

NUS-ISS Master of Technology

Entrance Test Sample Questions

SECTION A: General for Enterprise Business Analytics **& Intelligent Systems** (20 Questions)

- **Mathematical**
- **Reasoning**
- **Logical Capabilities**

1. A man on tour travelling on the Tour de France initially travels 80 km at 32 km/hr and then the next 160 km at 40 km/hr. The average speed for the first 160 km of the tour is:

A. 25 km/hr
B. 34.2 km/hr
C. 35.56 km/hr
D. 40 km/hr
E. 44.2 km/hr
2. NUS organised a special IT careers fair 40% of the local students and 50% of the foreign students participated in the same. What fraction of the total number of students took part in the fair?

A. 40%.
B. 45%
C. 50%.
D. 55%
E. It is not possible to make an estimate
3. Which of the below words is most likely to be the opposite to “passive”

A. Impassive
B. Receptive
C. Unresponsive
D. Enthusiastic
E. Active

4. A fire which breaks out in the floor of a building and then subsequently spreads to all floors of the building is best described as?

- A. An accident
- B. A disaster
- C. A conflagration
- D. A blaze
- E. An Incident

5. *“Agile software development describes a set of values and principles for software development under which requirements and solutions evolve through the collaborative effort of self-organizing cross-functional teams; It advocates adaptive planning, evolutionary development, early delivery, and continuous improvement, and it encourages rapid and flexible response to change”*- Wikipedia, the free encyclopedia

Based on the above description; what techniques or approaches are not employed in Agile Software

- A. Evolutionary Development
- B. Teams with members coming from different business areas
- C. Adherence to challenging timescales and detailed plans
- D. Early delivery of working software
- E. Managing evolving requirements

SECTION B: Enterprise Business Analytics (30 Questions)

- **Basic Statistics**
- **Data Visualisation**

1. The difference between the largest and the smallest data values is the
 - A. Skewness
 - B. Interquartile range
 - C. Range
 - D. Coefficient of variation
 - E. Kurtosis
2. What is the Mean, Median and Mode of the following data: 34, 34, 36, 30, 32, 28, 30, 30?
 - A. 32.15, 31, 31
 - B. 31.55, 30, 30
 - C. 32, 30, 31
 - D. 31.75, 31, 30
 - E. 31.55, 31, 30
3. A clothing shop in the USA that specializes in warm outdoor clothing has experienced higher sales during months of October, November and December. Monthly sales patterns for this shop over the year are an example of which component of time series?
 - A. Trend
 - B. Seasonal
 - C. Cyclical
 - D. Irregular
 - E. Disruptive
4. Two events, A and B, are mutually exclusive.
 - The probability of A occurring = $P(A)$; ($0 < P(A) < 1$)
 - The probability of B occurring = $P(B)$; ($0 < P(B) < 1$)

Suppose event A occurs, then the probability of the occurrence of event B is?

 - F. 0
 - G. 1
 - H. $P(B)$
 - I. $P(A) * P(B)$
 - J. $P(B)/P(A)$

5. The following statements are made:

- Some Lawyers are fools.
- Some fools are poor.

Which of the below statements are true?

K. "Some Lawyers are poor"

L. "Some poor people are Lawyers"

M. "Some Lawyers are poor" or "Some poor people are Lawyers"

N. Neither "Some Lawyers are poor" and "Some poor people are Lawyers"

O. Both "Some Lawyers are poor" and "Some poor people are Lawyers"

SECTION B: Intelligent Systems (30 Questions)

- **Problem-solving skills**
- **Computation abilities**

1. Which of the following pseudo code blocks will be executed by the following pseudo code?

```
noSides := 4
sidesEqual := True
angles90 := True
If noSides = 3 Then
    // I am a triangle
Else noSides = 5 Then
    // I am a pentagon
    Else If sidesEqual = True and angles90 = False Then
        //I am a rhombus
    Else If sidesEqual = False Then
        //I am a rectangle
        Else If angles90 = True Then
            //I am a square
        end If
    end If
end If
end If
```

- A. I am a triangle.
- B. I am a pentagon.
- C. I am a rhombus.
- D. I am a rectangle.
- E. I am a square.

2. The payoff (X) for buying a \$1 lottery ticket has the following probability distribution.

	Payoff	Probability
X=Win	\$100	0.1%
X= Lose	\$0	99,9%

What is the expected value of X?

- A. \$50
 - B. \$10
 - C. \$1
 - D. \$0.1
 - E. \$0.01
3. A private educational advisor has guaranteed that any high school student who is taught by him well have a 90% chance of entering the prestigious National University. Two high school students are currently being taught by the advisor. Assuming each student's results are independent what is the probability that at least one of them will be successful in entering the National University?
- A. 0.5
 - B. 0.65
 - C. 0.88
 - D. 0.9
 - E. 0.99
4. .Peter walks south for 20 m, turns right and walks another 10 m. He then turns left and walks slowly for 10 m. Then he turns right, and runs 20m and stops. In which direction is he with respect to his initial position?
- A. South-East
 - B. North-East
 - C. North-West
 - D. South-West
 - E. South
5. What is the next number in the series: 42, 41, 39, 36, 35, 33...?
- A. 32
 - B. 31
 - C. 30
 - D. 29
 - E. 28

Master of Technology Sample Questions

Software Engineering

Section A (15 questions)

- Mathematical/Reasoning/Logical capabilities
- General IT knowledge
- Programming

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2. One of the tasks involved in preparing a project plan is *Precedence Analysis*. Which of the below is a major reason for carrying out precedence analysis

A. Estimating the Effort required to perform the tasks in the project plan
B. Determining the resources required to carry out the tasks in the project plan
C. Determine the links between the various tasks in the project plan
D. Identifying the major requirements for the project
E. All of the above are major reasons for carrying out precedence analysis
3. Which of the following statements is true about Version Control of software?

A. It improves the quality of the software
B. It restricts the number of versions of the software
C. It is a mechanism to enable team members to work on the same copy of the source code
D. It can only be used with source code and not on any other form of artefacts

Section B (15 questions)

- Software engineering practices
- Basic software technology (mobile/web)

1. *“Agile software development describes a set of values and principles for software development under which requirements and solutions evolve through the collaborative effort of self-organizing cross-functional teams; It advocates adaptive planning, evolutionary development, early delivery, and continuous improvement, and it encourages rapid and flexible response to change”*- Wikipedia, the free encyclopedia

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- A. Evolutionary Development

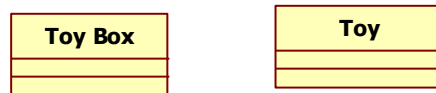
- B. Teams with members coming from different business areas
- C. Adherence to challenging timescales and detailed plans
- D. Early delivery of working software
- E. Managing evolving requirements

2. Which example below represents the ‘Object Composition’ relationship?

A.



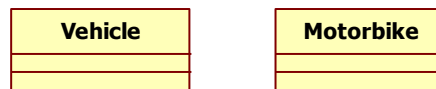
B.



C.



D.



3. Inspect the code-snippets for the classes shown below.

```

public class InterestRateComputer {
    public double interest (double amount) {
        double interest = 0;
        if (balance > MIN_BALANCE) {
            //compute the regular interest
            return interest;
        }else {
            //compute interest for below min balance
            return interest;
        }
        return -1;
    }
}

```

Which one of the following code-smells can you identify?

- A. Dead code
- B. Duplicate code
- C. Temporary Field
- D. There is no code smell