**جامعة الملك سعود الاختبار الفصلي الثاني**

**كلية العلوم الفصل الثاني 1435 / 1436 هـ**

**قسم الإحصاء وبحوث العمليات مقرر 106 احص**

**الإثنين 16 / 2 / 1436 هـ الوقت: 12- 1**

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

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

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

**أستاذة المقرر : ----------------------------------------------------------------------------------------**

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| ***Question*** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| ***Answer*** | **a** | **d** | **a** | **c** | **b** | **c** | **b** | **a** | **c** | **c** |

|  |  |  |  |  |  |  |  |  |  |  |
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| ***Question*** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** |
| ***Answer*** | **b** | **e** | **a** | **b** | **c** | **b** | **d** | **b** | **b** | **a** |

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| ***Question*** | **21** | **22** | **23** | **24** | **25** |
| ***Answer*** | **c** | **a** | **d** | **b** | **a** |

***Good Luck***

**Answer the following questions:**

|  |  |
| --- | --- |
| X | P(X=x) |
| 0 | 0.20 |
| 1 | 0.15 |
| 2 | 0.10 |
| 3 | 0.20 |
| 4 | 0.10 |
| 5 | 0.12 |
| 6 | 0.13 |

**Suppose we measure the number of children in Saudi families of Riyadh. We obtain the following frequency table. Then:**

**1)** P(X = 3) =

(a) 0.20 (b) 0.10 (c) 0.15 (d) 0.13

**2)** P(X ≤ 2) =

(a) 0.25 (b) 0.55 (c) 0.35 (d) 0.45

**3)** P(X ≥ 4.5) =

(a) 0.25 (b) 0.55 (c) 0.35 (d) 0.75

**4)** The **mean** number of children per family is:

(a) 1.56 (b) 2.48 (c) 2.73 (d) 2.81

**In a large population of people, 20% have high blood pressure. If we randomly choose 7 people and let**

**X = the number of people that have high blood pressure in this sample, then:**

**5)** The probability distribution of X, is P(X = x) =

(a) (0.7)x (0. 3)20-x (b) (0.2)x (0. 8)7-x (c)(0.6)x (0.4)30-x (e) (0.3)x (0.7)6-x

**6)** The values that x takes are:

(a) 1,2,…,6 (b) 1,2,…,7 (c) 0,1,…,7 (d) 0,1,…,6 (e) 0,1,…,∞

**7)** P(X = 3) =

(a) 0.1323 (b) 0.1147 (c) 0.0287 (d) 0.1852

**8)** The probability that **at least one** person that have high blood pressure =

(a) 0.7903 (b) 0.7178 (c) 0.8824 (d) 0.0024

**9)** The **variance** of X =

(a) 5.6 (b) 1.4 (c) 1.12 (d) 1.26

**10)** The distribution that has **two mutually exclusive outcomes** is:

(a) Poisson Distribution (b) Normal Distribution

(c) Binomial Distribution (d) Standard Normal Distribution

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**If , and , then:**

**11)**

(a) 0.9 (b) 0.2 (c) 0 (d) 0.1 (e) 0.8

**12)**

(a) 0.6 (b) 0.2 (c) 0 (d) 0.9 (e) 0.4

**13)**

(a) 0.6 (b) 0.2 (c) 0 (d) 0.9 (e) 0.4

**14)** The events A and B are

(a) disjoint (b) independent (c) dependent (d) impossible

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**A population of people is classified by the calcium intake and whether the person is a man, woman or a child.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Total | Above Needed (A) | Enough (E) | Below Needed (B) | Calcium Intake |
| 150 | 15 | 100 | 35 | Man (M) |
| 85 | 13 | 55 | 17 | Woman (W) |
| 65 | 12 | 45 | 8 | Child (C) |
| 300 | 40 | 200 | 60 | Total |

If a person is randomly chosen, find the following:

**15)** **In symbols**: the event “Below needed calcium intake **and** the person is a woman” is:

(a) (b) (c) (d)

**16)** The probability that the chosen person is a **child**

(a) 65 (b) 0.2167 (c) 0.2833 (d) 0.5

**17)** The probability that the chosen person is a man **and** got below needed of calcium is:

(a) 0.225 (b) 0.5833 (c) 0.0567 (d) 0.1167

**18)** The probability that the chosen person is a child **or** got above needed of calcium is:

(a) 0.555 (b) 0.31 (c) 0.15 (d) 0.04

**19)** The probability that the chosen person is a woman **knowing that** the person got enough needed of calcium is:

(a) 0.7 (b) 0.275 (c) 0.3 (d) 0.425

**20)** The probability that the chosen person is **not a** **woman** is:

(a) 0.7167 (b) 0.275 (c) 0.4833 (d) 0.425

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**Suppose that X=the number of deaths from heart attack in a year follows Poisson distribution with a mean of 6 heart attack per year. Then:**

**21)** The probability that **2 deaths** will occur **per year** is:

(a) 0.0049 (b) 0.0912 (c) 0.0446 (d) 0.0011

**22)** The probability that **no** deaths will occur **per year** is:

(a) 0.0025 (b) 0.9999 (c) 0.0001 (d) 0.9975

**23)** The probability that **five** deaths will occur **per 4 months** is:

(a) 0.1567 (b) 0.1008 (c) 0.2824 (d) 0.0361

**24)** The **mean** of deaths will occur with heart **per 3 year** is:

(a) 7 (b) 18 (c) 27 (d) 2.6458

**25)** The **standard deviation** of deaths will occur with heart **per year** is:

(a) 2.4495 (b) 3 (c) 2.2824 (d) 2.6458

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**End of questions**