** 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 5-7

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

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

8. 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

9. The probability that 2 or more of the 3 people have low blood pressure is.

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

10. 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 a day in this hospital has the Poisson distribution. Use this information to answer questions 11-14.

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

(A) 0.0249 (B) 0.0446 (C) 0.149 (D)0.249

12. The probability that no child is born in a day is

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

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

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

14.The number of children expected to be born in 12 hours in the hospital is

(A) 3 (B) 2 (C) 1 (D) 6

** 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 questions 15-17.

15. P(X>3.5)

(A) 0.3 (B) 0.7 (C) 0.2 (D) 0.4

16. P(3.5 <X<4.9)

(A) 0.1 (B) 0.2 (C) 0.7 (D) 0.4

17. P(2.8 <X<3.5)

(A) 0.3 (B) 0.2 (C) 0.7 (D) 0.4

**The following table is the cumulative distribution function of a discrete random variable X . Use the table to answer questions 18-21.

X	0	1	3	4	6
$P(X \le x)$	0.1	0.4	0.7	0.9	1

18. $P(1 \le X \le 4)$ is

(A) 1 (B) 0.8 (C) 1.2 (D) 0.9

19. $P(X > 4)$ is

(A) 0.9 (B) 0.1 (C) 0.5 (D) 0.7

20.The $P(X \leq 3)$ is

(A) 0.4 (B) 0.7 (C) 1 (D) 0.1

21.The $P(X \leq 4)$ is

(A) 0.0 (B) 0.7 (C) 1 (D) 0.9

**Let Z be N (0,1). Then use this information to answer questions 22-26

22. P (Z<0) =

(A) 0 (B) 0.5 (C) 0.45 (D) 1

23. P (Z = 1.96) =

(A) 0 (B) 0.975 (C) 0.5 (D)0.9

24. $Z_{0.95}$ =

(A)1.5 (B) 1.325 (C) 1.285 (D) 1.645

25.P (-1.23<Z<2.30) =

(A) 0.8695 (B) 0.6895 (C) 0.9788 (D) 0.5678

26.P ($Z \geq 2.35$) =

(A)0.0312 (B) 0.0012 ([C) 0.0143 (D) 0.0094

** In a certain hospital, the ages of patients with the AIDS disease are normally distributed with mean 20 years and standard deviation 2 years. Let X (years) denote the age of an AIDS patient selected at random from the hospital
Use the information to answer questions 27-30

27. P(X<20)=

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

28. P(X>30)=

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

29 . The percentage of AIDS patients in the hospital who are between 19 and 22 years is years.

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

30. If the number of patients, whose have the AIDS disease in this hospital is n = 20, then the number of them who are less than or equal to18 years is:

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