

6406531515116. ✓ It is prone to exploding gradient problem

6406531515117. ✖ Vanishing gradient problem can be solved if ReLU activation is used across the network

Sw Testing

Section Id :	64065329448
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	18
Number of Questions to be attempted :	18
Section Marks :	100
Display Number Panel :	Yes
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 :	64065365942
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 89 Question Id : 640653455655 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 TESTING"

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

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECT TO BE WRITTEN.

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

Options :

6406531515118. ✓ Yes

6406531515119. ✗ No

Sub-Section Number :

2

Sub-Section Id :

64065365943

Question Shuffling Allowed :

Yes

Is Section Default? :

null

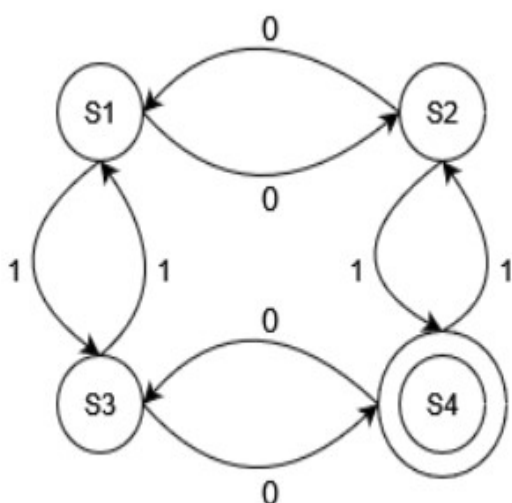
Question Number : 90 Question Id : 640653455656 Question Type : MCQ Is Question

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 FSM given below.



Consider s1 as the initial state, what state will the machine rest at for input 101101?

Options :

6406531515120. ✓ S1

6406531515121. ✗ S2

6406531515122. ✖ S3

6406531515123. ✖ S4

Question Number : 91 Question Id : 640653455658 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

What is *bypass testing* in the context of client-side testing?

Options :

6406531515130. ✖ Test inputs are chosen by the tester.

6406531515131. ✖ Test inputs are generated randomly.

6406531515132. ✖ Test inputs are generated from the user-session data collected from previous users of the software.

6406531515133. ✔ Test inputs are the values that violate constraints on the inputs, as defined by client-side information.

Question Number : 92 Question Id : 640653455659 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 code segment of a Java servlet below. The atomic sections are marked as **P1, P2, P3** ... and so on.

```
1 ArrayList<String> stuDtl = null;
2 response.setContentType("text/html");
3 PrintWriter out=response.getWriter();
```

P1

```
1 out.println("<HTML><HEAD><TITLE>"+title+"</TITLE></HEAD><BODY>");
2 String val = request.getParameter("roll");
3
4 /*
5  getProfile() take roll number of a student as input,
6  runs a query in the database, and returns a ArrayList
7  object containing the roll number, student name, and
8  percentage of marks etc (all are String type).
9  */
10 stuDtl = getMarks(val);
```

```
1 if(stuDtl != null){
```

P2

```
1 String roll = stuDtl[0];
2 String name = userdtl[1];
3 double perMarks = Double.parseDouble(userdtl[2]); //convert String to double
4 out.println("Roll : " + roll + ", Name : " + name + "</BR>");
```

```
1 if(perMark >= 50.0)
```

P3

```
1 out.println("Status : Eligible</BR>");
```

```
1 else
```

P4

```
1 out.println("Status : Not eligible</BR>");
```

```
2
```

```
1 }  
2 else{
```

P5

```
1 out.println("Invalid roll number</BR>");
```

```
2 }
```

P6

```
1 out.println("</BODY></HTML>");  
2 out.close();
```

```
1 out.close();
```

Identify the component expression corresponding to the given code above.

Options :

6406531515134. ✖ $P1 \cdot (P2|P5) \cdot (P3|P4) \cdot P6$

6406531515135. ✔ $P1 \cdot (P2 \cdot (P3|P4)|P5) \cdot P6$

6406531515136. ✖ $P1 \cdot P2 \cdot (P3|P4) \cdot P5 \cdot P6$

6406531515137. ✖ $P1 \cdot (P2|P3) \cdot (P4|P5) \cdot P6$

Question Number : 93 Question Id : 640653455660 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

In dynamic web applications, which of the following provides data to the atomic section?

Options :

6406531515138. ✖ HTML form elements

6406531515139. ✔ Content variables

6406531515140. ✖ Component expressions

6406531515141. ✖ Simple links

Question Number : 94 Question Id : 640653455665 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 Java method `max()` .

```
1 int max(int a, int b, int c) {  
2     if(a >= b && a >= c)  
3         return a;  
4     else if(b >= a && b >= c) {  
5         return b;  
6     }  
7     else  
8         return c;  
9 }
```

Identify the type of mutant generated by replacing Line 4 with Line 4a which is given below.

```
1 4a. else if(b >= a && b > c) {
```

Options :

6406531515158. ✖ Stillborn mutant

6406531515159. ✖ Trivial mutant

6406531515160. ✔ Equivalent mutant

6406531515161. ✖ Dead mutant

Question Number : 95 Question Id : 640653455670 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

A company announces a special incentive for some of its employees with designations as junior officers (`designation = 'JO'`) and senior officers (`designation = 'SO'`) who fulfil the following conditions:

1. For junior officers, the incentive is given if the `rating` is above or equal to 7 (the lowest and highest ratings are 1 and 10, respectively).
2. For senior officers, the incentive is given if the `rating` is above or equal to 8 (the lowest and highest ratings are 1 and 10, respectively).

A small program is written to find out the eligible candidates for the incentive.

Which of the following is a valid test case input based on *equivalence class partition* considering the program?

Options :

6406531515174. ✖ {designation = 'JO', rating = 11}

6406531515175. ✔ {designation = 'JO', rating = 7}

6406531515176. ✖ {designation = 'SO', rating = 7}

6406531515177. ✖ {designation = 'CEO'}

Question Number : 96 Question Id : 640653455678 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 a graph defined by the following sets:

$$N = \{1, 2, 3, 4\}$$

$$N_0 = \{1\}$$

$$N_f = \{4\}$$

$$E = \{(1, 2), (2, 3), (3, 2), (2, 4)\}$$

Where N is the set of nodes, E is the set of edges, N_0 is the initial node and N_f is the final node.

Which of the following test path achieves Edge Coverage, but not Edge Pair Coverage?

Options :

6406531515198. ✖ $\{[1, 2, 3, 2]\}$

6406531515199. ✖ $\{[1, 2, 4]\}$

6406531515200. ✖ $\{[1, 2, 3, 2, 3, 2, 4]\}$

6406531515201. ✔ $\{[1, 2, 3, 2, 4]\}$

Sub-Section Number : 3

Sub-Section Id : 64065365944

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 97 Question Id : 640653455657 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 6 Selectable Option : 0

Question Label : Multiple Select Question

Which of the following is/are black box testing techniques?

Options :

6406531515124. ✖ Logic-based testing

6406531515125. ✔ Load testing

6406531515126. ✔ Testing based on partitioning inputs

6406531515127. ✖ Data flow testing

6406531515128. ✔ Performance testing

6406531515129. ✔ Stress testing

Question Number : 98 Question Id : 640653455663 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 6 Selectable Option : 0

Question Label : Multiple Select Question

Consider test-driven development (TDD) for software where users can submit their applications for a particular job. The test cases for the user story Invalid age for the application can be recognized is given below.

```
1 import static org.junit.Assert.*;
2 import org.junit.Test;
3
4 public class ValidAgeTest {
5     private ValidApplication obj;
6
7     @Test
8     public void testvalidRangeForAge() {
9         obj = new ValidApplication();
10        assertEquals(false, obj.validRangeForAge(17));
11        assertEquals(false, obj.validRangeForAge(39));
12        assertEquals(true, obj.validRangeForAge(20));
13    }
14
15 }
```

Which of the following are the appropriate implementations for the user story?

Options :

```
1 public class ValidApplication {
2     public boolean validRangeForAge(int age) {
3         if(age < 18) {
4             System.out.println("age is below minimum");
5             return false;
6         }
7         else if(age > 38) {
8             System.out.println("age is above maximum");
9             return false;
10        }
11        else {
12            System.out.println("valid age");
13            return true;
14        }
15    }
16 }
```

6406531515150. ✓

6406531515151. ✖

```

1  public class ValidApplication {
2      public boolean validRangeForAge(int age) {
3          if(age >= 18) {
4              System.out.println("valid age");
5              return true;
6          }
7          else {
8              System.out.println("invalid age");
9              return false;
10         }
11     }
12 }

```

```

1  public class ValidApplication {
2      public boolean validRangeForAge(int age) {
3          if(age >= 18 && age <= 38) {
4              System.out.println("valid age");
5              return true;
6          }
7          else if(age < 18) {
8              System.out.println("age is below minimum");
9              return false;
10         }
11         else {
12             System.out.println("age is above maximum");
13             return false;
14         }
15     }
16 }

```

6406531515152. ✓

6406531515153. ✖

```

1  public class ValidApplication {
2      public boolean validRangeForAge(int age) {
3          if(age >= 17 && age <= 39) {
4              System.out.println("valid age");
5              return true;
6          }
7          else if(age < 17) {
8              System.out.println("age is below minimum");
9              return false;
10         }
11         else if(age > 39){
12             System.out.println("age is above maximum");
13             return false;
14         }
15     }
16 }
17

```

Sub-Section Number : 4

Sub-Section Id : 64065365945

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 99 Question Id : 640653455661 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Selectable Option : 0

Question Label : Multiple Select Question

Which of the following attributes of the software are tested in security testing?

Options :

6406531515142. ✖ Reliability

6406531515143. ✔ Integrity

6406531515144. ✔ Availability

6406531515145. ✖ Scalability

Sub-Section Number : 5

Sub-Section Id :

64065365946

Question Shuffling Allowed :

Yes

Is Section Default? :

null

Question Number : 100

Question Id : 640653455662

Question Type : MCQ

Is Question Mandatory : No

Calculator : None

Response Time : N.A

Think Time : N.A

Minimum Instruction Time : 0

Correct Marks : 6

Question Label : Multiple Choice Question

Consider a software product that has already been released. The number of problems that arrive at the maintenance team in a given month is 300, and the number of problems that are resolved during the same month is 330. What is the Backlog Management Index (BMI) for the given month?

Options :

6406531515146. ✓ 110%
6406531515147. ✖ 99.9%
6406531515148. ✖ 0.99%
6406531515149. ✖ 10%

Sub-Section Number :

6

Sub-Section Id :

64065365947

Question Shuffling Allowed :

Yes

Is Section Default? :

null

Question Number : 101

Question Id : 640653455664

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

Mutation of the statement $y = m * x + c$ to the statement $y = y * x + c$ is an example of which kind of mutation operator?

Options :

6406531515154. ✖ Absolute value insertion

6406531515155. ✖ Unary operator deletion

6406531515156. ✖ Unary operator insertion

6406531515157. ✔ Scalar variable replacement

Sub-Section Number : 7

Sub-Section Id : 64065365948

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 102 Question Id : 640653455666 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Selectable Option : 0

Question Label : Multiple Select Question

Consider the predicate $p = (\neg a \wedge \neg b) \vee (a \wedge \neg c) \vee (\neg a \wedge c)$ and its truth table as given below,

Note that the blank cells represent the value F in the below truth table.

a	b	c	p	p _a	p _b	p _c
T	T	T		T		T
T	T	F	T	T		T
T	F	T		T		T
T	F	F	T			T
F	T	T	T	T		T
F	T	F		T	T	T
F	F	T	T	T		
F	F	F	T		T	

Which of the following sets will form the GACC pair for clause a .

Options :

6406531515162. ✔ {1,2,3}

6406531515163. ✖ {1,3,5}

6406531515164. ✖ {2,4,6}

6406531515165. ✔ {5,6,7}

Question Number : 103 Question Id : 640653455677 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Selectable Option : 0

Question Label : Multiple Select Question

Consider the below code to answer the following question. The below code may have some faults/errors.


```

1  class Shapes {
2      private String owner="IITM"
3      public float area; // Variable representing area of the shape
4      public int sidel;
5      public int side2;
6      public void setSidel(int s) {
7          sidel = s;
8      }
9      public void setSide2(int s) {
10         side2 = s;
11     }
12
13     public void setAreaGetFormula() {
14         System.out.println("The formula for area of ");
15     }
16     public void setNOS(int n) {
17         NOS=n;
18     }
19 }
20 class Circle extends Shapes {
21     public void setAreaGetFormula() {
22         super.setAreaGetFormula();
23         System.out.println("circle is pi*radius*radius ");
24         area = 3.14*side1*side1;
25     }
26 }
27 class Rectangle extends Shapes {
28     public void setAreaGetFormula() {
29         super.setAreaGetFormula();
30         System.out.println("rectangle is length*breadth ");
31         area=side1*side2;
32     }
33 }
34 class Main {
35     public static void main(String[] args) {
36         int numberOfSides, radius, length, breadth;
37         // Assume some code here that reads values into above variables
38         ...;
39         **C1**
40         ...;
41         //
42         Shapes shape;
43
44         if (numberOfSides == 0) {
45             shape = new Circle();
46             // Circle
47             shape.setSide2(radius);
48             shape.setAreaGetFormula();
49         } else {
50             shape = new Rectangle();
51             shape.setSidel(length);
52             shape.setSide2(breadth);
53             shape.setAreaGetFormula;
54         }
55         shape.setAreaGetFormula;
56     }
57 }

```

Which of the following methods will be run when the variable **numberOfSides** is read with a value of **4** in the code section labelled as **C1** in the main method?

Options :

6406531515194. ✖ *Circle: setAreaGetFormula()*

6406531515195. ✓ *Shapes: setAreaGetFormula()*

6406531515196. ✓ *Rectangle: setAreaGetFormula()*

6406531515197. ✗ *Circle:setSide1()*

Sub-Section Number :	8
Sub-Section Id :	64065365949
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653455667 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 : (104 to 105)

Question Label : Comprehension

Given a context-free grammar over a finite alphabet $\Sigma = \{a, b\}$, with the production rules $S \rightarrow bSbb$ and $S \rightarrow a$, answer the given subquestions regarding the language of words derived from the grammar.

Sub questions

Question Number : 104 Question Id : 640653455668 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

Which of the following sets below correspond to the language generated by the given grammar?

Options :

6406531515166. ✗ $\{b^nab^n | n \geq 0\}$

6406531515167. ✓ $\{b^n ab^{2n} | n \geq 0\}$

6406531515168. ✗ $\{b^n ab^{n+1} | n \geq 1\}$

6406531515169. ✗ $\{b^{n+1} ab^{2n} | n \geq 1\}$

Question Number : 105 Question Id : 640653455669 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 a mutation of the production rule to $S \rightarrow a$ to $S \rightarrow ba$. The other rule is retained as it is (the grammar of previous question is considered here). What will be the language generated by the mutated grammar

Options :

6406531515170. ✗ $\{b^n ab^n | n \geq 0\}$

6406531515171. ✗ $\{b^n ab^{2n} | n \geq 1\}$

6406531515172. ✗ $\{b^n ab^{n+1} | n \geq 1\}$

6406531515173. ✓ $\{b^n bab^{2n} | n \geq 0\}$

Question Id : 640653455671 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 : (106 to 107)

Question Label : Comprehension

Consider the following code segment for symbolic testing.

```
1  //code base
2  int square(int n) {
3      return n * n;
4  }
5
6  int increase(int n) {
7      return n + 1;
8  }
9
10 int decrease(int n) {
11     return n - 1;
12 }
13
14 int process(int a, int b) {
15     int c = decrease(a);
16     if(a >= b) {
17         if(square(c) < increase(b))    //LINE-1
18             abort();
19     }
20     return c;
21 }
```

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 106 Question Id : 640653455672 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

Let's consider the DART testing technique applied.

Identify the path constraint that represents an equivalence class of input vectors containing all input values that leads to the error statement.

Options :

6406531515178. ✖ $\langle a_0 < b_0, (((a_0 - 1) * (a_0 - 1)) \geq (b_0 + 1)) \rangle$

6406531515179. ✔ $\langle a_0 \geq b_0, (((a_0 - 1) * (a_0 - 1)) < (b_0 + 1)) \rangle$

6406531515180. ✖ $\langle a_0 \geq b_0, ((a_0 * a_0) < (b_0 + 1)) \rangle$

6406531515181. ✖ $\langle a_0 \leq b_0, (((a_0 + 1) * (a_0 + 1)) < (b_0 - 1)) \rangle$

Question Number : 107 Question Id : 640653455673 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

How many nodes will be there in the symbolic execution tree for the function `process()` ?

Options :

6406531515182. ✔ 5 nodes

6406531515183. ✖ 6 nodes

6406531515184. ✖ 7 nodes

6406531515185. ✖ 8 nodes

Sub-Section Number : 9

Sub-Section Id : 64065365950

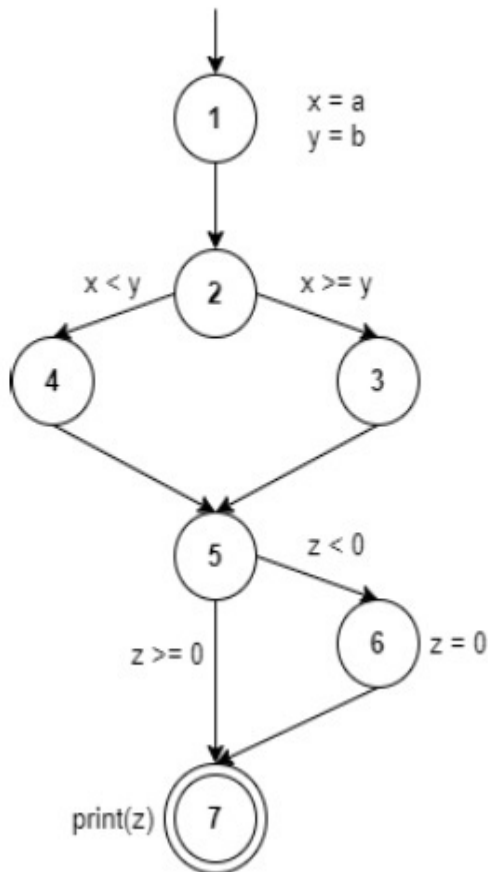
Question Shuffling Allowed : No

Is Section Default? : null

Question Id : 640653455674 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 : (108 to 109)

Question Label : Comprehension

Consider the annotated CFG (for dataflow coverage) given below and answer the given subquestions



Sub questions

Question Number : 108 Question Id : 640653455675 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

How many *du-pairs* are there for the variables:
 x , y and z ?

Options :

6406531515186. ✖ 9

6406531515187. ✖ 10

6406531515188. ✔ 11

6406531515189. ✖ 12

Question Number : 109 Question Id : 640653455676 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

How many unique *du-paths* are there for the variable: x , y and z ?

Options :

6406531515190. ✓ 7

6406531515191. ✗ 8

6406531515192. ✗ 9

6406531515193. ✗ 10

Industry 4.0

Section Id :	64065329449
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	16
Number of Questions to be attempted :	16
Section Marks :	45
Display Number Panel :	Yes
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 :	64065365951
Question Shuffling Allowed :	No