** Let A, B and C be events such that:

$P(A)=0.5$, $P(B)=0.3$, $P(C)=0.4$, $P(A\cup B)=0.8$, $P(B\cap C)=0.12$,

$P(A\cup C)=0.7$. Use this information to answer questions 1-4

1. A and C are

   (A) dependent (B) disjoint (C) independent (D) Non of these

2. B and C are

   (A) dependent (B) independent (C) disjoint (D) Non of these

3. $P(C^c\cap B)=$

   (A) 0.2 (B) 0.5 (C) 0.18 (D) 0.3

4. $P(C^c \mid B)=$

   (A) 0.02 (B) 0.50 (C) 0.18 (D) 0.3

** Let A and B be independent events such that :

$P(A)=0.7$, $P(B^c)=0.4$ Use this information to answer questions 5-8

5. $P(A\cup B)=$

   (A) 0.88 (B) 0.85 (C) 0.18 (D) 0.3

6. $P(A\cap B)=$

   (A) 0.42 (B) 0.85 (C) 0.48 (D) 0.3

7. $P(A^c \mid B)=$

   (A) 0.42 (B) 0.65 (C) 0.48 (D) 0.3

8.The events A and B^c are

   (A) disjoint (B) independent (C) dependent (D) Non of these

** Suppose that 25% of a certain large population have low blood pressure. Three people are selected at random from this population. Use this information to answer questions 9-12

9. The probability that exactly 1 of the 3 people has low blood pressure is

   (A) 27/64 (B) 15/64 (C) 12 /46 (D) 27/46

10. The probability that 2 or more of th3 3 people have low blood pressure is.

   (A) 5/23 (B) 5/32 (C) 7/ 32 (D) 7/23

11. How many of the 3 people are expected to have low blood pressure

(A) ¼ (B) 4/5 (C) 1/5 (D) 3

**In a certain hospital, the mean number of children born per day is 6. the number of children born in this hospital has the Poisson distribution. Use this information to answer questions 12-14.

12. The probability that 2 children are born in a day is

(A) 0.0249 (B) 0.0149 (C) 0.149 (D)0.249

13. The probability that no children is born in a day is

(A) 0.0025 (B) 0.25 (C) 0.24 (D) 0.0024

14. The probability that at least one child is born a day is?

(A) 0.0025 (B) 0.0024 (C) 0.0.9975 (D) 0.9975

** Let X be a continuous random variable for which p(X <=3.5)=0.7, p(X<2.8)=0.4 and p(X>4.9)=0.1 Use the information to answer the following questions .

15. p(X>3.5)

(A) 0.3 (B) 0.0024 (C) 0.0.9975 (D) 0.9975

Question 5. Consider this table for the questions (1-3)

Let X denotes the number of patients admitted to clinic in a day. The following table gives the probability distribution of X

X	0	1	2	3
$p(X=x)$	0.1	0.4	0.2	0.3

15.The probability that on a given day, at least two new patients admitted to the clinic equal

(A) 1.4 (B) 0.5 (C) 1.5 (D) 1.7

16.The expected number of admissions per day to the clinic is

(A) 1.4 (B) 1 (C) 1.5 (D) 1.7

17.The variance of the number of admissions per day to the clinic is

(A) 1.4 (B) 1 (C) 1.5 (D) 1.7

18.The number of patient visiting king Khalid hospital in a week is random variable.

(A) Continuous (B) Continuous and discrete (C) Discrete (D) Non of these

19.If Y is a continuous random variable then $P(Y = y) =$
(A) 0 (B) 1 (C) 0.5 (D) 2

20.If Y is a continuous random variable then $P(Y \leq y) =$
(A) Cumulative probability (B) density function (C) mass function (D) Non of these

<u>Question 6.</u>Consider the following table for questions
The following table is the cumulative probability of a random variable X

X	0	1	3	4	6
$p(X \leq x)$	0.1	0.4	0.7	0.9	1

21.The $P(1 \leq X \leq 4)$ is
(A) 1 (B) <u>0.8</u> (C) 1.2 (D) 0.9

22.The $p(X > 4) =$ is
(A) 0.9 (B) <u>1</u> (C) 0.5 (D) 0.7

23.The $p(X \leq 3) =$ is
(A) 0.4 (B) <u>0.7</u> (C) 1 (D) 0.1

24.The $p(X \leq 4)$ is
(A) 0.0 (B) 0.7 (C) 1 (D) 0.1

<u>Question 7.</u>Let Z ~ N (0,1), then

28.P (Z<0) =
(A) 0 (B) <u>0.5</u> (C) 0.45 (D) 1

29.P (Z = 1.96) =
(A) <u>0</u> (B) 0.975 (C) 0.5 (D)0.9

30. $Z_{0.95} =$
(A)1.5 (B) 1.325 (C) 1.285 (D) <u>1.645</u>

31.P (-1.23<Z<2.30) =
(A) <u>0.8695</u> (B) 0.6895 (C) 0.9788 (D) 0.5678

32.P ($Z \geq$ 2.35) =
(A)0.0312 (B) 0.0012 ([C) 0.0143 (D) <u>0.0094</u>

Question 8. Suppose that the age of patient X, who has the Aids disease in a certain hospital is distributed as a normal distribution with mean 20 years and standard deviation 2 years. If we randomly select a patient from this hospital, then find

33.The probability that his age is less than or equal 20 years.

(A) 0.65 (B) 0.54 ([C) 0.5 (D) 0.34

34.The probability that his age is more than 30 years.

(A) 0.0010 (B) 0.0001 ([C) 0.1023 (D) 0

35.The percentage of patients in this hospital, whose ages are between 19 and 22 years.

(A)65.32% (B) 53.28% (C) 40.123 % (D)34.43%

36.If the number of patients, whose have the Aids disease in this hospital is n = 20, then the number of them who has age less than or equal 18 years is:

(A)6.5 (B) 2.1 (C) 4 (D) 3.174