**جامعة الملك سعود الاختبار الفصلي الاول**

**كلية العلوم الفصل الدراسي الأول 1436/1437**

**قسم الإحصاء وبحوث العمليات مقرر 215 احص**

**الخميس 1 / 6 /1437 هـ الساعة : 12– 1:30**

**اسم الطالبة : -----------------------------------------------------------------------------------**

**رقم الطالبة : -----------------------------------------------------------------------------------**

**رقم الشعبة : ----------------------------- رقم التسلسل : ---------------------------------------**

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**ملاحظات :**

1. **سيتم تصحيح ورقة الإجابة فقط ( التصحيح الآلي ) فقط ولن يتم النظر إلى ورقة الأسئلة من الداخل.**
2. **عدد أوراق الامتحان هو 4 صفحات مع الغلاف الخارجي.**
3. **يلزمك كتابة أسمك على كلا الورقتين (الأسئلة والإجابة).**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Question* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| *Answer* |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Question* | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| *Answer* |  |  |  |  |  |  |  |  |  |  |

**تمنياتي لكم بالتوفيق**

**وئام الهدلق**

**Q1: Chose the right answer for the following questions:**

1. **If ; then**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) S | c) 0 | d) A |

1. **If A and B are independent events where and , then**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

1. **If , and . Then C & D are**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Disjoint | b) Independent | c) Complements of each other | d) Impossible |

1. **When throwing a normal die, then the possible values of “X: the square of the score shown on the die” are**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

1. **Which of the following is a probability density function**

|  |  |
| --- | --- |
| a) | b) |
| c) | d) |

**Q2: A statistics professor classifies 200 students according to their grade point average and their gender. The accompanying table gives the number of students falling into the various categories. One student is selected at random.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Gender | Under 2.0 | 2.0 – 3.0 | Over 3.0 | Total |
| Female | 20 | 60 | 40 | 120 |
| Male | 10 | 50 | 20 | 80 |
| Total | 30 | 110 | 60 | 200 |

1. **The probability that the selected student is female is**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

1. **The probability that the student is male given that the grade of the student is over 3.0.**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

1. **The probability that the student selected is female or has a grade under 2.0.**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

**Q3: Consider the experiment of throw a standard die and then toss a coin. The sample space is given by: .**

**Find the following:**

1. **The probability of getting a head is**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

1. **The probability of getting number less than 3 on the die is**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

**Q4: To do a certain commuting travel ((السفر للعمل in a certain city, the probability to be delayed more than half an hour is 0.57 if you travel by car, 0.28 if you take the bus, and 0.05 if you take a commuter train. A Company wishes to encourage his employees to use public transportation as well as minimize lost hours and so it provides a financial incentive ((مكافأة مالية to his employees to use bus or train. Depending on that the probability that an employee will use the car is 0.09, use the bus is 0.41 and use the train is 0.5.**

1. **Find the probability that an employee will late this morning.**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

1. **If we know that the employee is late, what is the probability that he used his car.**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

**Q5: Consider the following discrete distribution:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **X** | **2** | **3** | **5** | **7** | **11** |
| **f(x)** |  |  |  | **y** | **z** |

**If .**

1. **Find y and z, respectively.**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

|  |  |  |  |
| --- | --- | --- | --- |
| a) 13.8 | b) 0.6 | c) | d) 9.8 |

**Q6: Consider the following probability density function:**

1. **Find the cumulative distribution function at 1<x<3;**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | b) | c) | d) |

1. **Find**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 3.9817 | b) 4 | c) 5 | d) 7.1667 |

1. **As . Find**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 0.3054 | b) 2.8333 | c) 9.6944 | d) 7.1667 |

**Q6: Consider randomly selected phone calls from a distribution with mean µ = 3.5 minutes and standard deviation σ = 0.6 minutes. Then**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 0.3333 | b) 0.84 | c) 0.6 | d) 0.763 |