

L140 Exam 2007/08 - Model Answers

The answers given below are examples of answers that would get full credit for their respective answers. They should not be taken to represent the best possible answer, nor, in most cases, the only possible answer.

1 Question 1

1. Translate the following four sentences from English to predicate logic. If you think a sentence is ambiguous, give a logical translation for each reading:

1. John had been dancing.

$j \text{ DANCE}$

2. Mary met Bill or Susan, but not both.

$((m \text{ MEET } b) \vee (m \text{ MEET } s)) \ \& \ \sim((m \text{ MEET } b) \ \& \ (m \text{ MEET } s))$

3. Adam either knows Claire or he knows David and he knows Emma.

$a \text{ KNOW } c \vee (a \text{ KNOW } d \ \& \ a \text{ KNOW } e)$

4. If Paul annoys Alice, she will fire him.

$p \text{ ANNOY } a \rightarrow a \text{ FIRE } p$

For each of the two predicate logic propositions below, provide an English sentence it can represent:

5. $(\sim(m \text{ RUN})) \rightarrow (m \text{ LAZY})$

If Mary didn't run, she is lazy.

6. $\sim(m \text{ RUN} \rightarrow m \text{ LAZY})$

It's not true that if Mary runs, she is lazy.

2 Question 2

2. For each of the following inferences, mark whether it is valid (always true) or invalid (not always true):

$$\begin{array}{l} 1. (p \& q) \vee r \\ r \\ \hline \sim q \end{array} \quad \text{invalid}$$

$$\begin{array}{l} 2. p \rightarrow \sim q \\ q \\ \hline \sim p \end{array} \quad \text{valid}$$

$$\begin{array}{l} 3. (p \equiv q) \& (q \equiv r) \\ p \\ \hline r \end{array} \quad \text{valid}$$

$$\begin{array}{l} 4. (p \& q) \vee (p \& r) \\ \hline p \end{array} \quad \text{valid}$$

$$\begin{array}{l} 5. p \vee (q \rightarrow r) \\ \sim q \\ \hline p \end{array} \quad \text{invalid}$$

3 Question 3

3. For each of the following concepts, provide a 2-3 sentence definition, and illustrate it with an example:

1. Homonym: *A word that sounds like another word but is unrelated in meaning. (bank/bank)*
2. Reflexive Predicate: *A 2-place predicate of which it is always true that $P(x,x)$ is true. ("be the same age as")*
3. Asymmetric Predicate: *A 2-place predicate such that if $P(x,y)$ is true, $P(y,x)$ is not, even if $x=y$. ("be taller than")*
4. Contradiction: *A proposition that is always false, regardless of the circumstances. ("John likes Mary and he does not like Mary")*
5. Performative Utterance: *An utterance that performs an action in addition to describing one ("I now pronounce you man and wife")*

4 Question 4

4. For each of the following conversations, explain: A. What implicature is generated by the bolded sentence? B. Explain how this implicature comes about, making explicit mention of the co-operative maxims involved.

1. Mary: Did you and your wife enjoy your meal at the new restaurant last night?
Fred: **Well, the starters were not bad.** How was your evening?
Implicature - the rest of the meal was not very good. Maxim involved - quantity. Fred is only answering part of the question, which implies he does not want to address the rest.
2. Parent: Have you finished your schoolwork?
Daughter: **I finished the first assignment.**
Implicature - she didn't do the rest. Maxim involved - quantity. Same as previous question.
3. Paul: My computer keeps crashing.
Jen: **Oh, my brother is very good with electronics.**
Implicature - the brother will be able/willing to fix the computer. Maxim involved - relevance.
4. Customer: Do you have these trousers in a darker shade? Salesperson: **We're getting a new shipment tomorrow.**
Implicature - they do not have darker trousers available. Maxim involved - quantity (the salesperson is not answering the question) + relevance (the shipment is only relevant if there are no trousers in the shop).

5 Question 5

5. Based on your understanding of the world, write a meaning postulate for each of the following predicates. The first is supplied for you:

1. WALK: $x \text{ WALK} \rightarrow x \text{ HAVE-LEGS}$
2. HAPPY: $x \text{ HAPPY} \rightarrow x \text{ PERSON}$
3. LOVE: $x \text{ LOVE } y \rightarrow x \text{ KNOW } y$
4. LINGUIST: $x \text{ LINGUIST} \rightarrow x \text{ HUMAN}$
5. SHORTER: $x \text{ SHORTER } y \rightarrow y \text{ TALLER } x$
6. DRINK: $x \text{ DRINK } y \rightarrow y \text{ LIQUID (or } x \text{ ALIVE)}$

6 Question 6

In each of the following sentences, identify the participant role of each referring expression:

1. Fred chopped down the tree.
Fred - agent, *the tree* - patient, affected.
2. The tree fell on the television.
The tree - cause, instrument, experiencer; *The television* - affected, goal, patient
3. The television was broken.
The television - patient, affected, theme, experiencer
4. Sam fixed the television with the screwdriver.
Sam - agent; *the television* - affected, patient; *the screwdriver* - instrument.
5. Bill was happy.
Bill - experiencer
6. Bill was pleased with Sam.
Bill - experiencer; *Sam* - theme, stimulus
7. Jo gave Beth a wedding present.
Jo - agent; *Beth* - beneficiary; *a wedding present* - affected, patient.
8. Paul took the train to London.
Paul - agent; *the train* - instrument, *London* - goal, location.
9. Paul took the train to be repaired.
Paul - agent; *the train* - patient, affected.
10. This book was written by James.
This book - patient, affected; *James* - agent.