Quiz #1 - Discrete

Question 1

Not yet answered

Marked out of 1.00

Flag question

If today is Friday then today is holiday. Today is not holiday. ∴ _____.

- a. Friday is a holiday.
- b. Today is holiday.
- c. Today is not Friday.
- d. Today is Friday.

Clear my choice

Question 2

Not yet answered

Marked out of 1.00

Flag question

For the statement ∀a,b∈Z,a+b is even, provide the negation of the statement

- a. ∃a,b∈Z,a+b is odd.
- b. ∃a,b∈Z,a+b is even.
- c. ∀a,b∈Z,a+b is even.
- d. ∀a,b∈Z,a+b is odd.

Clear my choice

Question 3

Not yet answered

Marked out of 1.00

Flag question

Let p be the statement "DATAENDFLAG is off," q the statement "ERROR equals 0," and r the statement "SUM is less than 1,000."
Write the following statement in formal format:

Either DATAENDFLAG is on, or it is the case that both ERROR equals 0 and SUM is less than 1,000.

- a. $\sim(p \vee q) \wedge r$
- b. $\sim p \vee (q \wedge r)$
- c. $(p \wedge q) \vee r$
- d. $(p \vee q) \wedge r$

Clear my choice

Question 4

Not yet answered

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Flag question

Verbalise the following statement: ∀x∈Z, ∃y∈Z. Even(x) ∧ x=2y

- a. Any even integer equals twice some integer
- b. Some even integer equals twice some integer
- c. All integers are twice some other integers
- d. Some integers are twice some even integers
- e. None of the above

Clear my choice

Question 5

Not yet answered

Marked out of 1.00

Flag question

Verbalise the following statement: Every Elephant is bigger than all Lions.

- a. ∀x∀y ((Elephant(x) ∧ Lions(y)) → BiggerThan(x, y))
- b. ∀x∀y ((Elephant(x) ∧ Lions(y)) → BiggerThan(y, x))
- c. ∀x∀y ((Elephant(y) ∧ Lions(x)) → BiggerThan(x, y))
- d. None of the above
- e. ∀x∀y ((Elephant(y) ∧ Lions(x)) → BiggerThan(x, y))

Clear my choice

Question 6

Not yet answered

Marked out of 1.00

Flag question

Let p be the statement "DATAENDFLAG is off," q the statement "ERROR equals 0," and r the statement "SUM is less than 1,000."

Write the following statement in formal format:

DATAENDFLAG is off, but ERROR is not equal to 0.

- a. $\sim(p \vee q) \wedge r$
- b. $p \wedge \sim q \vee r$
- c. $p \wedge \sim q$
- d. $p \wedge \sim q \wedge r$

Clear my choice

Question 7

Not yet answered

Marked out of 1.00

Flag question

Check the argument form validity for the premises (If the sum of the digits of 371,487 is divisible by 3, then 371,487 is divisible by 3. The sum of the digits of 371,487 is divisible by 3.) and the conclusion (∴ 371,487 is divisible by 3):

- a. Cannot be inferred
- b. The argument form is valid
- c. The argument form is invalid

Clear my choice

Question 8

Not yet answered

Marked out of 1.00

Flag question

Let h = "John is healthy," w = "John is wealthy," and s = "John is wise."
Write the following statement in formal form:

John is not wealthy, but he is healthy and wise.

- a. $w \wedge (\sim h \vee \sim s)$
- b. $\sim w \wedge (\sim h \wedge s)$
- c. $\sim w \wedge (h \wedge s)$
- d. $w \wedge (h \wedge s)$

Clear my choice

Question 9

Not yet answered

Marked out of 1.00

Flag question

Let h = "John is healthy," w = "John is wealthy," and s = "John is wise."
Write the following statement in formal format:

John is neither wealthy nor wise, but he is healthy.

- a. $(\sim w \wedge \sim s) \wedge h$
- b. $(w \wedge s) \wedge \sim h$
- c. $\sim (w \wedge s) \wedge h$
- d. $w \wedge \sim (h \wedge s)$

Clear my choice

Question 10

Not yet answered

Marked out of 1.00

Flag question

Let h = "John is healthy," w = "John is wealthy," and s = "John is wise."
Write the following statement in formal format:

John is wealthy, but he is not both healthy and wise.

- a. $w \wedge \sim (h \wedge s)$
- b. $(w \wedge h) \wedge \sim s$
- c. $\sim w \wedge (\sim h \wedge s)$
- d. $\sim w \wedge \sim (h \wedge s)$

Clear my choice

Question 11

Not yet answered

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Flag question

Let P(x) represent the statement "Person x is honest," and Q(x) represent the statement "Person x is successful." Consider the statement: "There exists a person x such that if x is honest, then x is successful." $\exists x(Person(x) \wedge P(x) \rightarrow Q(x))$. Now, provide the contrapositive of this statement in symbolic form.

- a. $\exists x(Person(x) \wedge Q(x) \rightarrow \sim P(x))$
- b. $\forall x(Person(x) \wedge P(x) \rightarrow \sim Q(x))$
- c. $\exists x(Person(x) \wedge \sim Q(x) \rightarrow \sim P(x))$
- d. $\forall x(Person(x) \wedge \sim Q(x) \rightarrow \sim P(x))$

Clear my choice

Question 12

Not yet answered

Marked out of 1.00

Flag question

Use truth table to determine whether the argument form (p, p→q, ~qvr, ∴r) is valid.

- a. The argument form is invalid
- b. The argument form is valid
- c. Cannot be inferred

Clear my choice

Question 13

Not yet answered

Marked out of 1.00

Flag question

What is the negation of the following statement: $\forall x \in D(\forall y \in E(P(x, y)))$

- a. None of the above
- b. $\exists x \in D(\exists y \in E(\sim P(x, y)))$
- c. $\exists x \in D(\forall y \in E(\sim P(x, y)))$
- d. $\exists x \in D(\exists y \in E(P(x, y)))$
- e. $\exists x \in D(\forall y \in E(P(x, y)))$

Clear my choice

Question 14

Not yet answered

Marked out of 1.00

Flag question

Let p= " all primes are odd", and q= "two is odd."
Write the following statement in formal format:

If all primes are odd, then two is odd.
Two is not odd.
Therefore, it is not the case that all prime numbers are odd.

- a. $p \rightarrow q$, p, $\therefore q$
- b. $p \rightarrow q$, $\sim p$, $\therefore q$
- c. $p \rightarrow q$, $\sim q$, $\therefore \sim p$
- d. $q \rightarrow p$, $\sim p$, $\therefore \sim q$

Clear my choice

Question 15

Not yet answered

Marked out of 1.00

Flag question

The logical equivalent to the following statement is:

I am on time for work if I catch the 8:05 bus.

- a. If I catch the 8:05 bus, then I will not be on time for work.
- b. If I will not be on time for work, then I catch the 8:05 bus.
- c. If I catch the 8:05 bus, then I will be on time for work
- d. If I will be on time for work, then I catch the 8:05 bus.

Clear my choice