

VERSION A

M.C.	
TOTAL	

**MATH 141
EXAM 3
25 NOV 96**

**NAME
ROSTER #
SEAT #**

!!!!!!!!!!!!!!!!!!!!!!!!!!!! READ THIS !!!!!!!!!!!!!!!!!!!!!!!!!!!!!

No name on exam -5 points No/wrong roster number on exam -5 points
No name on scantron -5 points No/wrong version letter on scantron -5 points

There are 20 multiple choice questions (5 points each).

You should have 3 sheets with writing on both sides of every page except the back of the cover page is blank. You are responsible for checking that you have all the required problems listed above. Scratch paper must be turned in with your exam. It will be discarded before the exams are read, so keep that in mind while using it. There is more scratch paper if you need it. You may not use your own paper. Do not open the exam until told to do so.

1. What is the probability of getting dealt a blackjack from a well shuffled standard deck of 52 cards? A blackjack is a hand of two cards, one card is an ace and one card is a 10, J, Q or K.
- (A) $8/221$ (B) $1/1326$ (C) $10/663$
(D) $32/663$ (E) none of the above
2. A pair of fair dice is cast. What are the odds in favor that the sum of the numbers shown uppermost is less than 5?
- (A) 1 to 5 (B) 5 to 8 (C) 5 to 18
(D) 1 to 6 (E) none of the above
3. Urn A contains 3 blue and 4 green balls. Urn B contains 2 blue and 2 green balls. A ball is chosen from urn A and placed in urn B. A ball is then chosen from urn B. What is the probability the transferred ball was green given the second ball drawn was blue?
- (A) $3/7$ (B) $8/17$ (C) $8/35$
(D) $2/5$ (E) none of the above
4. Use the table below to find $P(X \geq 5)$:

X	-10	-5	0	5	10	15	20
$P(X)$.20	.15	.05	.1	.25	.1	.15

- (A) 0 (B) .6 (C) .5
(D) 1 (E) none of the above
5. A computer center has three printers. Two of the printers have a probability of 5% that they will stall and the third printer has a 3% chance it will stall. If the probability of stalling is independent, what is the probability all three will stall?
- (A) 75% (B) 13% (C) .0075%
(D) not enough data (E) none of the above

6. A student studying from a vocabulary quiz knows 12 of the words from a list of 18. If the test contains 10 words from the study list, what is the probability that the student knows exactly 8 of the words on the quiz?

(A) .0015 (B) .0117 (C) .1697
 (D) .1951 (E) none of the above

We are given the following information for the number of raisins per cookie in a sample of raisin cookies:

number of raisins	6	7	8	9	10	11	12
frequency	4	7	10	8	12	5	2

7. What is the (median, mean) for this data?

(A) (9, 9) (B) (9, 8.83) (C) (7, 6.86)
 (D) (8.83, 9) (E) none of the above

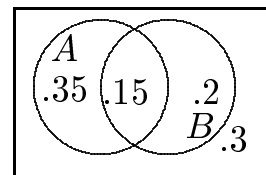
8. What is the standard deviation for this data?

(A) 2.1602 (B) 1.6155 (C) 1.5986
 (D) 3.4847 (E) none of the above

9. Two cards are drawn without replacement from a standard deck of cards. What is the probability that the first card drawn was a queen, given the second card drawn was an ace?

(A) $3/51$ (B) $4/52$ (C) $4/51$
 (D) $3/52$ (E) none of the above

10. Use the following Venn diagram to find $P(B^c|A)$:



(A) $7/10$ (B) $7/20$ (C) $1/2$
 (D) $10/7$ (E) none of the above

16. Suppose that X is a normal random variable with $\mu = 50$ and $\sigma = 5$. Find the value of $P(X \leq 60)$.
- (A) .0228 (B) -.0228 (C) -.9772
(D) .9772 (E) none of the above
17. A pizza has an average (mean) of 8 oz. of cheese with a standard deviation of .5 oz. What is the probability that a pizza has between 8 and 9 oz. of cheese on it?
- (A) -.4772 (B) -.5228 (C) .5228
(D) .4772 (E) none of the above
18. 100 students are exposed to the flu. There is a 70% chance of catching the flu when exposed. Use the normal curve approximation to the binomial distribution to find the z-value needed to get the probability that more than 75 students get the flu.
- (A) 1.0911 (B) 1.2002 (C) 1.3093
(D) .9820 (E) none of the above

Questions 19 and 20 use the following tree diagram:

19. What is $P(E|A)$?
- (A) $1/3$ (B) $1/6$ (C) $1/5$
(D) $1/2$ (E) none of the above
20. What is $P(B|F)$?
- (A) $1/3$ (B) $1/2$ (C) $4/7$
(D) $2/3$ (E) none of the above