which the value of annual instalments increases by R.s 400/- and the payments are continued till the end of 10th year. Find the present value of the annuity @ 3%p.a. 10

7. Find the present value of an immediate annuity of Rs.1500/- p.a. payable for 8 years @ 6% p.a. interest payable half yearly. Find the accumulated value also. 5+5=10

Unit-IV

8. A loan of Rs.25000/- is to be repaid by level half yearly instalments of principal and interest over a period of 15 years. the rate of interest is 6% p.a. payable twice a year. Find the following: 5+5=10

   (a) The value of half yearly instalment.

   (b) The capital component in 20th instalment.

9. Shyam purchased a house for Rs.15,00,000/-. He pays Rs.85000/- as downpayment and the remaining amount is paid in 12 equal annual instalments of principal and interest. Find the value of the instalment if interest is computed at 12%.p.a. 10

A (Printed pages 4)

Roll. No. _____

MS-3208

Bachelor of Management Science

(Semester-II) Examination, 2015

FINANCIAL MATHEMATICS

(BMS-206)

Time Allowed : Three Hours] ***[Maximum Marks : 70***

Note : Answer five questions in all. Question No.1 is compulsory. Select one question from each Unit. Marks are indicated against the questions. Use of tables and simple calculators is permitted.

1. Attempt all parts: 3×10=30

   (a) Find the present value of Rs.1000/- due 5 years hence @ 5% p.a.

   (b) Differentiate between effective rate of interest and nominal rate of interest.

   (c) Distinguish between Perpetuity certain and Perpetuity due.

   (d) A sum of Rs.4500/- is kept invested for

4 years @6%p.a. payable half yearly. Find the accumulated value.

(e) What do you mean by "Surrender Value of Policy"?

(f) What is "force of interest"?

(g) Find the effective rate of discount corresponding to effective interest rate of 5% p.a.

(h) Find the effective rate of discount corresponding to nominal discount rate of 8% p.a. payable half yearly.

(i) Find the effective rate of interest corresponding to nominal interest rate of 6% p.a. payable half yearly.

(j) A sum of Rs.3000/- is kept invested for 5 years @ 5% p.a. payable monthly. Find the accumulated value.

Unit-I

2. A sum of Rs.5000/- is deposited in a bank for a period of 10 years. Find the accumulated value if rate of interest is 5% p.a. during first 4 years and there after 8% p.a. payable half yearly. 10

3. Find the amount to which Rs.2000/- will grow if interest is paid at a rate corresponding to an effective discount rate of 8% p.a. for 10 years. 10

Unit-II

4. Mr. Mohan took a loan of Rs.50,000/- at a rate of interest 12% p.a. payable quarterly. He repaid Rs.3000/- after a periods of 3 years, Rs. 6000/- after a further period of 2 years and cleared all the autstanding dues at the end of 10^{th} year from the commencement of this transaction. Find the value of the final payment made by him? 10

5. Ankita is to receive Rs.5000/- rightnow, Rs.4000/- after a period of 5 years and Rs.8000/ at the end of 10 years. If it is desired to make a single payment of Rs.25000/- in lieu of all these payments, finds its time at which this payment should be made considering interest 6% p.a. effective. 10

Unit-III

6. A payment of Rs.100/- is required to be made at the end of each years for 5 years, after