احص ميد٢-طالبات٤٣٧
الرجاء التأكد من الأجوبة

Choose one answer for each question.

Question:

King Khalid University hospital team wished to evaluate a proposed screening test for heart disease. The test was given to a random sample of 300 patients with heart disease and an Independent random sample of 650 patients without symptoms of the disease. The two samples were drawn from populations of subjects who were 50 years of age or older. The results are as Follows:

Heart Diseases

Test Result	Present (D)	Absent ($\overline{D}$)	Total
Positive (T)	100	340	440
Negative ($\overline{T}$)	200	310	510
Total	300	650	950

Based on another independent study, it is known that the percentage of patients with heart disease (the rate of prevalence of the disease) is 15.3% out of all subjects who were 50 years of age or older. Then

1. **A false negative results is**
   (A) P(negative result | presence of the disease)
   (B) P(negative result | absence of the disease)
   (C) P(positive result | absence of the disease)
   (D) P(positive result | presence of the disease)

2. **The sensitivity of the test is**
   (A) 0.667 (B) 0.333 (C) 0.523 (D) 0.477

3. **The specificity of the test is**
   (A) 0.667 (B) 0.333 (C) 0.523 (D) 0.477

4. **P(D) =**
   (A) 84.7 (B) 0.847 (C)0.153 (D) 15.3

5. **The predictive value positive of the test is**
   (A) 0.1032 (B) 0.1119 (C) 0.7983 (D) 0.589

Question :

Consider the discrete random variable X ,*where k is missing*

X	0	1	2
P(X=x)	0.25	0.5	k

6. The value of K is

(A) - 0.25 (B) 0.75 (C) 1 (D) 0.25

Question :

Consider the discrete random variable X is number of patients in a dermatology clinic at king Saud medical city Riyadh along with probability , then

x	P(X=x)
0	0.10
2	0.15
4	0.25
6	0.05
7	0.45

7. **$P(X \geq 2)$ =**

(A) 0.75 (B) 0.90 (C) 0.5 (D) 0.35

8. **$P(X = 5)$ =**

(A) 0.05 (B) 0.25 (C) 0 (D) 0.15

9. **$P(-0.45 < X \leq 4.5)$**

(A) 0.75 (B) 0.90 (C) 0.50 (D) 0.35

10. **Expected Value equals**

(A) 5.89 (B) 4.75 (C) 4.85 (D) 2.43

Question :

In **a sample of 12 cases** of food -poisoning in Saudi Arabia, **38% of the cases** had a public restaurant as the source of food –poisoning .Let Y be the number of cases had a public restaurant as the source of food –poisoning.

11. Probability that **at most 2 of cases** had a public restaurant as the source of food –poisoning is

(A) 0.02695 (B) 0.10694 (C) 0.0799 (D) 0.0016

12. Probability that **exactly 10 of cases** had a public restaurant as the source of food –poisoning is

(A) 0.02695 (B) 0.10694 (C) 0.0799 (D) 0.0016

13. The expected number (mean) of cases had a public restaurant as the source of food –poisoning.is
(A) 7.44 (B) 4.56 (C) 2.83 (D)1.68

14. The standard deviation of cases had a public restaurant as the source of food –poisoning.is
(A) 7.44 (B) 4.56 (C) 2.83 (D)1.68

Question :

Suppose that the fat content in cow's milk is approximately normally distributed with mean 5.5 and standard derivation 1.1 . If a sample of cow's milk is randomly chosen , then

15. The probability that **the fat content in cow's milk between 4.5 and 6.3**
(A) 0.58589 (B) 0.39358 (C) 0.60642 (D)0.76730

16. If the **population number is 50000**,the expected number of cows with **the fat content in cow's milk between 4.5 and 6.3 is:**
(A) 29295 (B) 19679 (C)30321 (D) 38365

17. For a **sample of size 16** ,the **distribution of** $\bar{X}$ *is*
(A)N(5.5,1.1) (B) N(5.5,1.21) (C) N(0,1) (D) N(5.5, 0.076)

18. $P(\bar{X} < 4.75) =$
(A)0.00317 (B) 0.75175 (C) 0.99683 (D) 0.24825

Question :

A medical company send her sales man to Al-Saqaf pharmacy on an average two times a week. Find the following

19. The **distribution** for this question is
(A)Binomail(2,1) (B) Poisson(2) (C) Poisson(1) (D)Binomail(1,2)

20. The probability that the sales man visit the pharmacy **more than one** time **in a day** is
(A) 0.97 (B) 0.03 (C) 0.41 (D)0.59

21. The **variance (in 2 months)** is
(A) 2 (B) 16 (C) 8 (D) 0.29

Question :

Suppose that **35% of patients** visiting king Fahad Hospital complains from high blood pressure, and **50% of patients** are diabetes. We have randomly and independently selected **a sample of 70 patients** who complains from high blood pressure and **50 from diabetes** patients .**Then the probability that**

22. The proportion of diabetes patients in the sample **is greater than 0.35** is $[i.e\ P(\hat{P}_2 \geq 0.35)]$

(A)0.70884 (B) 0.99702 (C)0.98300 (D)0.017

23. The difference between the sample **proportions, $\hat{P}_1 - \hat{P}_2$, is less than 0.10 is**

(A)0.70884 (B) 0.99702 (C)0.98300 (D) 0.017

Question :

24. **The parameters of the normal distribution are mean and standard deviation which determines respectively**

(A) mode, median (B) Shape, location

(C)Location, shape (D) Sample, percent

25. $For\ v = 10, the\ value\ of\ t\ with\ area\ to\ the\ right\ equals\ 0.99\ is$

(A) 1.372 (B) 2.764 (C) -2.764 (D) -1.372

26. $P(Z<k) = 0.80$, then $k =$

(A) 0.78814 (B) -0.845 (C) 0.845 (D) 0.84

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27. **One of the following is <u>not</u> a characteristic of normal distribution is**

(A) Total area under the curve equals 1.

(B) Symmetric a round zero.

(C) Mean = Mode = Median

(D)It's values goes from - ∞ to ∞ .

Question :

In a study, certain beetles were measured for male and female longevity (in days) and the results are shown in the following table

	Sample size	mean	Population Standard deviation
Female	15	8.5	0.78
Male	18	5.3	0.83

Assume normal populations . Find

28. *The mean of* $\bar{X}_1 - \bar{X}_2$ *equals*

(A) 0.098 (B) 3.2 (C) 0.0788 (D) 0.281

29. *The variance of* $\bar{X}_1 - \bar{X}_2$ *equals*

(A) 0.098 (B) 3.2 (C) 0.0788 (D) 0.281

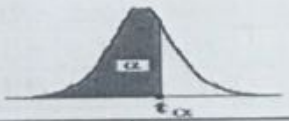
30. $P(\bar{X}_1 - \bar{X}_2 \leq 3.42)$ *equals*

(A) 0.99736 (B) 0.2177 (C) 0.78230 (D) 0.00264

END OF THE QUESTIONS

T-TABLE

Critical Values of the t-distribution (t_α)



v=df	$t_{0.90}$	$t_{0.95}$	$t_{0.975}$	$t_{0.99}$	$t_{0.995}$
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
18	1.330	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845