

If Bird and Parrot are two classes, what should be the relationship among these two classes?

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NetExam

Sri Lanka Institute of Information Technology

Question **44**

Not yet answered

Marked out of 2.00

Flag question

What will be the output of the following code?

```
#include <iostream>
using namespace std;
class Animal {
protected:
      char name[20];
public:
      Animal() {}
      Animal(char tname[]) {
            strcpy(name, tname);
      }
      virtual void speak() = 0;
      void song() {
            cout<< "My Song" <<endl;
      }
};
int main()
{
      Animal a;
      a.song();
      return 0;
}
```

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If Face and Eye are two classes, what should be the relationship among these two classes?

Composition

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If Face and Eye are two classes, what should be the relationship among these two classes?

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Which statement is FALSE about Dependency?

Select one:

- a. A Weaker type of relationship, where the class uses-an otherwise unrelated object
- b. In dependency, one sub class uses another class to perform a task.
- c. The dependent class typically is not a member of the class using it.
- d. None of the above
- e. All of the above

Next pa

Sri Lanka Institute of Information Technology

Question **45**

Not yet answered

Marked out of 2.00

Flag question

When creating the student class fora library management system,**only** student registration number, name, and membership type are added as the properties. What is the object-oriented principle applied here?

Abstraction

Next page

41

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Class A and class B has a relationship where objects of class B cannot exist without an object of class A. W
the relationship between class A and class B?

Composition

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Obito is the manager of the organization. Obito has many workers who are working under him. The organization has an employee management system. Mention an object in the above statement for the employee management system.

Next page

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Consider the following multiplicity indicators and their meanings.

Indicator	Meaning
A. 0..1	Zero or one
B. n..m	Between n and m
C. 0..*	Zero or none
D. 1-2	One or two
E. 4..7	between 4 and 7 inclusive

Which of the above are correct?

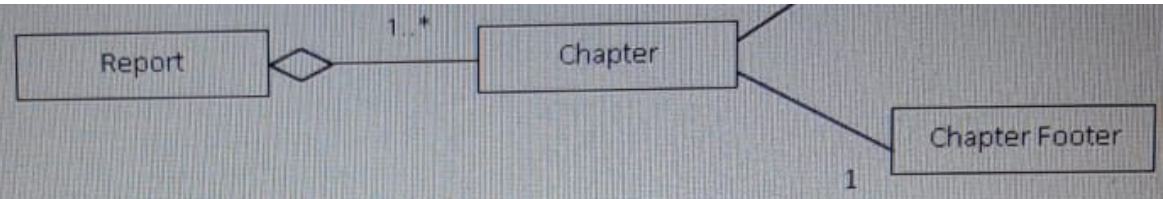
Select one or more:

- a. A
- b. B
- c. C
- d. D
- e. E

What will be the output of the following code?

```
#include <iostream>
using namespace std;
class Animal {
protected:
      char name[20];
public:
      Animal() {}
      Animal(char tname[]) {
            strcpy(name, tname);
      }
      virtual void speak() = 0;
      void song() {
            cout<< "My Song" <<endl;
      }
};
int main()
{
      Animal a;
      a.song();
      return 0;
}
```

a.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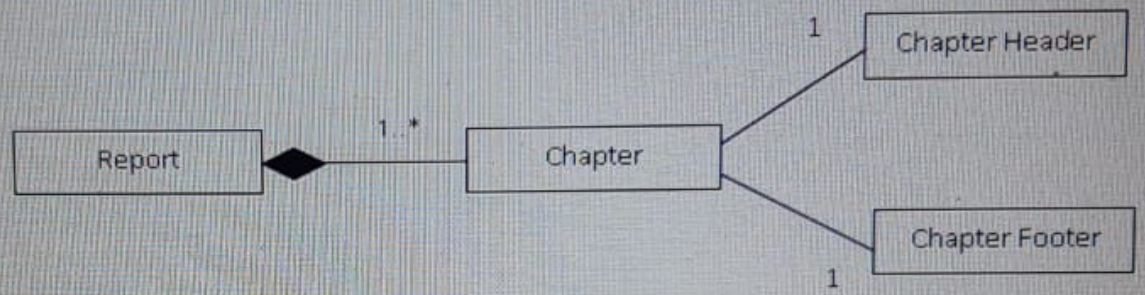
b.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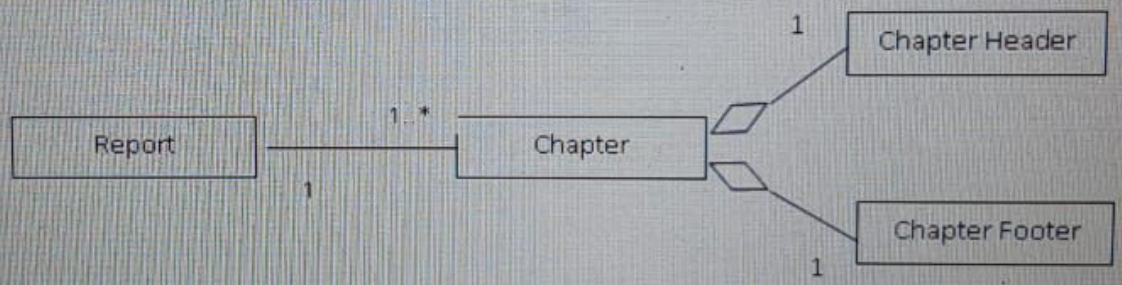
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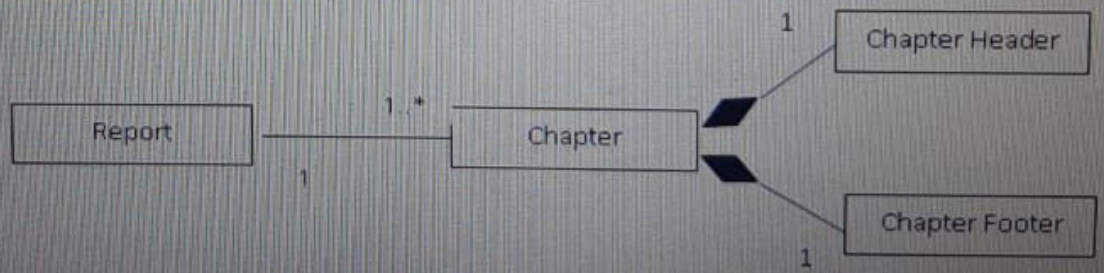
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NetExam

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If Student and CV (Curriculum Vitae) are two classes, what should be the relationship am

DEPENDENCY

NetExam

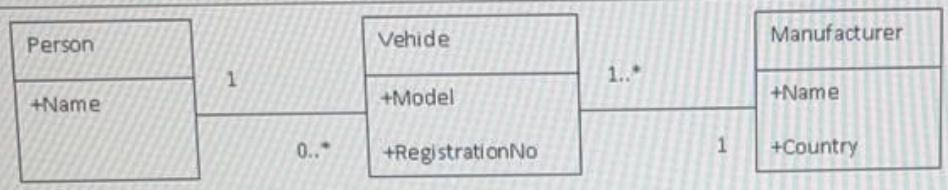
Sri Lanka Institute of Information Technology

Question **40**

Not yet answered

Marked out of 1.00

Flag question



What is correct about the "Vehicle" as shown on the diagram:

Select one:

- a. It's an association class
- b. It's a super class
- c. It's a class
- d. It's a derived class
- e. It's an abstract class.

Next page

Quiz n

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MCQ- 40 MA

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ESSAY- 40 MARK

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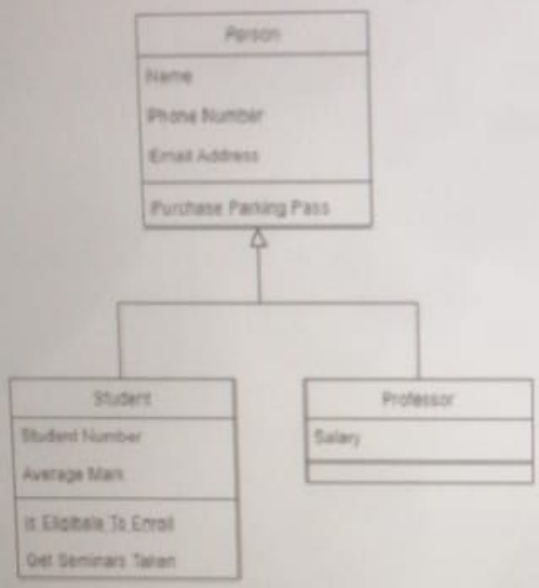
FEEDBACK

What type of a relationship is represented by Person class and Student Class?



Select one or more:

- [ ] a. Dependency
- [ ] b. Aggregation
- [ ] c. Generalization
- [ ] d. Realization
- [ ] e. Specialization

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Lecturer class is the child class of Employee class. Employee class has the following function.

double calcSalary()

Following function is added in Employee class.

double calcSalary(float OThrs, Float OTrate)

Adding the second calcSalary function in Employee class is called as:

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Next page

Sri Lanka Institute of Information Technology

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What is the relationship among class M and class N according to the below code?

```
class M {
    private:
        Q *qArray[2];
    public:
        void addQs(Q *q1, Q *q2){
            aArray[0]= q1;
            aArray[1]= q2;
        };
        void nMethod(N *n){
            n->display();
        };
};
```

Dependent

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Question **44**

Not yet answered

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Flag question

When creating the student class fora library management system,**only** student registration number, name, and membership type are added as the properties. What is the object-oriented principle applied here?

Abstraction.

Next page

Quiz n

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MCQ- 40 MA

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STRUCTURED- 20

41 42 43

Sri Lanka Institute of Information Technology

The library management system has a Student class and Payment class. Student class uses an object of Payment class in the payFine() function. What is the relationship between Student and Payment classes?

Next page

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g question

The way a relationship is built in Association is,

Select one:

- a. Through constructor
- b. Through the objects of classes
- c. Through destructor
- d. Through class Names
- e. Though a method of the class.

reeSync

What is/are true about dependency relationship?

Select one or more:

- [x] a. It indicates that one class depends on another.
- [x] b. It implies that a change to one class may affect the other but not vice versa.
- [ ] c. An object is not used as a parameter of a method.
- [ ] d. A dependency is rendered as an empty diamond arrow.
- [ ] e. None of the above.

What is the relationship among class Q and class R according to the below code?

```
class Q: public R {
    private:
        Y *yArray[2];
    public:
        void addYs(Y *y1, Y *y2){
            yArray[0]= y1;
            yArray[1]= y2;
        };
};
```

Inherit

NetExam

Sri Lanka Institute of Information Technology

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Flag question

Student class has age as a property with the data type as integer. What is the return type for the getter of age property in Student class?

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Next page

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Sri Lanka Institute of Information Technology

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Employee class has salary as a property with the data type as double. What is the return type for the setter of salary property in Employee class?

Quiz

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MCQ- 40 M

1 2 9 10 17 18 25 26 33 34 41 42

Next page

NetExam

Sri Lanka Institute of Information Technology

Question **48**

Not yet answered

Marked out of 2.00

Flag question

When creating the student class fora library management system.**only** student registration number, name, and membership type are added as the properties. What is the object-oriented principle applied here?

Next page

NetExam

Sri Lanka Institute of Information Technology

What is/are true about dependency relationship?

Select one or more:

- a. It indicates that one class depends on another.
- b. It implies that a change to one class may affect the other but not vice versa.
- c. An object is not used as a parameter of a method.
- d. A dependency is rendered as an empty diamond arrow.
- e. None of the above.

What is the relationship among class X and class Y according to the below code?

```
class X {
    private:
        Y *yArray[2];
    public:
        void addYs(Y *y1, Y *y2){
            yArray[0]= y1;
            yArray[1]= y2;
        };
};
```

Aggregation

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What is Inheritance?

Select one or more:

- [ ] a. Overloading of classes
- [ ] b. Classes with same names
- [ ] c. Derive new classes from existing classes
- [ ] d. Wrap data into one class.
- [ ] e. Sharing properties of another class.

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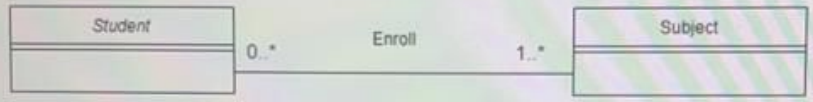
Question 30

Not yet answered

Marked out of 1.00

Flag question

Select the correct coding for the given below relationship.



Select one:

a.
```
#define SIZE 10
class Student {
private:
  <attributes>
  Subject s;

public:
<methods>
};
class Subject {
private:
  <attributes>
public:
  <methods>

};
```

b.
```
#define SIZE 10
class Student {
private:
  <attributes>
  Subject *sub[SIZE];

public:
```

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MCQ- 40

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ESSAY- 40 M

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FEEDBACK

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Question **50**

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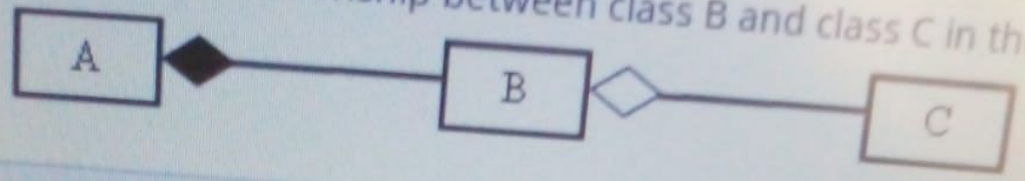
What is the relationship between class B and class C in the follo



aggregation

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Sri Lanka Institute of Information Technology

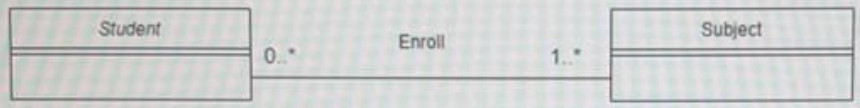
Question **30**

Not yet answered

Marked out of 1.00

Flag question

Select the correct coding for the given below relationship.



Select one:

a.
```
#define SIZE 10
class Student {
private:
  <attributes>
   Subject s;

public:
<methods>
};
 class Subject {
 private:
    <attributes>
public:
    <methods>

 };
```

a.
```
#define SIZE 10
class Student {
 private:
    <attributes>
    Subject *sub[SIZE];

public:
```

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MCQ- 4

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ESSAY- 40

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FEEDBACK

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NetExam

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Class A and class B has a relationship where objects of class B cannot exist without an object of class A. What is the relationship between class A and class B?

Next page

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The library management system has a Student class and Payment class. Student class uses an object of Payment class in the payFine() function. What is the relationship between Student and Payment classes?

Next pag

Sri Lanka Institute of Information Technology

What is the false statement among following?

Select one:

- a. Function overloading means define multiple functions with the same name inside the same class.
- b. Overloaded function must differ in their order and types of arguments.
- c. Overloaded functions should be preceded with virtual keyword → overriding
- d. No statement is false
- e. All statements are false

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Question 29

Not yet answered

Marked out of 1.00

Flag question

A Microphone class contains a Circuit class. The Circuit can be removed from the Microphone and tested on its own. What type of relationship describe the above scenario?

Select one:

- a. Composition
- b. Dependency
- c. Association
- d. Aggregation
- e. Inheritance

Next page

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Lecturer class is the child class of Employee class. Employee class has the following function.

double calcSalary()

Following function is added in Employee class.

double calcSalary(float OThrs, Float OTrate)

Adding the second calcSalary function in Employee class is called as:

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If Student and CV (Curriculum Vitae) are two classes, what should be the relationship among the

Sri Lanka Institute of Information Technology

What is the relationship among class A and class B according to the below code?

```
class A {
    private:
        B *b;
    public:
        A(){
            b = new B();
            room[1] = new ClassRoom(102);
        };
};
```

Composition

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Sri Lanka Institute of Information Technology

Question **49**

Not yet answered

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Flag question

Class A and class B has a relationship where objects of class B cannot exist without an object of class A. What is the relationship between class A and class B?

Composition

Next page

Finish a

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MCQ- 4

1 8 15 22 29 36

In given multiple inheritance, class C inherits class B, and Class B inherits class A. In which sequence are their destructors called, if an object of class C was declared?

Const

des

C

A

B

C

Select one:

a.
~C() then ~B() then ~A()

b.
~B() then ~C() then ~A()

c.
~A() then ~B() then ~C()

d.
~C() then ~A() then ~B()

e.
~B() then ~A() then ~C()

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Obito is the manager of the organization. Obito has many workers who are working under him. The organization has an employee management system. Mention an object in the above statement for the employee management system.

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If Bird and Parrot are two classes, what should be the relationship among these two classes?

Data members and the member functions of a class are by default;

Select one:

- a. private
- b. public
- c. protected
- d. All of the above
- e. None of the above

Next page

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In C++, which constructor calls first when a sub class object is created?

Select one:

- a. Depends on how we call the object
- b. Sub class constructor
- c. Parent class constructor
- d. No constructor will be called
- e. Only default constructor will be called.

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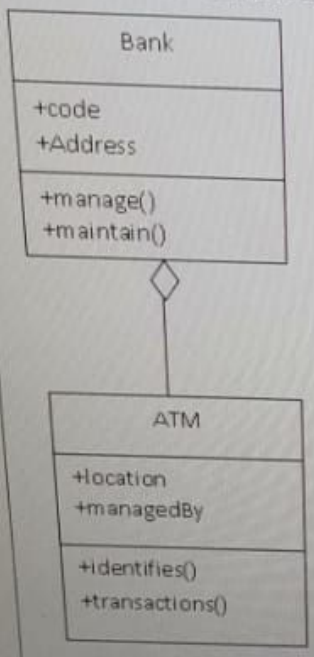
What is the most correct statement regarding the following diagram ?



Select one:

a. ATM inherits the properties of the Bank

b. Bank is a generalization of ATM

c. ATM is a part of Bank

d. ATM depends on the Bank to do its transaction

e. None of the above

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Question 26

Not yet answered

Marked out of 1.00

Flag question

What is Inheritance?

Select one or more:

- a. Overloading of classes
- b. Classes with same names
- c. Derive new classes from existing classes
- d. Wrap data into one class.
- e. Sharing properties of another class.

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Flag question

Labrador class is the child class of Dog class. Dog class has the following function.

void setOwner()

Following function is added in Labrador class.

void setOwner()

Adding the setOwner() function in in Labrador class is called as:

Next page

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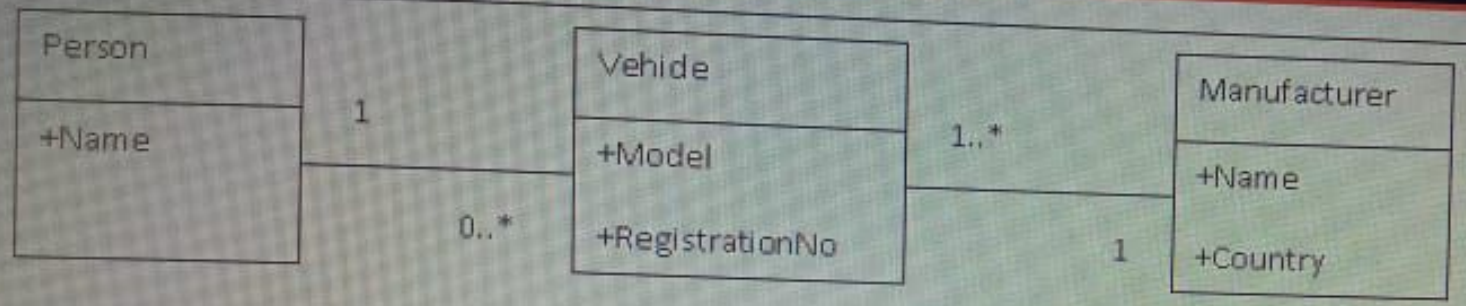
In given multiple inheritance, class C inherits class B, and Class B inherits class A. In which sequence are their destructors called, if an object of class C was declared?

Select one:

- a.
  ~C() then ~B() then ~A()
- b.
  ~B() then ~C() then ~A()
- c.
  ~A() then ~B() then ~C()
- d.
  ~C() then ~A() then ~B()
- e.
  ~B() then ~A() then ~C()



What is correct about the "Vehicle" as shown on the diagram;

Select one:

- a. It's an association class
- b. It's a super class
- c. It's a class
- d. It's a derived class
- e. it's an abstract class.

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Question **47**

Not yet answered

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Flag question

Student class has age as a property with the data type as integer. What is the return type for the getter of age property in Student class?

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Next page

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MCQ-

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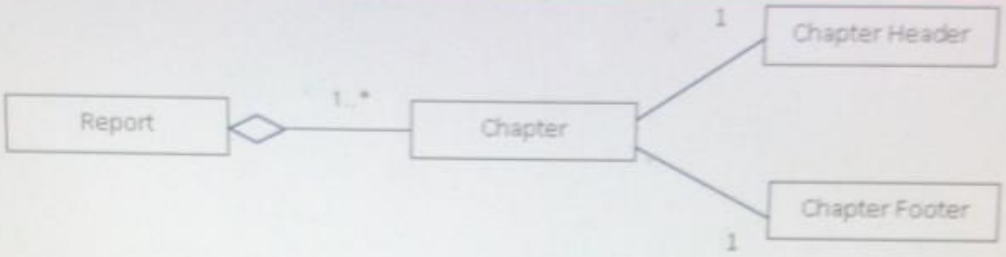
a.



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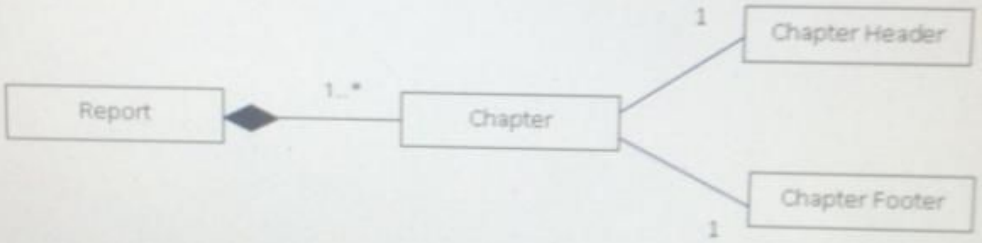
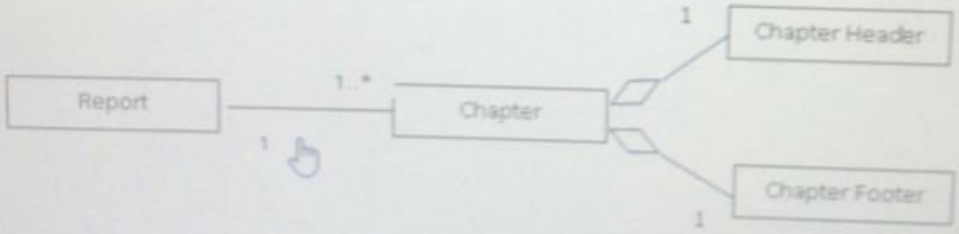


c.



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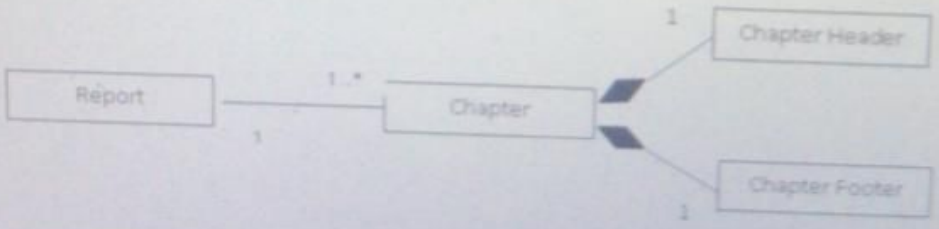

e. None of the above

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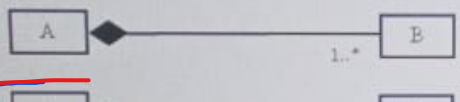
Select the correct diagram to show the relationship of class A and class B, where one or many objects of class B is a part of an object of class A, and objects of class B **cannot** exist without an object of class A.

Select one:

a.


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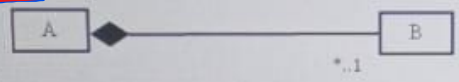

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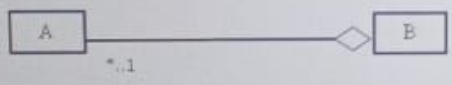

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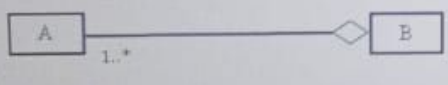

e. None of the Above

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on

Which features are not available in C++ for Object Oriented Programming ?

Select one or more:

- [ ] a. Virtual Destructor
- [x] b. Virtual Constructor
- [ ] c. Virtual Function
- [x] d. Overloaded Destructor
- [ ] e. Overloaded Constructor

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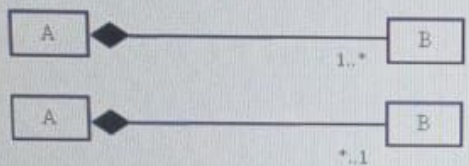
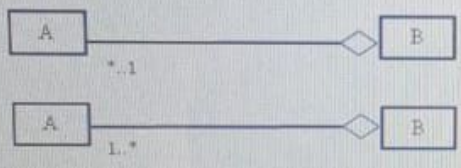
Select the correct diagram to show the relationship of class A and class B, where one or many objects of class B is a part of an object of class A, and objects of class B **cannot** exist without an object of class A.

Select one:

a.


b.

c.


d.

e. None of the Above

Next page

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If I want to have common functions in a class and want to defer implementations of some other functions to derived classes, then I need to use;

Select one:

- a. An interface
- b. An abstract class
- c. A friend class
- d. A static class
- e. All of the above

Next page

Technology

Question **41**

Not yet answered

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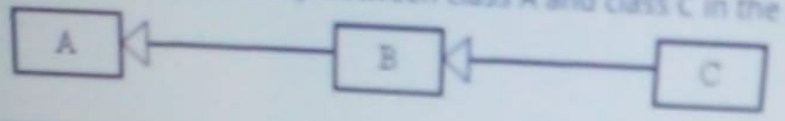
Flag question

What is the relationship between class A and class C in the following diagram?



multilevel inheritance

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Question 23

Not yet answered

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Flag question

Data members and the member functions of a class are by default;

Select one:

- a. private
- b. public
- c. protected
- d. All of the above
- e. None of the above

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When you create an object of a derived class in C++

Select one:

- a. Derived class constructor is called first then the base class constructor
- b. Base class constructor is called first then derived class constructor
- c. Base class constructor will not be called
- d. Derived class constructor will not be called
- e. None of the above

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For Cat and Animal Classes, correct way of Inheritance is ?

Select one:

- a. class Cat : public Animal
- b. class Animal : public Cat
- c. class Cat : protected Animal
- d. Both A and B are correct
- e. None of the above

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Flag question

Which features are not available in C++ for Object Oriented Programming ?

Select one or more:

- a. Virtual Destructor
- b. Virtual Constructor
- c. Virtual Function
- d. Overloaded Destructor
- e. Overloaded Constructor

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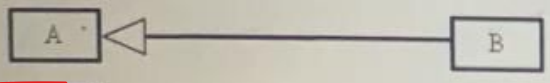
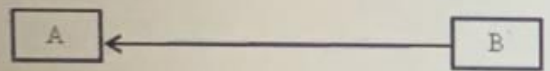
ag question

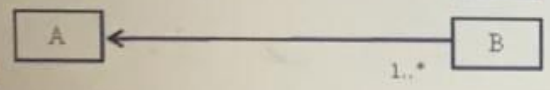
Select the correct diagram to show the relationship of class A and class B, where all properties of class A are **inherited** to class B.

Select one:

a.


b.

c.


d.


e. None of the Above

Next page

≡ Quiz navigation

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MCQ- 40 MARKS

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29	30	31	32	33	34	35
36	37	38	39	40		

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41	42	43	44	45	46	47

Employee class has salary as a property with the data type as double. What is the return type for the setter of salary property in Emp class?

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Question **24**

Not yet answered

Marked out of 1.00

Flag question

Select the correct diagram to show the relationship of class A and class B, where one or many objects of class B is a part of an object of class A. and objects of class B **cannot** exist without an object of class A.

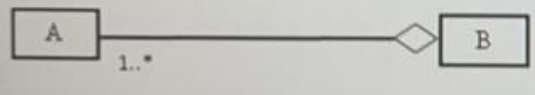
Select one:

a.

b.

c.

d.



e. None of the Above

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MCQ- 40

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Question **44**

Not yet answered

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What is the relationship among class X and class Y according to the below code?

```
class X {
    private:
        Y *yArray[2];
    public:
        void addYs(Y *y1, Y *y2){
            yArray[0]= y1;
            yArray[1]= y2;
        };
};
```

Aggregation

When does a destructor called?

Select one:

- a. After the end of object life
- b. Anytime in between object's lifespan
- c. At end of whole program
- d. Just before the end of object life
- e. At end of class scope

If I want to have common functions in a class and want to defer implementations of some other functions to derived classes, then I need to use;

Select one:

- a. An interface
- b. An abstract class
- c. A friend class
- d. A static class
- e. All of the above

What is incorrect about "Aggregation" Relationship based on the below details?

A Department has one or more employees.

Select one:

- a. This implies that the Part can exist without the Whole.
- b. Objects have their own life cycles and there is no ownership.
- c. The Department and Employee objects have their own life cycles.
- d. If the Department object is deleted, the Employee objects will get deleted automatically.
- e. If the Employee objects is deleted, still the Department object can exist.

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When creating the student class fora library management system,**only** student registration number, name, and membership type are added as the properties. What is the object-oriented principle applied here?

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Question 23

Not yet answered

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Flag question

What is incorrect about "Aggregation" Relationship based on the below details?

A Department has one or more employees.

Select one:

- a. This implies that the Part can exist without the Whole.
- b. Objects have their own life cycles and there is no ownership.
- c. The Department and Employee objects have their own life cycles.
- d. If the Department object is deleted, the Employee objects will get deleted automatically.
- e. If the Employee objects is deleted, still the Department object can exist.

Next page

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g question

In inheritance, what functions can be inherited from base class in C++ program

Select one:

- a. Constructor
- b. Destructor
- c. Static function
- d. All of the above
- e. None of the Above

Question **30**

Not yet answered

Marked out of 1.00

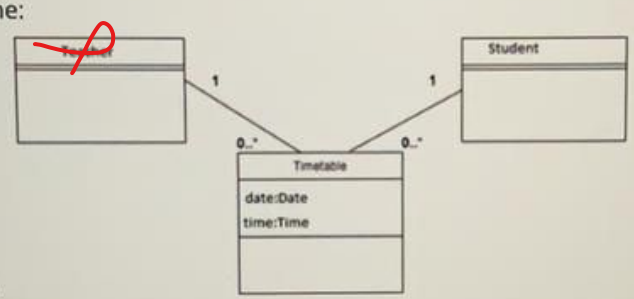
Flag question

How do you model the following scenario using a class diagram?

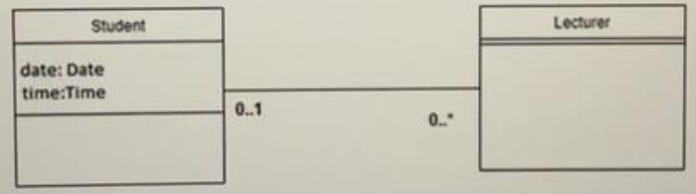
A lecturer teaches multiple classes and a class can be taught by many lecturers. A timetable is used to document the time and date of each lecture held.

Select one:

a.



b.



c. Both a and b are correct.

d. Both a and b are incorrect.

e. Only b is correct.

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Consider the following scenario and answer the question.

"Tour D Lanka" runs a sightseeing flights from Colombo. The reservation system keeps track of passengers who will be flying in specific seats on various flights, as well as people who will form the crew. For the crew, the system needs to track what everyone does, and who supervises whom. Tour D Lanka runs several daily numbered flights on a regular schedule. Tour D Lanka expects to expand in the future so that system needs to be flexible, in particular, it will be adding frequent flier plan.

What is the correct set of classes that can be identified in the above scenario ?

Select one:

- a. Tour D Lanka, Flights, Reservation system, Passengers
- b. Flight, Seat, Crew, Schedule
- c. Flight, Passenger, Employee
- d. Flight, Crew, Sightseeing flights, Seat
- e. Reservation System, Flights, Crew

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Question **34**

Not yet answered

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Flag question

What is /are true about 'Composition' relationship?

Select one or more:

- [ ] a. Composition is a weak form of whole-part relationship
- [x] b. Graphically, a dependency is rendered as a filled diamond arrow.
- [x] c. Composition should have a relationship with a multiplicity of "1 .. "
- [ ] d. It implies that the "Part can exist without Whole"
- [ ] e. Graphically, a dependency is rendered as an empty diamond arrow.

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Question **22**

Not yet answered

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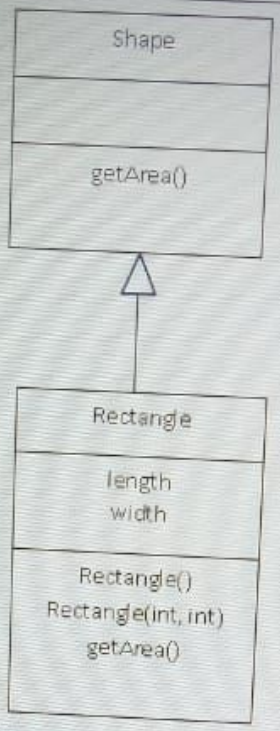

What is correct about "Shape" class ?

Select one:

- a. It's an Abstract class
- b. It's a Derived class
- c. It's a Concrete class
- d. It's an Association class

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Question **47**

Not yet answered

Marked out of 2.00

Flag question

What is the relationship among class M and class N according to the below code?

```
class M {
    private:
        Q *qArray[2];
    public:
        void addQs(Q *q1, Q *q2){
            aArray[0]= q1;
            aArray[1]= q2;
        };
        void nMethod(N *n){
            n->display();
        };
};
```

Agger Dependency

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Question **43**

Not yet answered

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If Student and CV (Curriculum Vitae) are two classes, what should be the relationship among these two classes?

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Select the correct statement about the relationship between super class and sub classes

Select one or more:

- [ ] a. A sub class can only be inherited from one super class
- [ ] b. The sub class must not have more attributes than the super class
- [ ] c. A super class must not be abstract.
- [x] d. The sub class inherits the properties of the super class.
- [ ] e. A sub class can only inherit the protected properties of a super class.

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Question **42**

Not yet answered

Marked out of 2.00

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Employee class has salary as a property with the data type as double. What is the return type for the setter of salary property in Employee class?

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Next page

A Microphone class contains a Circuit class. The Circuit can be removed from the Microphone and tested on its own. What type of relationship describe the above scenario?

Select one:

- a. Composition
- b. Dependency
- c. Association
- d. Aggregation
- e. Inheritance

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Question **41**

Not yet answered

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The library management system has a Student class and Payment class. Student class uses an object of Payment class in the payFine() function. What is the relationship between Student and Payment classes?

Dependency

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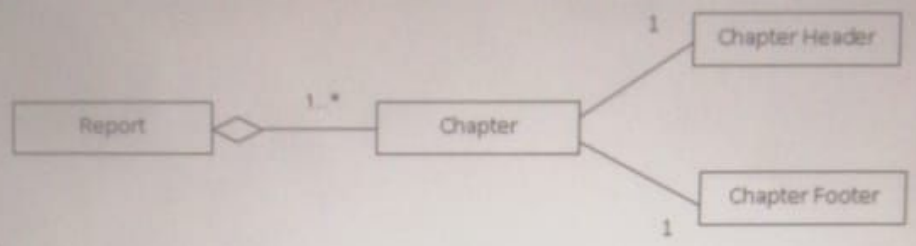
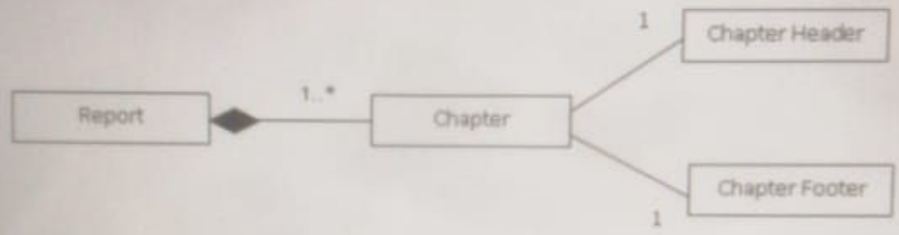
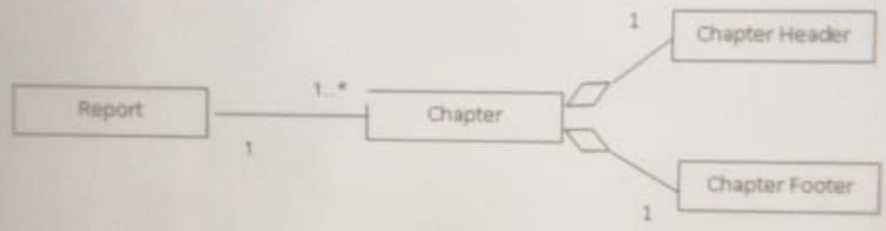


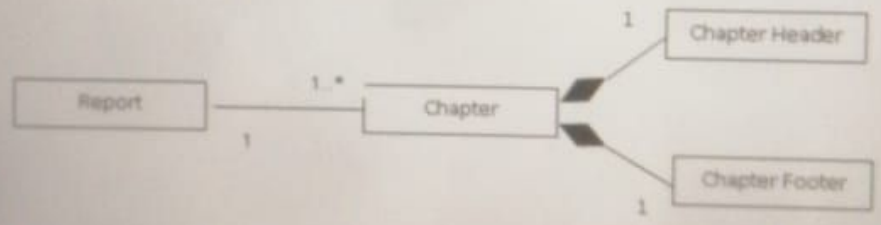
a.



b.



c.



d.

e. None of the above

What is /are true about 'Composition' relationship?

Select one or more:

- a. Composition is a weak form of whole-part relationship
- b. Graphically, a dependency is rendered as a filled diamond arrow.
- c. Composition should have a relationship with a multiplicity of "1 .. "
- d. It implies that the "Part can exist without Whole"
- e. Graphically, a dependency is rendered as an empty diamond arrow.

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45

The library management system has a Student class and Payment class. Student class uses an object of Payment class in the payFine() function. What is the relationship between Student and Payment classes?

B I A

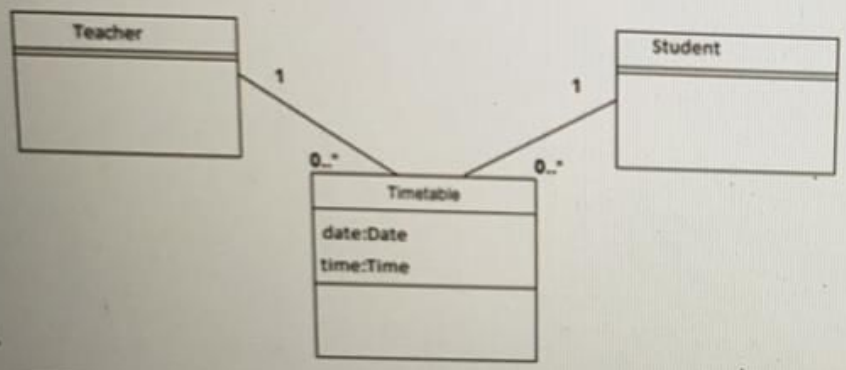
asso

How do you model the following scenario using a class diagram?

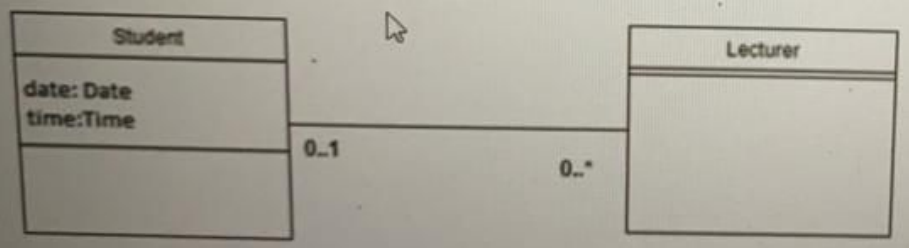
A lecturer teaches multiple classes and a class can be taught by many lecturers. A timetable is used to document the time and date of each lecture held.

Select one:

a.



b.



c. Both a and b are correct.

d. Both a and b are incorrect.

e. Only b is correct.

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Question 32

Not yet answered

Marked out of 1.00

Flag question

Aggregation is

Select one:

a. Expressing a part of a relationship and is stronger form of an association relationship.

b. Expressing a part of a relationship and is weaker form of an association relationship.

c. Expressing a "is-a relationship" and is stronger form of an association relationship.

d. Expressing a "is-a relationship" and is weaker form of an association relationship.

e. Expressing a "is-a relationship" and is stronger form of an inheritance relationship.

Next page

Quiz na

Finish attempt

Time left 1:22:

MCQ- 40 MAR

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STRUCTURED

41 42 4

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Which features are not available in C++ for Object Oriented Programming ?

Select one or more:

- a. Virtual Destructor
- b. Virtual Constructor
- c. Virtual Function
- d. Overloaded Destructor
- e. Overloaded Constructor

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Which of the following cannot be overloaded in C++ ?

Select one:

- a. function
- b. constructor
- c. destructor
- d. method
- e. None of the above

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50

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Labrador class is the child class of Dog class. Dog class has the following function.

void setOwner()

Following function is added in Labrador class.

void setOwner()

Adding the setOwner() function in in Labrador class is called as:

Overriding

Next page

Quiz navigation

Finish attempt ...

Time left 1:09:00

MCQ- 40 MARKS

STRUCTURED- 20 MARKS

ESSAY- 40 MARKS

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If Student and CV (Curriculum Vitae) are two classes, what should be the relationship among these two classes?

~~aggregation relationship~~ has

What will be the output of the following code?

```
#include <iostream>
using namespace std;
class Animal {
protected:
        char name[20];
public:
        Animal() {}
        Animal(char tname[]) {
                strcpy(name, tname);
        }
        virtual void speak() = 0;
        void song() {
                cout<< "My Song" <<endl;
        }
};
int main()
{
        Animal a;
        a.song();
        return 0;
}
```

My song

21

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question

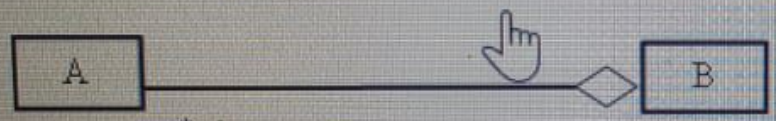
Select the correct diagram to show the relationship of class A and class B, where one or many objects of class B is a part of an object of class A, and objects of class B **cannot** exist without an object of class A.

Select one:

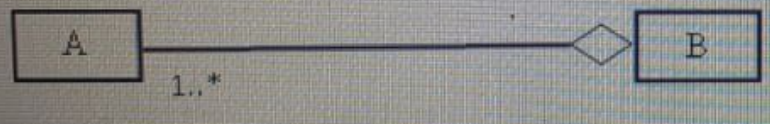
a.

b.

c.



d.



e. None of the Above

Next page

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In an Inheritance relationship the class that inherits the properties of another class can be called as;

Select one or more:

- a. derived class
- b. super class
- c. child class
- d. Parent class
- e. sub class

Moodle

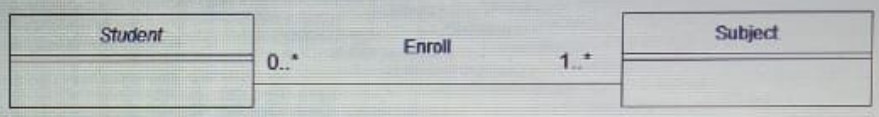
Question **21**

Not yet answered

Marked out of 1.00

Flag question

Select the correct coding for the given below relationship.



Select one:

a.
```
#define SIZE 10
class Student {
private:
  <attributes>
  Subject s;

public:
<methods>
};
class Subject {
private:
  <attributes>
public:
  <methods>

};
```

b.
```
#define SIZE 10
class Student {
 private:
   <attributes>
   Subject *sub[SIZE];

 public:
```

```
        }
};
class D: public B, public C{

public:
    void fd(){
            cout<<"A::fd()"<<endl;
    }
};
int main(){
    D obj;
    obj.f();

    return 0;
}
```

Select one:

a.
A::f()

b.
A::f() A::f()

c.
A::f() A::f()

d.
A::fc()

e.
Compile error

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on

An order management system has an Order class and a DeliveryPerson class. An order object has a delivery function which uses a DeliveryPerson object. Select the most correct relationship for Order class and DeliveryPerson class in this order management system.

Select one:

- a. Dependency
- b. Inheritance
- c. Aggregation
- d. Composition
- e. Association

Next page

Which of the following cannot be overloaded in C++ ?

Select one:

- a. function
- b. constructor
- c. destructor
- d. method
- e. None of the above

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What is the output of this code segment ?

```
class A{
public:
    void f(){
            cout<<"A::f()"<<endl;
    }
};

class B:public A{
public:
    void fb(){
            cout<<"A::fb()"<<endl;
    }
};
class C:public A{

public:
    void fc(){
            cout<<"A::fc()"<<endl;
    }
};
class D: public B, public C{

public:
    void fd(){
            cout<<"A::fd()"<<endl;
    }
};
int main(){
    D obj;
```

A : f

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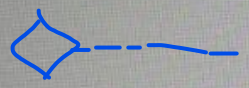
2

If Student and StudentCommitee are two classes, what should be the relationship among these two classes?

depen dency



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If I want to have common functions in a class and want to defer implementations of some other functions to derived classes, then I need to use;

Select one:

- a. An interface
- b. An abstract class
- c. A friend class
- d. A static class
- e. All of the above

Next

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When an object goes out of scope, which function is called?

Select one:

- a. Constructor
- b. Destructor
- c. virtual
- d. Inline
- e. Member

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A Microphone class contains a Circuit class. The Circuit can be removed from the Microphone and tested on its own. What type of relationship describe the above scenario?

Select one:

- a. Composition
- b. Dependency
- c. Association
- d. Aggregation
- e. Inheritance

Question **31**

Not yet answered

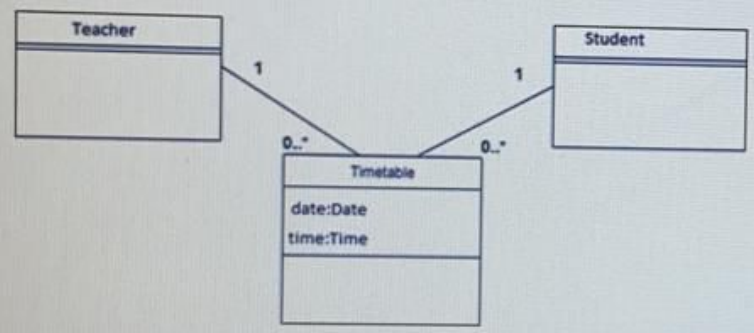
Marked out of 1.00

Flag question

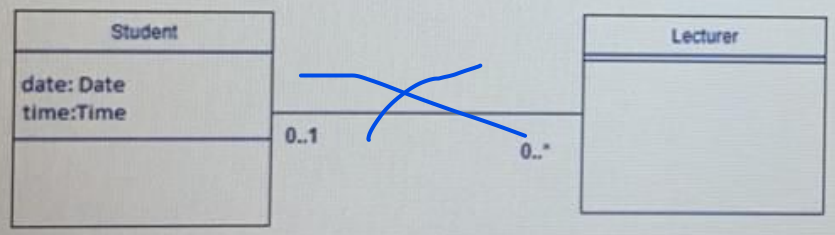
How do you model the following scenario using a class diagram?

A lecturer teaches multiple classes and a class can be taught by many lecturers. A timetable is used to document the time and date of each lecture held.

Select one:



a.



b.

c. Both a and b are correct.

d. Both a and b are incorrect.

e. Only b is correct.

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Time left 1:1

MCQ- 40 M

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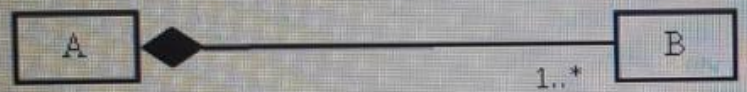
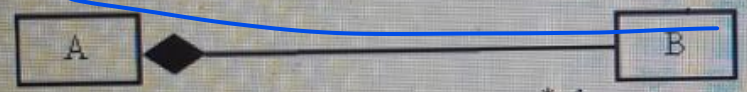
Select the correct diagram to show the relationship of class A and class B, where one or many objects of class B is a part of an object of class A, and objects of class B **cannot** exist without an object of class A.

Select one:

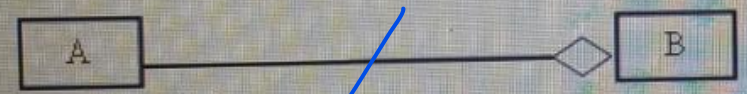
a.



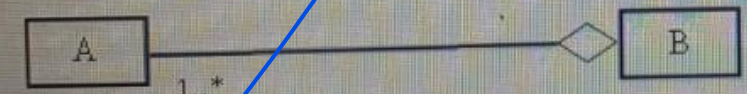
b.



c.



d.



e. None of the Above

Which operator is used to allocate an object dynamically in C++ ?

Select one:

- a. Scope resolution Operator
- b. Increment operator
- c. new operator
- d. assignment operator
- e. conditional operator

Question **27**

Not yet answered

Marked out of 1.00

Flag question

Which statement is FALSE about Dependency?

Select one:

- a. A Weaker type of relationship, where the class uses-an otherwise unrelated object
- b. In dependency, one sub class uses another class to perform a task.
- c. The dependent class typically is not a member of the class using it.
- d. None of the above
- e. All of the above

Next page

Quiz navig

Finish attempt ...

Time left 1:29:23

MCQ- 40 MARKS

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In given multiple inheritance, class C inherits class B, and Class B inherits class A. In which sequence are their destructors called, if an object of class C was declared?

Select one:

- a. ~C() then ~B() then ~A()
- b. ~B() then ~C() then ~A()
- c. ~A() then ~B() then ~C()
- d. ~C() then ~A() then ~B()
- e. ~B() then ~A() then ~C()

Next

What will be the answer for the following code?

```
#include<iostream>
#include<string>
using  namespace std;
class X
{
  int a, b;
  float d;
 public:
   void modify(int n){
    a = n;
   }
   void print(){
     cout<<a;
   }
 };

 class Y: private X
 {

 };

 int main(int argc, char const *argv[])
```

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Question **19**

Not yet answered

Marked out of 1.00

Flag question

What is the correct way of creating an object of a class called Car ?

Select one or more:

- a. Car car1;
- b. Car *car1 = new Car();
- c. Car : obj;
- d. class Car : public obj;
- e. private car = new obj();

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Which relationship type can be considered as both unidirectional and bidirectional?

Select one:

- a. Aggregation and Dependency
- b. Composition
- c. Association
- d. Dependency and Association
- e. Inheritance and Association

Next page

Question **25**

Not yet answered

Marked out of 1.00

Flag question

Consider the following multiplicity indicators and their meanings.

Indicator	Meaning
A. 0..1	Zero or one
B. n..m	Between n and m
C. 0..*	Zero or none
D. 1-2	One or two
E. 4..7	between 4 and 7 inclusive

Which of the above are correct?

Select one or more:

- a. A
- b. B
- c. C
- d. D
- e. E

Following keyword is used before a function in a base class to be overridden in derived class in C++;

Select one:

- a. override
- b. virtual
- c. void
- d. none
- e. protected

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Question 47

Not yet answered

Marked out of 2.00

Flag question

When creating the student class fora library management system.**only** student registration number, name, and membership type are added as the properties. What is the object-oriented principle applied here?

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Abstraction.

Next page

Composition is a strong form of

Select one:

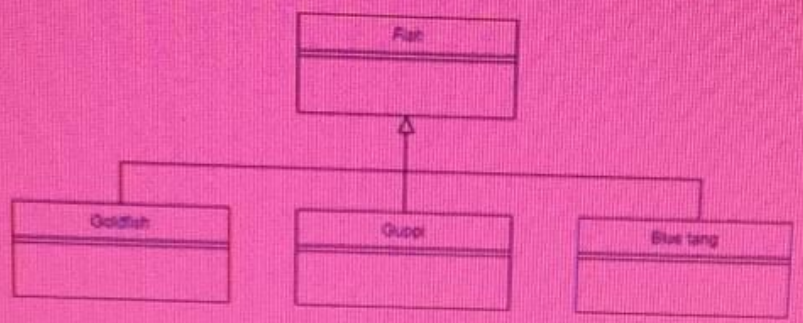
- a. Inheritance
- b. Encapsulation
- c. Aggregation
- d. All the above
- e. None of the above

How do you model the following scenario using a class diagram.

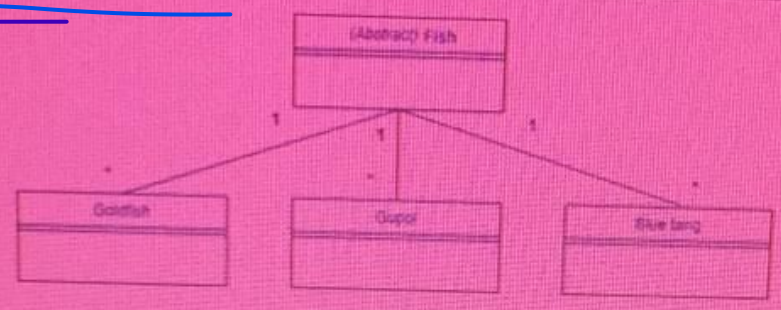
"There are different fish species. E.g.-Goldfish, Guppy ,Blue tang"

Select one:

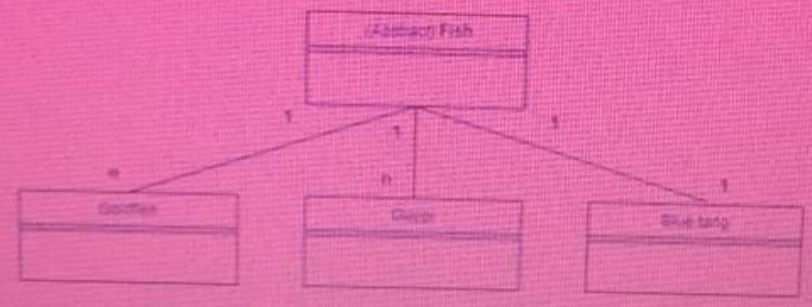
a.



b.



c.



d.

Both b and c are correct

e. None of the above are correct

In given multiple inheritance, class C inherits class B, and Class B inherits class A. In which sequence are their destructors called, if an object of class C was declared?

Select one:

a.
~C() then ~B() then ~A()

b.
~B() then ~C() then ~A()

c.
~A() then ~B() then ~C()

d.
~C() then ~A() then ~B()

e.
~B() then ~A() then ~C()

Question **28**

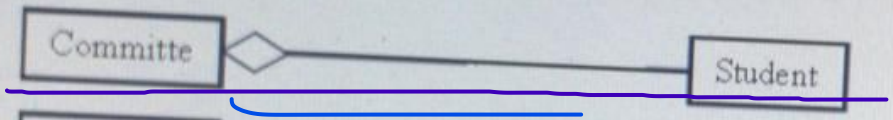
Not yet answered

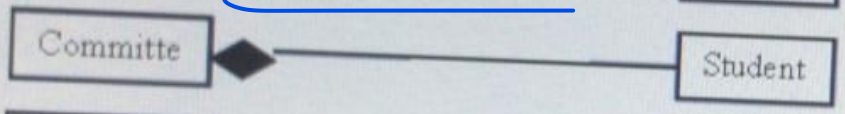
Marked out of 1.00

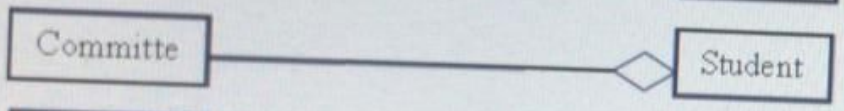
Flag question

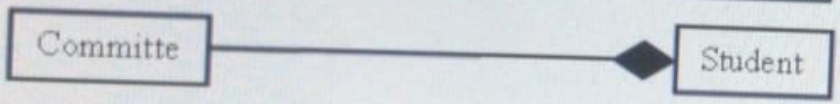
Select the most correct diagram to show the relationship of Committee class and Student class.

Select one:

a. 

b. 

c. 

d. 

e. None of the above

Next page

In given multiple inheritance, class C inherits class B, and Class B inherits class A. In which sequence are their destructors called, if an object of class C was declared?

A — ~~A~~ B C

↑ C B A

B

↑

C

Select one:

a.
~C() then ~B() then ~A()

b.
~B() then ~C() then ~A()

c.
~A() then ~B() then ~C()

d.
~C() then ~A() then ~B()

e.
~B() then ~A() then ~C()

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Question **27**

Not yet answered

Marked out of 1.00

Flag question

Which of the following cannot be overloaded in C++ ?

Select one:

- a. function
- b. constructor
- c. destructor
- d. method
- e. None of the above

Next pa

Which kind of relationship type exist in the following code segment?

```
class Fraction
{
private:
    int m_numerator;
    int m_denominator;

public:
    Fraction(int numerator=0, int denominator=1):
        m_numerator{ numerator }, m_denominator{ denominator }
    {
        // We put reduce() in the constructor to ensure any fractions we make get reduced!
        // Since all of the overloaded operators create new Fractions, we can guarantee this will get called here
        reduce();
    }
};
```

Select one:

a. Aggregation

b. Both Association and Composition

c. Composition

d. Inheritance

e. Dependency

Consider the following two classes.

```
class Person
{
    private :
        Dog *dog;
    public :
        Person();
        ~Person();
};
```

```
class Dog
{

    public :
        Dog();
        ~Dog();
};
```

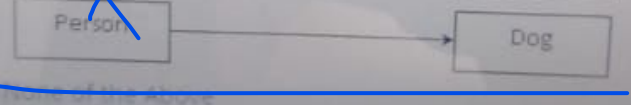
What is the UML diagram that shows the relationship between Person and Dog

Select one:

a.

b.

c.

d.


e. None of the Above

There is a "Speech" class with a method called convert() that takes "Script" object as an input. The convert() function transform the script to mp3. Which of the following relationship exists between "Speech" and "Script" classes?

Select one:

- a. Composition
- b. Dependency
- c. Association
- d. Aggregation
- e. Inheritance

Next

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Which operator is used to allocate an object dynamically in C++ ?

Select one:

- a. Scope resolution Operator
- b. Increment operator
- c. new operator
- d. assignment operator
- e. conditional operator

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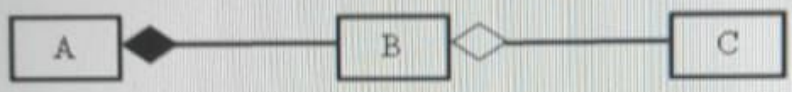
Select the **correct** statement for class A, class B and class C given below.



Select one:

- a. Objects of class B cannot exist without an object of class A.
- b. Objects of class C cannot exist without an object of class B.
- c. Objects of class C cannot exist without an object of class A
- d. Objects of class A cannot exist without an object of class B
- e. All of the Above

In C++, if the access modifier is not specified while inheriting a class, which is true among the following?

Select one:

- a. It gets inherited privately by default
- b. It gets inherited protected by default
- c. It gets inherited publicly by default
- d. It is not possible
- e. It gets inherited anyway.

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What is the relationship among class X and class Y according to the below code?

```
class X {
    private:
        Y *yArray[2];
    public:
        void addYs(Y *y1, Y *y2){
            yArray[0]= y1;
            yArray[1]= y2;
        };
};
```

Aggre

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If Student and CV (Curriculum Vitae) are two classes, what should be the relationship among these two classes?

association

NetExam

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When creating the student class fora library management system,**only** student registration number, name, and membership type are added as the properties. What is the object-oriented principle applied here?

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Next page

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What will be the output of the following code?

```
#include <iostream>
using namespace std;
class Animal {
protected:
      char name[20];
public:
      Animal() {}
      Animal(char tname[]) {
            strcpy(name, tname);
      }
      virtual void speak() = 0;
      void song() {
            cout<< "My Song" <<endl;
      }
};
int main()
{
      Animal a;
      a.song();
      return 0;
}
```

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Read the description below and answer the questions.

AutoMart is an online vehicle Auction System, which both buyers and sellers can participate in buying and selling of vehicles online. In this system, the user should first register with the system by providing their details such as the National ID number, name, address, contact number and the email address. They can update their details once they are registered in the system. A user can be a Buyer or a seller. If the user is a seller, they can upload the details of the vehicle they sell, including few pictures. They must also enter an expected price for the vehicle. The seller can update the details of the Vehicle before the auction starts. A buyer can login to the system and search for vehicles by entering the type of vehicle or price as keywords. Once the system shows all the entries that matches his search, then the Buyer can place the bid to the selected vehicle/s. If a buyer wishes to bid, then the buyer should deposit an amount of Rs. 5000/= through credit card or PayPal account, before the auction starts. If a buyer doesn't buy any Vehicle, then Rs. 4500/= will be refunded and if the buyer buys a Vehicle then, Rs. 5000/= will be deducted from the payment. The system administrator can start and stop the auctions daily with the predefined times. The administrator can place the vehicles for the auction and remove vehicles once they are sold. After the auction closes, the system should generate reports such as bidding prices for a single vehicle and the daily auctioned items. The Vehicle owner will be notified of the highest bid by the administrator and the owner can inform the administrator of his choice. If the vehicle is sold the administrator will inform the buyer to do the payment within 3 working days.

a) Identify all the nouns / noun phrases of the description above and write in the table below. In front of each noun write the rejecting rule if the noun is rejected. Indicate the nouns that can be taken as classes. (15 marks)

b) For the classes identified in part a) Write FIVE CRC cards. (10 marks)

c) Write the definition of 5 of the classes you have identified above to represent the relationships among the classes. (You don't need to add attributes or methods and only show the necessary attributes and methods required to present

payment. The system administrator can start and stop the auctions daily with the predefined times. The administrator can place the vehicles for the auction and remove vehicles once they are sold. After the auction closes, the system should generate reports such as bidding prices for a single vehicle and the daily auctioned items. The Vehicle owner will be notified of the highest bid by the administrator and the owner can inform the administrator of his choice. If the vehicle is sold the administrator will inform the buyer to do the payment withi working days.

a) Identify all the nouns / noun phrases of the description above and write in the table below. In front of each noun w the rejecting rule if the noun is rejected. Indicate the nouns that can be taken as classes. (15 marks)

b) For the classes identified in part a) write FIVE CRC cards (10 marks)

c) Write the definition of 5 of the classes you have identified above to represent the relationships among the classes. (You don't need to add attributes or methods and only show the necessary attributes and methods required to present the relationship only) (15 marks)

a)

Noun/ noun phrase	Rule for rejection / class