**UNIVERSITY NAME**

*Final Exam – 2015*

# Course Title

**INDEX555**

**Teacher Name**

Student Information  *(fill completely)*

First Name  . . . . . . . . . . . . . . . . . . . . .

Last Name  . . . . . . . . . . . . . . . . . . . .

Student ID  . . . . . . . . . . . . . . . . . . . .

- Exam Duration: 2 hours
- Permitted Materials: Permitted materials
- Any Caution

---

**№1.** *Problem*

5 *point*

Joint distribution given by table.

|       |      | $Y$  |      |
| ----: | ---: | ---: | ---: |
| $X$   | $-1$ | $0$  | $1$  |
| $-1$  | 0.2  | 0.2  | 0.1  |
| $0$   | 0    | 0.1  | 0.2  |
| $1$   | 0    | 0    | 0.2  |

Are random variables correlated?

*Solution ...*

---

**№2.** *Question*

3 *point*

Let $X$ and $Y$ are independent random variables. Find $E(XY)$. Where $E$ – expectation of random variable.

*Answer ...*

---

**№3.** *Selective Test*

2 *point*

What planet do you live on?

*Select ...*

A.  Earth      B. Mars      C. Jupiter      D. Saturn

---

**№4.** *Placement Test*

3 *point*

Let $EX = 2$ and $EY = 1$. $E(2X + Y) = $ \_\_\_\_ $+ EY$.

---

**№5.** *Placement Test*

3 *point*

Attila was king of the \_\_\_\_.

---

Total point 16

$* * *$ *End of Examination* $* * *$

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**№1.** *Problem*                                                                                  *5  point*

Joint distribution given by table.

|       |     | $Y$ |     |
|-------|-----|-----|-----|
| $X$   | $-1$ | $0$ | $1$ |
| $-1$  | 0.2 | 0.2 | 0.1 |
| $0$   | 0   | 0.1 | 0.2 |
| $1$   | 0   | 0   | 0.2 |

Are random variables correlated?

*Solution . . .*

---

**№2.** *Question*                                                                                 *3  point*

Let $X$ and $Y$ are independent random variables. Find $E(XY)$. Where $E$ – expectation of random variable.

*Answer . . .*

---

**№3.** *Selective Test*                                                                           *2  point*

What planet do you live on?

*Select . . .*

A.  Earth        B. Mars        C. Jupiter        D. Saturn

---

**№4.** *Placement Test*                                                                           *3  point*

Let $EX = 2$ and $EY = 1$. $E(2X + Y) = $ _____ $+ EY$.

---

**№5.** *Placement Test*                                                                           *3  point*

Attila was king of the _____.

---

**№6.** *Problem*                                                                    *5  point*

Joint distribution given by table.

|    | $Y$ |     |     |
|----|-----|-----|-----|
| $X$ | $-1$ | $0$ | $1$ |
| $-1$ | 0.2 | 0.2 | 0.1 |
| $0$ | 0 | 0.1 | 0.2 |
| $1$ | 0 | 0 | 0.2 |

Are random variables correlated?

   *Solution . . .*

---

**№7.** *Question*                                                                   *3  point*

Let $X$ and $Y$ are independent random variables. Find $E(XY)$. Where $E$ – expectation of random variable.

   *Answer . . .*

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**№8.** *Selective Test*                                                             *2  point*

What planet do you live on?

   *Select . . .*

A.  Earth      B. Mars      C. Jupiter      D. Saturn

---

**№9.** *Placement Test*                                                             *3  point*

Let $EX = 2$ and $EY = 1$. $E(2X + Y) = $ \_\_\_\_ $+ EY$.

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**№10.** *Placement Test*                                                            *3  point*

Attila was king of the \_\_\_\_.

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Total point 32

$* * *$ *End of Examination* $* * *$