

### HADIIRAMOUT UNIVERSITY COLLEGE OF COMPUTERS & INFORMATION TECHNOLOGY Final Exam



Academic year: 2023-2024

Semester: First Department:IT Level: (2) b



Subject: statics &probability Examiner: shohra bukir

Day and Date: 8-11-2023, wed

Time allowed: 75 m.

Muna Majdi Maron

Ouestion 1: Choose the correct answer:

1) 
$$5P3 = \underbrace{\text{(a) } 60}$$

b)15

c) 10

2) how many ways can a writer form 4 students

b) 12

c) 24

3) If x such  $0 < x \le 100$ , the probability of  $x = n^2$ , n is integer

a) 
$$\frac{9}{100}$$



4) Value of n in  $(np3)=720 \Rightarrow n=$ 

b)9

equal or

5) Throw a dice once, what is the probability that is even number and greater 4

a) 
$$\frac{1}{2}$$

Question 2: the box contains 6 balls are red and 4 balls ,how many ways can 3 boll , find the probability of

1) p(A): two balls is red  $P(A) = \frac{C_2 \times 4C_1}{{}^{10}C_2} = \frac{15 \times 4}{120} = \frac{60}{120} = \frac{1}{2}$ 

$$P(A) = \frac{C_2 \times {}^4C_1}{C_1}$$

$$=\frac{60}{120}+\frac{20}{120}=$$

$$=\frac{36}{120}+\frac{21}{120}=\frac{40}{120}$$

$$P(E) = \frac{{}^{6}C_{3}}{{}^{10}C_{3}} + \frac{{}^{4}C_{3}}{{}^{10}C_{3}}$$

2) p(B): at least two balls is rad  $P(B) = \frac{6C_2 \times {}^{4}C_1}{{}^{10}C_3} + \frac{6C_3 \times {}^{4}C_0}{{}^{10}C_3} = \frac{60}{120} + \frac{20}{120} = \frac{80}{120} = \frac{2}{3}$ 3) p(C): at most one boll is rad  $P(C) = \frac{6C_1 \times {}^{4}C_2}{{}^{10}C_3} + \frac{{}^{4}C_3 \times {}^{6}C_0}{{}^{10}C_3} = \frac{36}{120} + \frac{20}{120} = \frac{40}{120} = \frac{1}{3}$ 4) p(E): boll from the same colors  $P(E) = \frac{6C_3}{{}^{10}C_3} + \frac{{}^{4}C_3}{{}^{10}C_3} = \frac{20}{120} + \frac{24}{120} = \frac{1}{3}$ 5) p(F): bolls from the different colors F = E

Question 3: Given an experiment such that:  $P(A) = \frac{3}{10}$   $P(B) = \frac{3}{10}$   $P(AB) = \frac{1}{10}$  find

$$P(B) = \frac{3}{10}$$

5) P(A|B)

1) P(A) 2)  $P(A \cup B)$  3)  $P(A \cap B)$ 1)  $P(A') = 1 - P(A) = 1 - \frac{6}{10} = \frac{2}{5}$ 

2)  $P(AVB) = P(A) + P(B) - P(AB) = \frac{6}{10} + \frac{3}{10} - \frac{1}{10} = \frac{8}{10} = \frac{4}{10}$ 

3) P(A'B)= P(B)-P(AB)=3-10=2=1 4)  $P(A|B) = P(AB) = \frac{1}{10} = \frac{1}{3}$ 

 $\frac{5)P(A|B')}{P(B')} = \frac{P(AB')}{P(B')} = \frac{P(A) - P(AB)}{1 - P(B)} = \frac{\frac{5}{10} - \frac{1}{10}}{\frac{7}{10}} = \frac{\frac{5}{10}}{\frac{7}{10}} = \frac{\frac{5}{10}}{\frac{7}{10}$ 



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Subject: statics &probability Examiner: shohra bukir

Day and Date: 8-11-2023, wed

Time allowed: 75 m.

# Question 1:Choose the correct answer :

b)15

(C) 10-

2) how many ways can a committee of 3 students out 7



c)840

3) A roll of dice nine times the occur are even number, what the possibility of a even number in the tenth time

a) 
$$\frac{1}{10}$$

4) Value of n in (ncl 1)= (n cl7) =

b)6

b)1

c)80!

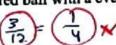
Question 2: the box contains 6 balls are red and 6 balls are white numbered from 1-6, find the probability of

1) p(A): A red ball



2) p(B): a boll is even umber

3) p(C): A red ball with a even number



4) p(E) :A white boll or a boll is odd number

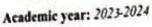
$$\frac{6}{12} + \frac{6}{12} = \frac{12}{12} = |X|$$

5) p(F): A red ball or a boll is even number

$$\frac{6}{12} + \frac{6}{12} = \frac{12}{12} = 1 \times \frac{6}{12}$$

Question 3: Given an experiment such that :  $P(A) = \frac{1}{2}$   $P(B) = \frac{1}{3}$   $P(AB) = \frac{1}{6}$  find





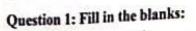
Semester: First Department:IT Level: 2



Subject: statics &probability Examiner: shohra bukir

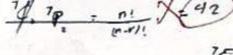
Day and Date: 13-11-2023, wed

me allowed: 90 m.



2. how many ways can a committee of 2 students out 7 = 10, 7p - n:

3. 8! = 217! = 8



4. Value of n in  $5\binom{n}{3} = 120\binom{n}{2} \longrightarrow n = 120\binom{n}{2} \longrightarrow n = 120\binom{n}{3} = 120\binom{n}{2} \longrightarrow n = 120\binom{n}{3} = 120\binom{n}{3} = 120\binom{n}{2} \longrightarrow n = 120\binom{n}{3} = 120\binom{n}{3} = 120\binom{n}{2} \longrightarrow n = 120\binom{n}{3} = 120\binom{n}{3} = 120\binom{n}{3} \longrightarrow n = 120\binom{n}{3} = 120\binom{n}{3} \longrightarrow n = 120\binom{n}{$ 

5. How many different permutation of the letters in the word coffee.=

# Question 2: x is integer number x such $1 \le x \le 50$ , find the probability of

1) p(A): x is odd number from

2) p(B): x is a multiple of 13 {13, 26,39}

3) p(C): x is not square number  $\begin{pmatrix} 4 & 3 \\ \hline 42 & 7 \end{pmatrix}$ 

5) p(F):  $x = n^3$ , n for some integer  $\{1, 3, 27\}$ 

Question 3: Given an experiment such that :  $P(A) = \frac{1}{2}$ 

$$P(B) = \frac{3}{8}$$
  $P(AB) = \frac{1}{4}$  find  $\sqrt{C_1}$ 

 $P(A \mid B') = P(A) - P(AB)$  1 - P(B)

$$\frac{\frac{1}{2} - \frac{1}{4}}{1 - \frac{3}{8}} \quad \sqrt{\frac{2}{5}}$$

### HADHRAMOUT UNIVERSITY PUTERS & INFORMATION TECHNOLOGY COLLEGE OF COM

Final Exam



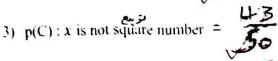
Semester: First School of the State of the S Department:IT Level: 2

Subject: statics &probability Examiner: shohra bukir Day and Date: wed Time allowed: 90 m.

Question 1: x is integer number x such  $1 \le x \le 50$ , find the probability of

1) 
$$p(A): x \text{ is odd number } \frac{25}{50} = \frac{1}{2}$$

2) p(B) A is a multiple of 13



4) 
$$p(E) : x \text{ is not divisible by } 10 = 9 + 5 = 6$$

5) 
$$p(F) \cdot x = n^3$$
, n for some integer | 2, 3, =  $\frac{3}{50}$ 

Question 2: Given an experiment such that :  $P(A) = \frac{1}{2}$ 

$$P(B) = \frac{3}{8}$$
  $P(AB) = \frac{1}{4}$  find 6

$$\operatorname{D} \operatorname{p}(\tilde{A})$$

2)  $P(A \cup B)$ 

3) P(AB)

4) P(B.N)

5) P(A|B)

1) 
$$p(A) : 1 - \frac{1}{2} = \sqrt{\frac{1}{2}}$$

3) 
$$P(A'B) = P(B) - P(A'B) = \frac{3}{8} - \frac{1}{4} = \frac{3}{8} = \frac{3}{16} = \frac{3}{8} = \frac{3}{16}$$

4) 
$$P(B|A) = \frac{P(AB)}{P(A)} = \frac{1}{4} = \frac{1}{2} \times 2 = \frac{1}{2}$$

5))P(AB') = 
$$\frac{1}{2} \times \frac{5}{8} = \frac{5}{16} = \frac{16}{5} = \frac{16}{2} \times \frac{8}{8} = \frac{1}{2}$$

$$P(A|B') = \frac{P(AB')}{P(B')} = \frac{\frac{1}{2} \times \frac{5}{5}}{\frac{5}{2} \times \frac{8}{5}} = \frac{1}{2}$$

P(B) = 1-P(B)

## HADHRAMOUT UNIVERSITY COLLEGE OF COMPUTERS & INFORMATION TECHNOLOGY

Final Exam





Academic year: 2023-2024

Semester: First Department:CS Level: (2) b

Subject: statics &probability Examiner: shohra bukir

Day and Date: 7-11-2023, Tuesday

Time allowed: 75 m.

## Ouestion 1: put true or false :



3) If x such 
$$0 < x \le 100$$
, the probability of x is multiple of  $2 = 20 \frac{50}{2} = \frac{1}{2}$ 

4) Value of **n** in 
$$(n p 3) = 504 \Rightarrow n = 10$$

5) Throw a dice once ,what is the probability that is greater 
$$5 = \frac{1}{3}$$

$$A = \begin{cases} 63 \\ 5 = \begin{cases} 1/2, 3/4/5 \\ 63 \end{cases}$$

( false )

2) First toss is tail 
$$=\frac{4}{5}=\frac{1}{5}$$

3) Get a head at least once 
$$\frac{3}{8}$$

4) second toss is a tail 
$$\frac{4}{8} = \frac{1}{2}$$

5) Get a tail at least once 
$$\frac{1}{8}$$

Question 2: a coin is tossed three times, find

1) Sample space for an event 
$$S = \{HHH, HHT, HTT, TTT, THH, THT, HTH, HT$$

4)  $P(\hat{A}|\hat{B})$ 

Question 3: Given an experiment such that: 
$$P(A \cup B) = \frac{2}{3}$$
,  $P(B) = \frac{1}{4}$ ,  $P(AB) = \frac{1}{12}$  find

3) P(B|A)

1) 
$$p(A|B)$$
 2)  $P(B|A)$ 

$$=\frac{1}{12}=\frac{1}{3}$$

1) 
$$P(A/B) = P(AB)$$

$$P(B) = \frac{1}{4} = \frac{1}{3}$$
2)  $P(B/A) = P(AB)$ 

$$P(AB) = P(AB)$$

$$P(A)$$
 =>  $P(A) = P(A) - P(B) + P(AB)$ 

$$\Rightarrow P(A) = \frac{2}{3} - \frac{1}{4} + \frac{1}{12} = \frac{1}{2}$$

$$P(B|A) = \frac{1}{12} = \frac{1}{8}$$

$$P(B|A) = \frac{1}{12} = \frac{1}{8}$$
3)  $P(B|A') = \frac{P(BA')}{P(A')} = \frac{P(B) - P(AB)}{1 - P(A)} = \frac{1}{4} - \frac{1}{12}$ 

$$\frac{1}{3}$$