Statistics and Probability (1201 Stat )

Second mid term

Second semester 1434 – 1435 H

Student name:

113

115

Serial number:

15

**Question 1:**

In a population of people with a certain, let W= is a woman and S = has a skin rash.

We have the following (incomplete) Venn diagram:

**0.18**

0.33 00.

W S

If we randomly chose one person, find the probabilities that the person choose:

[1] is a woman and doesn't have the skin rash:

(a) 0.6 (b) 0.18 (c) 0.22 (d) 0.33

[2] has the skin rash:

(a) 0.40 (b) 0.49 (c) 0.22 (d) 0.33

[3] is a man :

(a) 0 (b) 0.40 (c) 0.22 (d) 0.27

[4] is a woman or has the skin rash:

(a) 0.82 (b) 0.18 (c) 0.55 (d) 1

[5] has skin rash knowing that she is a woman:

(a) 0.6 (b) 0.45 (c) 0.27 (d) 0.55

**Question 2:**

A population of student in faculty of science is classified according to their department and hobbies:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| The department  The hobbies | Chemistry  (C) | Physics  (P) | Biology  (B) | Math  (M) | Total |
| Reading (R) | 23 | 14 | 35 | 19 | 91 |
| Drawing (D) | 14 | 9 | 28 | 9 | 60 |
| Sewing (S) | 8 | 11 | 23 | 7 | 49 |
| Total | 45 | 34 | 86 | 35 | 200 |

If one of these students is randomly chosen, then:

[1] Give in symbols the event "has the hobby of sewing and is not in the Biology department ":

(a) SB (b) SBc (c) SBc (d) SB

[2] n(SP) =

(a) 49 (b) 34 (c) 11 (d) 200

[3] P(DM)=

(a) 0.045 (b) 0.09 (c) 0.43 (d) 0.015

[4] P(RB)=

(a) 0.177 (b) 0.175 (c) 0.885 (d) 0.71

[5] P(Rc)=

(a) 0.455 (b) 0.545 (c) 0.36 (d) 0

[6] P( B / C )=

(a) 0.511 (b) 0.225 (c) 0.11 (d) 0

**Question 3:**

For a population of a adults, X= the number of filled teeth a person has. We randomly choose one and the cumulative distributed is given below:

|  |  |  |
| --- | --- | --- |
| P(X=x) | P(X≤x) | X |
|  | 0.25 | 1 |
|  | 0.33 | 3 |
|  | 0.49 | 5 |
|  | 0.78 | 6 |
|  | 1 | 8 |

[1] P(X=3)=

(a) 0.25 (b) 0.08 (c) 0.33 (d) 0.58

[2] P(X=7)=

(a) 0.78 (b) 0.22 (c) 1 (d) 0

[3] P(3≤X≤6)=

(a) 0.53 (b) 0.47 (c) 0.24 (d) 0.78

[4] P(X≥5)=

(a) 0.25 (b) 0.49 (c) 0.67 (d) 0.78

[5] The expected number of filled teeth a person has from this population:

(a) 4.79 (b) 0.23 (c) 16.37 (d) 0.6135

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