1996 Paper 8 Question 1

Specification and Verification I

Describe how a theory of program refinement can be defined on top of Floyd–Hoare logic. [6 marks]

Define the specification notation $[P, Q]$. [4 marks]

Show that:

```
[X=n  ∧  n>0,   Z=n!]
⊇
BEGIN
  VAR Y;
    Y := 1;
    Z := Y;
    WHILE Y < X DO (Y := Y+1; Z := Z×Y)
END
```
[10 marks]