Problem Statement: This assignment deals with accounting for the issuance of bonds. Specifically, it deals with the effective interest rate method for the amortization of bonds issued at a discount.

Assume that the ZZ-TOP Corporation issued $550,000 of bonds with a coupon rate of 6%. These bonds were issued on January 1, 1999 with a due date of January 1, 2004. Interest is payable each July 1 and January 1. When the bonds were sold, the effective interest rate was 9.5% – thus the bonds were sold at a discount.

Given this information, create a spreadsheet to compute the bond discount information and then produce a schedule showing bond discount amortization using the effective interest rate method.

Details: Your parameter section should include only information provided above. Specifically, the parameter section might be similar to the following:

Bond Parameter Section	
Maturity Value of Bond Payable	$550,000
Number of Years	5
Coupon Interest Rate	6.0%
Effective Interest Rate	9.5%
Payment Period (months)	6

All other values should be calculated based on these parameter values.

You first need to compute the amount the bonds were discounted due to the difference in the coupon and effective interest rates. Remember that since the bonds yield 6% (coupon rate) and the rate investors were willing to accept was 9.5% (effective rate), the bonds had to be sold for less than their maturity (or face) value.

To calculate the bond price (due to the discount), you need to compute two present values. The first is the present value of the maturity value of the bond discounted at the effective rate. The second is the present value of the interest payments made over the life of the bond also at the effective rate. The sum of these two present values is what the bonds were sold for and the difference between this price and the maturity value is the discount.

To compute the present value of the maturity value, you need to use Excel's PV function. The general syntax of this function is:

=PV(*rate,nper,pmt,fv,type*)

where *rate* is the periodic (effective) interest rate,
nper is the number of periods,
pmt is zero (there is only one cash flow and that is the maturity value),
fv is the single cash flow representing the maturity value, and

type indicates if the cash flows occur at the beginning/end of the period. For this problem, set type to zero for end-of-period flows.

Be sure that the "rate" is adjusted for the proper period. Since the interest is paid every six months, then the annual rate must be multiplied by the payment period (6 in this case) divided by 12. Also make the appropriate adjustments so the number of periods is calculated correctly (again, a period is six months). If you want your present value to be positive, enter the future value as a negative number.

To compute the present value of the interest payments, you first need to compute the interest payment. This value is computed by multiplying the face value by the annual coupon rate (adjusted for the proper periodicity as you did above). Once you have this value, the present value of these periodic and equal cash flows is computed using the same PV function in Excel. However, this time you make reference to the periodic interest payment for the "pmt" argument. You can leave the "fv" and "type" arguments out of the function. Again, if you want your present value to be positive, enter the "pmt" as a negative number.

To help you out, the following shows the values that you should get if your calculations are correct:

Bond Discount Section	
Interest Payable	$16,500
PV of Maturity Value	$345,798
PV of Interest Payable	$128,970
Proceeds from Sale of Bond	$474,768
Discount of Bonds Payable	$75,232

The final part of the assignment requires the calculation of a bond discount amortization schedule. This schedule should have five columns as shown below:

Schedule of Bond Discount Amortization				
Date	Cash Credit	Debit Interest Expense	Credit Bond Discount	Carrying Amount of Bond
1/1/99				$474,768
7/1/99	$16,500	$22,551	$6,051	$480,819
1/1/00	$16,500	$22,839	$6,339	$487,158
7/1/00	$16,500	$23,140	$6,640	$493,798
1/1/01	$16,500	$23,455	$6,955	$500,753
etc	etc	etc	etc	etc

The cash credit is simply the periodic interest payment. The interest expense debit is the prior period's carrying amount (book value) times the effective interest rate (adjusted for the proper periodicity). The bond discount credit is the

difference between the interest expense debit and the cash credit. Finally, the carrying amount of the bond is the prior period's carrying amount plus this period's bond discount credit (except the first period's carrying amount is equal to the proceeds from the sale of the bond).

The spreadsheet should also calculate the totals for the cash credit, interest expense, and bond discount columns. The final two rows are shown below:

1/1/04	$16,500	$25,689	$9,189	$550,000
Total	**$165,000**	**$240,232**	**$75,232**	

To Turn In: You should print a copy of your spreadsheet results and a copy of the model formulas (use the Options… command in the Tools menu). For the formula printout, be sure that both row and column headings are shown (this is a point-counting requirement). Include both your name and lab section on your spreadsheet and chart (part of actual spreadsheet – not handwritten).