✅ **1. What is the probability of the union of two events A and B?**

a) P(A)+P(B)

b) P(A)·P(B)

c) P(A)+P(B)−P(A∩B)

d) P(A∩B)−P(A)−P(B)

✔ **Answer:** c) P(A)+P(B)−P(A∩B)

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✅ **2. Which of the following is true for independent events A and B?**

a) P(A∩B)=P(A)+P(B)
b) P(A∩B)=P(A|B)·P(B)
c) P(A∩B)=0
d) P(A∪B)=P(A)−P(B)

✔ **Answer:** b) P(A∩B)=P(A|B)·P(B)

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✅ **3. What is the conditional probability of A given B?**

a) P(B∩A)/P(A)
b) P(A∪B)/P(B)
c) P(A∩B)/P(B)
d) P(A)+P(B)

✔ **Answer:** c) P(A∩B)P(B)

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✅ **4. Bayes' Theorem is used to:**

a) Compute union of probabilities
b) Reverse conditional probabilities
c) Normalize probability distributions
d) Add probabilities of mutually exclusive events

✔ **Answer:** b) Reverse conditional probabilities

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✅ **5. In Bayes' theorem, what does the denominator P(B)P(B)P(B) represent?**

a) Posterior probability
b) Prior probability
c) Evidence or marginal probability
d) Likelihood

✔ **Answer:** c) Evidence or marginal probability

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✅ **6. Suppose a test is 95% accurate and 1% of people have a disease. If a person tests positive, what concept do we use to compute the probability they actually have the disease?**

a) Central Limit Theorem
b) Law of Large Numbers
c) Conditional Expectation
d) Bayes' Theorem

✔ **Answer:** d) Bayes' Theorem

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✅ **7. Which of the following is required to apply Bayes' Theorem?**

a) The events must be independent
b) The prior and conditional probabilities must be known
c) A Venn diagram
d) A sample mean and standard deviation

✔ **Answer:** b) The prior and conditional probabilities must be known

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