**جامعة الملك سعود الاختبار الثاني**

**كلية العلوم الفصل الثاني 1435 / 1436**

**قسم الإحصاء وبحوث العمليات مقرر 106 احص**

|  |
| --- |
| **Mon 27 Apr 2015 12:00-1:00** |

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

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

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

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

**Answers Key**

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

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Question*** | **21** | **22** | **23** | **24** | **25** |
| ***Answer*** | **c** | **a** | **c** | **a** | **c** |

**Good Luck**

**Answer the following questions** :

**Question (1):**

**A group of people is classified by the amount of fruits and vegetables eaten and the health status:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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** |

**If one of these people is randomly chosen, then:**

**[1] P(B ∪ M) =**

**(a) 0.04 (b) 0.51 (c) 0.27 (d) 0.28 (e) none of these**

**[2] P(G ∩ S) =**

**(a) 0.78 (b) 0.22 (c) 0.84 (d) 0.62 (e) none of these**

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

**(a) 0.37 (b) 0.15 (c) 0.63 (d) 0.08 (e) none of these**

**[4] P(F) =**

**(a) 0.24 (b) 0.72 (c) 0.55 (d) 0.76 (e) none of these**

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

**(a) 0.75 (b) 0.611 (c) 0.62 (d) 0.4583 (e) none of these**

**[6] P(B∩E)=**

**(a) 0 (b) 0.64 (c) 15 (d)0.27 (e)none of these**

**Question (2):**

**7-If A and B are independent events, then**

**(a) P(A)=P(B\A) (b) P(A)=P(A∩B)\P(B) (c) P(A∩B)=0 (d) none of these**

**8- For two disjoint events A, B, P(A) =0.6, P(B) = 0.4 .Then P(B/A) is**

**(a) 0.4 (b) 0.6 (c) 0.24 (d) 0 (e) none of these**

**Question (3):**

**In a population of government employee in Riyadh. Let M =” is married” and**

**A= “ his age more than 30 “. We have the following incomplete Venn diagram :**

0.45

M

A

**0.3**

**If we randomly choose one employee , find the probabilities that the employee chosen**

**9- P(**

**(a) 0.42 (b) 0.13 (c) 0.58 (d) 0.45 (e) none of these**

**10- P(**

**(a) 0.42 (b) 0.13 (c) 0.58 (d) 0.45 (e) none of these**

**11- P(**

**(a) 0.42 (b) 0.57 (c) 0.87 (d) 0.45 (e) none of these**

**12- P(**

**(a) 0.88 (b) 0.57 (c) 0.87 (d) 0.45 (e) none of these**

**13- P( | )**

**(a) 0.42 (b) 0.224 (c) 0.236 (d) 0.52 (e) none of these**

**14- Being married and age more than 30 is**

**(a) independent (b) disjoint (c) equally likely (d) not independent**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Question (4):**

**The following table represents the number of times that children got throat infection during winter. Use the following probability distribution table to answer the questions.**

|  |  |
| --- | --- |
| **X** | **P( X=x)** |
| **1** | **0.36** |
| **2** | **0.09** |
| **3** | **0.18** |
| **4** | **0.22** |
| **5** | **0.15** |

**15- P( X=3)**

**(a) 0.09 (b) 0.18 (c) 0.36 (d) 0.15 (e) none of these**

**16- P(X< 2.5)**

**(a) 0.45 (b) 0.13 (c) 0.58 (d) 0.42 (e) none of these**

**17- P(X≥4)**

**(a) 0.42 (b) 0.37 (c) 0.58 (d) 0.45 (e) none of these**

**18- P( 2≤ X<5)**

**(a) 0.42 (b) 0.13 (c) 0.58 (d) 0.49 (e) none of these**

**19- μ =**

**(a) 2.71 (b) 0.13 (c) 0.58 (d) 0.49 (e) none of these**

**Question (5):**

**If X~ Binomial (10, 0.25), where X is the number of smoker in a given sample drown** **from a lung cancer patients. Find the following:**

**20- The probability that none of them is smoker**

**(a) 0.0563 (b) 0.0001 (c) 0.25 (d) 0.75 (e) none of these**

**21- The expected number of smoker**

**(a) 7.5 (b) 0.25 (c) 2.5 (d) 0.75 (e) none of these**

**22- The variance of smoker**

**(a) 1.875 (b) 1.37 (c) 0.25 (d) 0.75 (e) none of these**

**Question (6):**

**If X~ Poisson (1), where X is the number of accidents in a day. Find the following:**

**23- P( X=3)**

**(a) 0.1402 (b) 0.13 (c) 0.0613 (d) 0.0145 (e) none of these**

**24- The standard deviation of accidents in a day**

**(a) 1 (b) 3 (c) 7 (d) 0 (e) none of these**

**25- The expected number of accidents in a week**

**(a) 1 (b) 3 (c) 7 (d) 0 (e) none of these**

End of Question