Intermediate Logic

For Christian and Home Schools

Answer Key

James B. Nance

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UNIT ONE

PROPOSITIONAL LOGIC

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EXERCISE 1

What are two main differences between propositional constants and propositional variables?

1. Constants represent one given proposition; variables represent any proposition

2. Constants are abbreviated by uppercase letters, propositions by lowercase

Modify or add to the simple proposition *We have seen God* to create the following:

3. A truth-functional compound proposition:

   We have seen God but we will not die.

4. A proposition which is *not* truth-functional:

   I think we have seen God.

Circle *S* if the given proposition is simple. Circle *C* if it is compound.

5. The Lord will cause your enemies to be defeated before your eyes. (S) C
6. There is a way that seems right to a man but in the end it leads to death. S (C)
7. The fear of the Lord is the beginning of wisdom. (S) C
8. If we confess our sins then He is faithful to forgive us our sins. S (C)
9. It is false that a good tree bears bad fruit and that a bad tree bears good fruit. S (C)
10. The Kingdom of God is not a matter of talk but of power. S (C)

Given that B means *The boys are bad* M means *The man is mad*
G means *The girls are glad* S means *The students are sad*

Translate the following compound propositions:

11. It is false that B. The boys are not bad.

12. B or G. The boys are bad or the girls are glad.

13. B and M. The boys are bad and the man is mad.

14. If M then S. If the man is mad, then the students are sad.

15. If not M and not S then G. If the man is not mad and the students are not sad, then the girls are glad.