Probability and Conditional Events

Choose one answer per question. Circle A, B, C, or D.

1. A cup holds three cards labeled 2, 4 and 6. One card is selected. Which list gives the complete sample space for the number drawn?
   A. 2, 4, 6
   B. 2, 4
   C. 2, 4, 6, 8
   D. 4, 6, 8

2. Six identical-size tiles are marked A, A, B, C, C and C. If one tile is selected uniformly at random, what is the probability of selecting a C?
   A. 2/3
   B. 1/3
   C. 1/2
   D. 1/6

3. A game asks you to pick one of two different hats and one of three different badges. How many distinct hat-and-badge pairs are possible?
   A. 5
   B. 6
   C. 8
   D. 9

4. One ticket is drawn from tickets numbered 1 through 8. The event is drawing a number greater than 5. Which event is its complement?
   A. Drawing a number greater than 6
   B. Drawing a number at least 5
   C. Drawing a number less than 5
   D. Drawing a number at most 5

5. Of 20 folders on a shelf, 7 have torn labels. One folder is selected uniformly at random. What is the probability that its label is not torn?
   A. 7/20
   B. 13/20
   C. 7/13
   D. 1/20

6. A spinner has eight equal sections numbered 1 through 8. What is the probability that one spin lands on 2 or 7?

A. 1/4
B. 1/8
C. 3/8
D. 1/16

7. You independently roll a fair six-sided die and flip a fair coin. What is the probability of rolling a 4 and getting heads?

A. 1/3
B. 1/6
C. 1/8
D. 1/12

8. A bag contains 3 orange and 2 blue tokens. An orange token is drawn and set aside. If another token is drawn uniformly at random, what is the probability that it is blue?

A. 1/5
B. 2/5
C. 1/2
D. 2/3

9. Of 14 choir members, 6 are also in drama. Of 16 students outside choir, 8 are in drama. A student is chosen uniformly from drama. What is the probability the student is in choir?

A. 3/7
B. 1/2
C. 1/5
D. 7/15

10. For two events, the chance of A is 0.4, the chance of B is 0.5 and the chance that both happen is 0.2. What does this tell you?

A. Whenever B happens, A also happens.
B. A and B cannot happen together.
C. Whenever A happens, B also happens.
D. A and B are independent.

11. A bag holds 2 green and 3 white tokens. You draw twice uniformly at random, replacing the first token before drawing again. What is the probability of drawing at least one green token?

A. 12/25
B. 9/25
C. 16/25
D. 4/25

12. A bag holds 5 purple and 3 yellow tokens. Two are drawn uniformly at random without replacement. What is the probability of drawing exactly one purple token?

A. 15/56
B. 15/28
C. 5/14
D. 3/28

13. In a group of 35 students, 15 volunteer, 12 play sports and 5 do both. A student is chosen uniformly at random. What is the probability the student volunteers or plays sports, including those who do both?

A. 5/35
B. 27/35
C. 17/35
D. 22/35

14. Of 40 festival visitors, 18 took the bus, 14 bought a meal voucher and 6 did both. A visitor is chosen uniformly from those who did not buy a voucher. What is the probability the visitor took the bus?

A. 6/13
B. 3/7
C. 3/10
D. 9/20

15. A fair six-sided die selects pouch A on a 1 or 2 and pouch B otherwise. Pouch A has 3 red and 1 blue token. Pouch B has 1 red and 3 blue tokens. One token is then drawn uniformly from the selected pouch. What is the probability it is red?

A. 7/12
B. 1/2
C. 5/12
D. 1/4