

## Sw Engg

<b>Section Id :</b>	64065357823
<b>Section Number :</b>	2
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	26
<b>Number of Questions to be attempted :</b>	26
<b>Section Marks :</b>	100
<b>Display Number Panel :</b>	Yes

Section Negative Marks :	0
Group All Questions :	No
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	640653120719
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 44 Question Id : 640653820698 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 0

Question Label : Multiple Choice Question

**THIS IS QUESTION PAPER FOR THE SUBJECT "DEGREE LEVEL : SOFTWARE ENGINEERING (COMPUTER BASED EXAM)"**

**ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?**

**CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.**

**(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)**

**Options :**

6406532754712.  YES

6406532754713.  No

Sub-Section Number :	2
Sub-Section Id :	640653120720
Question Shuffling Allowed :	Yes
Is Section Default? :	null

**Question Number : 45 Question Id : 640653820699 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Max. Selectable Options : 0**

Question Label : Multiple Select Question

Which of the following tool(s) is/are used as issue trackers?

**Options :**

6406532754714. ✔ JIRA

6406532754715. ✖ VS Code

6406532754716. ✔ Pivotal Tracker

6406532754717. ✖ Stack overflow

**Question Number : 46 Question Id : 640653820702 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Max. Selectable Options : 0**

Question Label : Multiple Select Question

Which of the following is/are true about canary deployment?

**Options :**

6406532754726. ✖ In this strategy, the users are allowed to choose the versions of software they want to use.

6406532754727. ✔ In this strategy, the changes are incrementally rolled out to a small subset of users.

6406532754728. ✖ In this strategy, a new production environment is created for the new version of the software without affecting the current one, and after sufficient testing of the new version, the users are routed from the current environment to the new environment.

6406532754729. ✔ The strategy has the drawback of maintaining multiple versions.

**Sub-Section Number :**

**Sub-Section Id :** 640653120721

**Question Shuffling Allowed :** Yes

**Is Section Default? :** null

**Question Number : 47 Question Id : 640653820700 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Which of the following teams in a software organization is primarily responsible for conducting market research to identify potential customers?

**Options :**

6406532754718. ✖ Software engineers

6406532754719. ✔ Marketing team

6406532754720. ✖ Sales team

6406532754721. ✖ Support team

**Question Number : 48 Question Id : 640653820705 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Stress testing is an example of \_\_\_\_\_.

Fill in the blank with appropriate option.

**Options :**

6406532754738. ✖ Unit testing

6406532754739. ✖ System testing

6406532754740.

✖ Acceptance testing

6406532754741. ✔ Performance testing

**Sub-Section Number :** 4  
**Sub-Section Id :** 640653120722  
**Question Shuffling Allowed :** Yes  
**Is Section Default? :** null

**Question Number : 49 Question Id : 640653820701 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Which of the following is true about the production environment of deployment?

**Options :**

6406532754722. ✖ It is primarily created for performing integration and system testing.

6406532754723. ✔ It is also known as live environment where all the users can interact with the deployed system.

6406532754724. ✖ It is the local environment for individual developers that provides IDEs and other tools.

6406532754725. ✖ It exactly reassembles the production environment, and it runs on a remote machine.

**Question Number : 50 Question Id : 640653820703 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Suppose one of the hosting service providers has a server with an 8-core processor and 32 GB of RAM, which is sliced into 8 virtual machines (VMs) such that each VM includes a 1-core and 4 GB of

RAM. However, the VMs do not include any additional software layers for deploying web applications. The service provider offers these VMs to its clients to host their web applications.

Which kind of hosting option is offered by the service provider?

**Options :**

6406532754730. ✖ Bare Metal Servers

6406532754731. ✔ Infrastructure-as-a-service

6406532754732. ✖ Platform-as-a-service

6406532754733. ✖ None of these

**Question Number : 51 Question Id : 640653820704 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Consider a web application that has to send notification emails to thousands of its customers on a daily basis. The application is developed in such a way that the sending notification email code is executed outside the HTTP request-response cycle so that the performance of the web application does not degrade.

Which of the following performance optimization strategies is used in this scenario?

**Options :**

6406532754734. ✖ Caching

6406532754735. ✔ Task queue

6406532754736. ✖ Quick loading and rendering of web pages

6406532754737. ✖ Performance monitoring

**Question Number : 52 Question Id : 640653820706 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Consider the Python code below.

```
def sort(arr):  
    for i in range(0, len(arr) - 1):  
        min = i  
        for j in range(i + 1, len(arr)):  
            if arr[j] < arr[min]:  
                min = j  
        arr[i], arr[min] = arr[min], arr[i]
```

What is the cyclomatic complexity of the function `sort`?

**Options :**

6406532754742. ✖ 3

6406532754743. ✔ 4

6406532754744. ✖ 5

6406532754745. ✖ 6

**Sub-Section Number :** 5

**Sub-Section Id :** 640653120723

**Question Shuffling Allowed :** No

**Is Section Default? :** null

**Question Id : 640653820707 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (53 to 54)**

Question Label : Comprehension

Consider the following code base in Python and answer the given subquestions.

```
if marks < 0 and marks > 100:  
    print("invalid marks")  
else:  
    if marks > 40:  
        print("pass")  
    else:  
        print("fail")
```

### Sub questions

**Question Number : 53 Question Id : 640653820708 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Max. Selectable Options : 0**

Question Label : Multiple Select Question

Identify the sets of valid test cases for branch coverage.

**Options :**

6406532754746. ✖ {marks = 0, marks = 100}

6406532754747. ✔ {marks = -10, marks = 65, marks = 30}

6406532754748. ✔ {marks = -10, marks = 65, marks = 30, marks = 105}

6406532754749. ✔ {marks = -10, marks = 65, marks = 100, marks = 30, marks = 0}

**Question Number : 54 Question Id : 640653820709 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4 Max. Selectable Options : 0**

Question Label : Multiple Select Question

Identify the sets of valid test cases for multiple condition coverage.

**Options :**

6406532754750. ✖ {marks = 0, marks = 100}



6406532754751. ✖ {marks = -10, marks = 65, marks = 30}

6406532754752. ✔ {marks = -10, marks = 65, marks = 30, marks = 105}

6406532754753. ✖ {marks = -10, marks = 65, marks = 100, marks = 30, marks = 0}

Sub-Section Number :	6
Sub-Section Id :	640653120724
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 55 Question Id : 640653820710 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

Consider the design of a simple billing software for a grocery store. The initial design of the software has a **Payment** class that allows only cash payments. However, the grocery store owner has decided to upgrade the software for online payment. As a rectification action, the designer has rejected the plan for extending a subclass **OnlinePayment** from **Payment** class and considered modifying the **Payment** class for various online payment options.

Identify the SOLID principle that the design violates.

Options :

6406532754754. ✖ Single responsibility principle

6406532754755. ✔ Open-close principle

6406532754756. ✖ Liskov substitution principle

6406532754757. ✖ Interface segregation principle

6406532754758. ✖ Dependency inversion principle

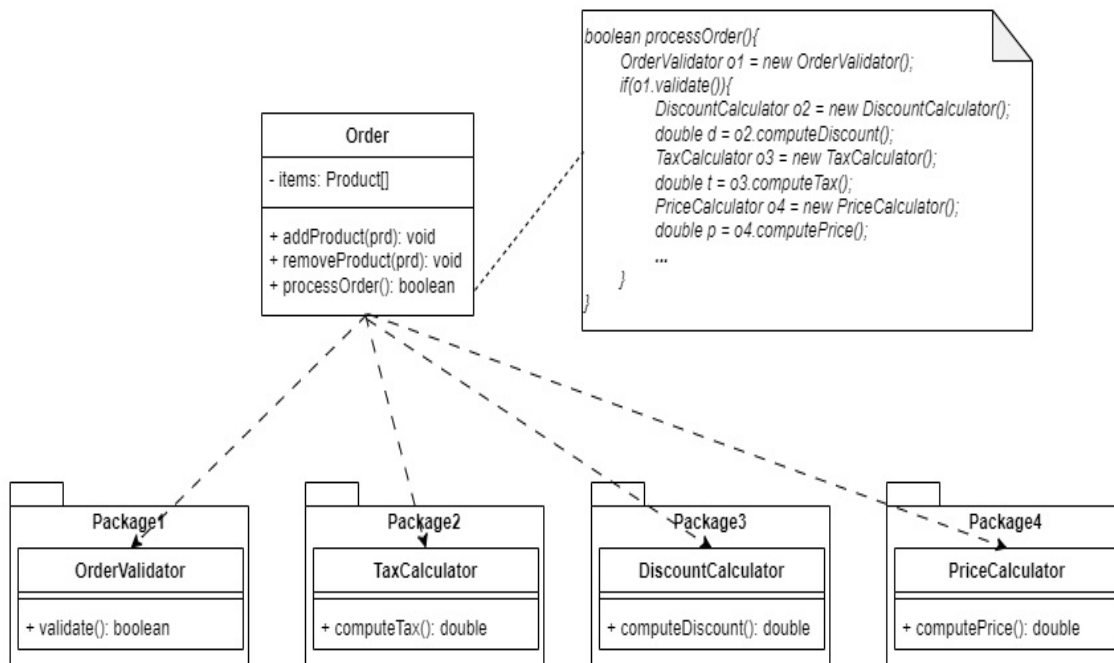
Question Number : 56 Question Id : 640653820711 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

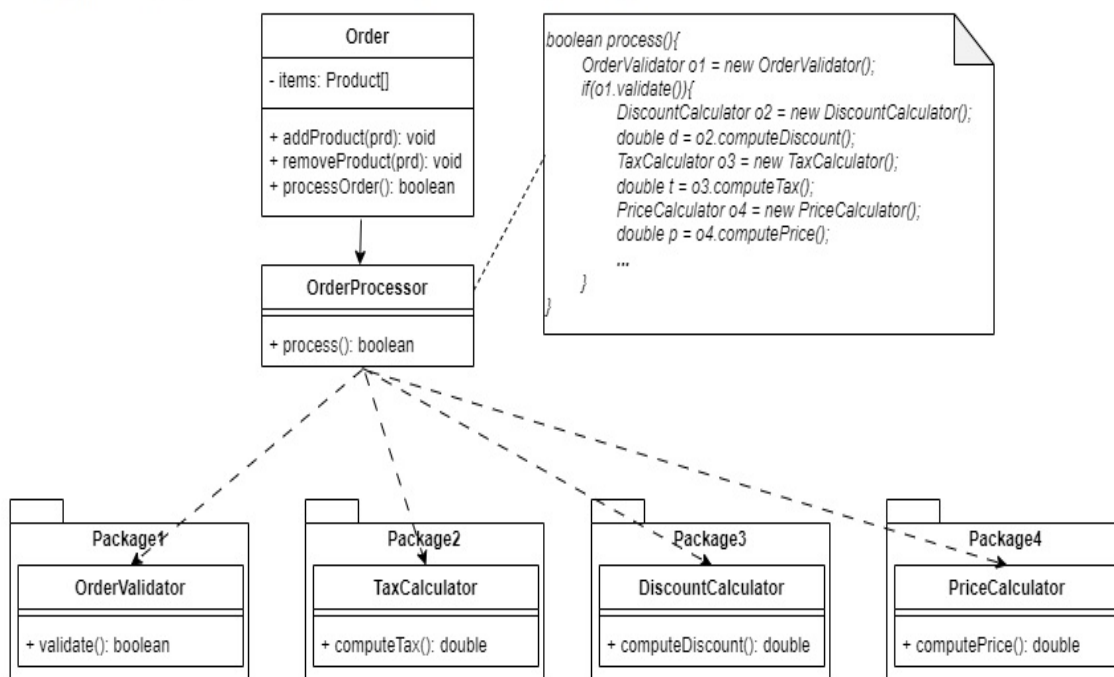
Correct Marks : 4

Question Label : Multiple Choice Question

Consider the following packages with classes, as shown in the class diagram below. The class diagram also shows the association of the classes with the class **Order** related to the processing of an order. The method **processOrder()** has to call several methods from various packages in a specific sequence as shown in the annotation.



We apply a design pattern **X**, and the redesigned class diagram is given as follows:



Identify the design pattern **X** used here.

Options :

6406532754759. ✖ Factory design pattern

6406532754760. ✖ Builder design pattern

6406532754761. ✖ Adapter design pattern

6406532754762. ✔ Facade design pattern

**Question Number : 57 Question Id : 640653820712 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Match the following:

Examples	Usage
1. Notepad, Vim	A. IDE
2. VSCode, PyCharm	B. Version control system
3. Flask	C. Text editor
4. GIT	D. Web Application Framework

**Options :**

6406532754763. ✖ 1-B, 2-D, 3-C, 4-A

6406532754764. ✖ 1-C, 2-D, 3-A, 4-B

6406532754765. ✔ 1-C, 2-A, 3-D, 4-B

6406532754766. ✖ 1-B, 2-A, 3-C, 4-D

**Question Number : 58 Question Id : 640653820713 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

A developer has implemented a module. However, while testing the module, he discovered that the output of a specific function did not correspond with the intended output. To facilitate

debugging, the programmer incorporated multiple print statements into the function.

Which of the following debugging techniques does the developer use in the above scenario?

**Options :**

6406532754767.  Logging

6406532754768.  Dump and diff

6406532754769.  Stepping in debugger

6406532754770.  Profiling tool

**Question Number : 59 Question Id : 640653820715 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Match the following regarding the characteristics of good software design:

Characteristics	Descriptions
1. Correctness	A. Easy to change
2. Efficiency	B. Correctly implement all the functionalities of the system
3. Maintainability	C. Ensure that resources - time, space, cost are managed well
4. Understandable	D. Easy to comprehend by everyone in the development team

**Options :**

6406532754775.  1-B, 2-A, 3-C, 4-D

6406532754776.  1-B, 2-C, 3-A, 4-D

6406532754777.  1-C, 2-A, 3-D, 4-B

6406532754778.  1-C, 2-A, 3-B, 4-D

**Question Number : 60 Question Id : 640653820716 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

A e-shopping application has a module called **Order**, which passes a flag to the **Delivery** module to indicate whether the order contains any fragile items and requires special packaging and delivery.

Identify the type of coupling in the given context.

**Options :**

6406532754779. ✖ Common coupling

6406532754780. ✖ Content coupling

6406532754781. ✔ Control coupling

6406532754782. ✖ Data coupling

**Question Number : 61 Question Id : 640653820722 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

A bank has developed a smartphone app that allows for quick transfers of funds to another bank account. To transfer money using the app, the user must input the account number, IFSC, and name of the account holder. The app then prompts the user to reenter the account number for confirmation. It will display an error icon in the reentered account number field and advise the user to enter the proper account number if the account number entered again for confirmation does not match.

Which of the following heuristics of UI design is satisfied by the mobile app?

**Options :**

6406532754803. ✖ Prevent errors

6406532754804.

✖ Show status

6406532754805. ✔ Support error recovery

6406532754806. ✖ Provide help

**Question Number : 62 Question Id : 640653820723 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Consider that an organization developed a web application for its own employees. Employees can use the application to provide day-to-day reporting to their managers. However, the employees are finding that the application is very difficult to use, and they have to watch the demo videos for different usages of the application before they can actually use it.

Which of the following *usability goals* is not satisfied by the design of the web application?

**Options :**

6406532754807. ✖ Effectiveness

6406532754808. ✖ Efficiency

6406532754809. ✖ Safe to use

6406532754810. ✔ Learnability

6406532754811. ✖ Memorability

**Sub-Section Number :** 7

**Sub-Section Id :** 640653120725

**Question Shuffling Allowed :** Yes

**Is Section Default? :** null

**Question Number : 63 Question Id : 640653820714 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Which of the following types of software metrics measure the quality of your code based on the number of decisions a block of code contains?

**Options :**

6406532754771. ✔ Cyclomatic complexity

6406532754772. ✖ Raw Metrics

6406532754773. ✖ Halstead's Metrics

6406532754774. ✖ None of these

**Question Number : 64 Question Id : 640653820718 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

What is the main objective of *sprint retrospective* in agile project management?

**Options :**

6406532754787. ✖ To decide which work is to be done in the current sprint and how the chosen work will be done.

6406532754788. ✖ To prioritize the work for the development team.

6406532754789. ✖ Team demonstrates what they have completed in the given sprint.

6406532754790. ✔ To evaluate the last sprint - team dynamics, processes, tools etc.

**Question Number : 65 Question Id : 640653820721 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

A given prototype is presented on multiple papers as hand-drawn UIs of different screens.

Determine the type of the given prototype.

**Options :**

6406532754799. ✖ Storyboards

6406532754800. ✔ Paper prototype

6406532754801. ✖ Digital mock-ups

6406532754802. ✖ Interactive prototype

**Question Number : 66 Question Id : 640653820724 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Which of the characteristics of user stories ensures that each user story has some business value to one or more stakeholders?

**Options :**

6406532754812. ✖ Specific

6406532754813. ✖ Measurable

6406532754814. ✖ Achievable

6406532754815. ✔ Relevant

6406532754816. ✖ Timeboxed

**Question Number : 67 Question Id : 640653820725 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**



**Correct Marks : 3**

Question Label : Multiple Choice Question

An organization has planned to develop a web application that will help its employees make better investment plans. After the deployment of the web application, the employees came up with a request to add a new feature to it. The organization accepted the request, and started adding the new feature.

Identify the phase of the software development process that the software is in.

**Options :**

6406532754817. ✖ Requirement gathering

6406532754818. ✖ Development phase

6406532754819. ✖ Design phase

6406532754820. ✖ Testing phase

6406532754821. ✔ Maintenance phase

Sub-Section Number :	8
Sub-Section Id :	640653120726
Question Shuffling Allowed :	Yes
Is Section Default? :	null

**Question Number : 68 Question Id : 640653820717 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5 Max. Selectable Options : 0**

Question Label : Multiple Select Question

Consider the object-oriented design of an online news application. It has two types of customers (objects of `Customer` class): normal customers (objects of `NCustomer` class) and subscribed customers (objects of `SCustomer` class). The customers can access a channel list (an object of `Channellist` class), which consists of various news channels (objects of `Channel` class). Normal customers can only access free news channels, whereas subscribed customers can access paid news channels as well. In order to subscribe, `Customer` class has to interact with `PaymentService` class. The class `PaymentService` is designed to implement an interface named `iPaymentContact`. Therefore, every change made to the `iPaymentContact` interface results in changes to the class `PaymentService`.

Identify the correct statement(s) about the relationships between the classes mentioned in the above context.

**Options :**

6406532754783. ✓ `NCustomer` and `PCustomer` are inherited from `Customer`.

6406532754784. ✗ `iPaymentContact` is inherited from `PaymentService`.

6406532754785. ✓ `Channellist` is composition of `Channel`.

6406532754786. ✓ `PaymentService` is dependent on `iPaymentContact`.

**Question Number : 69 Question Id : 640653820720 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5 Max. Selectable Options : 0**

Question Label : Multiple Select Question

A software company has to develop a smart irrigation system for small to moderate-sized farms. The system consists of several sensors (like temperature sensors and soil moisture sensors), actuators (like water pumps), and software modules that automate the system. The company applies COCOMO model for calculating the effort to develop the system.

The values for the constants in the COCOMO model for the different types of the project are as follows:

- Organic project:  $a = 2.4$ ,  $b = 1.05$
- Semi-organic project:  $a = 3.0$ ,  $b = 1.12$
- Embedded project:  $a = 3.6$ ,  $b = 1.20$

Considering the source code of 1,00,000 lines and effort adjustment factor = 1.58, what is the final estimated effort for the project?

**Options :**

6406532754795. ✖ 478 person-month

6406532754796. ✖ 824 person-month

6406532754797. ✖ 905 person-month

6406532754798. ✔ 1,429 person-month

**Sub-Section Number :** 9  
**Sub-Section Id :** 640653120727  
**Question Shuffling Allowed :** Yes  
**Is Section Default? :** null

**Question Number : 70 Question Id : 640653820719 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Consider the following risks identified for a project, their probability of occurring, and the impact of the risk.

Risk	Probability	Impact
Personnel shortfall	0.5	2
Schedule slippage	0.3	4
Developing unnecessary features	0.2	1
Insufficient knowledge of product	0.4	2

Which of the following risks must be dealt with first by the project manager?

**Options :**

6406532754791. ✖ Personnel shortfall

6406532754792. ✔ Schedule slippage

6406532754793. ✖ Developing unnecessary features

6406532754794. ✖ Insufficient knowledge of product