**جامعة الملك سعود الاختبار الفصلى الثاني**

 **كلية العلوم الفصل الدراسى الثانى 1431 / 1432**

**قسم الإحصاء وبحوث العمليات مقرر 106 احص**

**الثلاثاء 5/29 / 1432 هـ (A) الساعة :00 12–1:00**

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

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

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

**أستاذة المقرر : -------------------------Dr. Mona Fouad Elwakeel--------------------**

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

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

 ***Good Luck***

**Answer the following questions:**

**Question 1:**

**If we have a sample of data with mean 20 and variance 4 . if we multiplying the data by 5 then:**

**(1) The new mean is**

 **(a)20 b)25 c) 100 d)15 e) none of these**

 **(2) The new variance is**

 **(a) 4 b) 10 c) 20 d)100 e) none of these**

**(3) The new standard deviation is**

 **(a) 4 b) 10 c) 20 d)100 e) none of these**

**(4) The new coefficient of variation will be**

 **(a) the same b) increasing c) decreasing d) multiplying by 5 e) none of these**

**Question 2:**

In a population of 160 doctors and pharmacist working in a certain hospital, let D = “is a doctor” and S = “has ever smoked”. We have the following (incomplete) Venn diagram:

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If we randomly choose one employee in this hospital, what is the probability that:

[5] The employee is a **doctor**

 (a) 0.49 (b) 0.14375 (c) 0.69375 (d) 0.30625 (e) 0.70625

 [6] The employee has **never smoked**

 (a) 0 (b) 0.4375 (c) 0.5625 (d) 0.70625 (e) 0.60

[7] The employee is a pharmacist **and** has ever smoked

(a) 0.8375 (b) 0.10 (c) 0.29375 (d) 0.1625 (e) 1

 [8] The employee has ever smoked, **knowing that** he is a doctor

 (a) 0.14375 (b) 0.30625 (c) 0.6 (d) 0.23 (e) 0.4694

|  |  |
| --- | --- |
| ***x*** | **P(X≤*x*)** |
| **1** | **0.1** |
| **2** | **0.54** |
| **3** | **0.84** |
| **4** | **1** |
| **Sum** |  |

**Question 3:**

 **(\*) Complete the following the table, and then find:**

[9] The expected value of the variable X

 (a)5.52 b) 2.52 c)7.7 d) 2.25 e) none of these

[10] P(X<3)=

 (a) 0.45 b) 0.84 c)0.54 d) 0.64 e) none of these

 [11] P(1<X≤4)=

 (a) 0.9 b)0.74 c)0.84 d) 1 e) none of these

[12] P(X>2)=

 (a)0.46 b)1.84 c)0.9 d) 1 e) none of these

(\*\*) If A and B are any independent events, P(A) =0.3 and P(B)= 0.7. Then:

[13] P(A∩B)=

 (a) 0 b) 0.1 c)0.4 d) 0.21 e) none of these

[14] P(A**\** B)=

 (a)0 b) 0.3 c)0.4 d) 0.21 e) none of these

**Question 4:**

**A group of people is classified by the amount of fruits and vegetables eaten and the health status. If one of these people is randomly chosen then:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  **Fruits and Vegetables Eaten****Health Status** | **Few (F)** | **Some (S)** | **Many (M)** | **Total** |
| **Poor (B)** | **80** | **35** | **20** | **135** |
| **Good (G)** | **25** | **110** | **45** | **180** |
| **Excellent (E)** | **15** | **95** | **75** | **185** |
| **Total** | **120** | **240** | **140** | **500** |

**[15] Give in symbols the event “eats few fruits and vegetables and doesn’t have good health.**

 **(a) F ∩ G (b) F ∪ G (c) F ∪ Gc (d) F ∩ Gc (e) none of these**

**[16] P(B ∪ M) =**

 **(a) 0.04 (b) 0.55 (c) 0.27 (d) 0.28 (e) 0.51**

**[17] P(G ∩ S) =**

 **(a) 0.78 (b) 0.22 (c) 0.84 (d) 0.62 (e) 0.11**

**[18] P(Ec) =**

 **(a) 0.37 (b) 0.15 (c) 0.63 (d) 0.08 (e) 0.03**

**[19] P(M ∪ G) c =**

 **(a) 0.27 (b) 0.72 (c) 0.55 (d) 0.45 (e) 0.64**

**[20] P(G|S) =**

 **(a) 0.75 (b) 0.6111 (c) 0.62 (d) 0.4583 (e) 0.22**

**END OF QUESTIONS**