

**SARASWAT EDUCATION SOCIETY'S**  
**SRIDORA CACULO COLLEGE OF COMMERCE & MANAGEMENT STUDIES**  
**KHORLIM, MAPUSA, GOA**

**B.Com - Honors / B.Com - General (NEP 20, w. e. f. 2023-24)**

**F.Y.B.COM. SEMESTER END ASSESSMENT, NOVEMBER, 2023**

**THEORY EXAMINATION SEMESTER I**

Subject:- BUSINESS MATHEMATICS - I. (SEC-1 COM-142)

M.Marks:- 20 .

Duration:- 1 hrs.

- Instructions:-
1. Attempt all the questions.
  2. Use of non-programmable calculator is allowed.
  3. Each question carries equal 4 marks.
  4. Each sub-questions of a question carries equal 2 marks.
  5. Sub-questions of a question should be answered continuously.
  6. Internal choice for sub-questions is available from question 3 onwards.

Q.1. Attempt the following:

Match the items/terms from Column A to appropriate answer/items from column B

Column A.

1. Formula for compound interest
2. Accumulated value of compound int.
3. Interest earned for simple interest and compound is same
4. Formula for annuity

Column B

- a.  $A = P * n * r.$
- b. never same
- c.  $A = P(1 + i)^n.$
- d. for first period
- e.  $I = A - P$
- f.  $P = A * (1 + i)^{-n}$
- g.  $A = \frac{P*((1+i)^n - 1)}{i}$
- h. Interest earned on compound basis is always high

Q.2. Attempt the following:

a) Name the following :

- i) Set consisting of exactly one element -
- ii) Set of all possible subsets of a finite set -

b) Identify of the following two functions, which is a demand function and which is a supply function:

$$x = 50 - 4p - p^2$$

$$x = 3p + 6$$

Q.3. Attempt the following:

a) Show with calculations the compound interest on Rs. 20,000/- for 3 years at 5% p.a. compounded annually.

b) Give one example in each of the following;

- i) Empty set.
- ii) Finite set.

**.OR.**

c) Differentiate the following w.r.t x.

i)  $2x^3 - 4e^x + 4\sqrt{x} - \frac{3}{5}x$

ii)  $x^4 4^x + 5.5$

Q.4. Attempt the following:

a) Discover that if  $f(x) = \frac{5x+6}{4x-5}$ , then  $f(f(x)) = x$ .

b) Show that  $\int_{-1}^1 (6x^2 - 5)dx = -6$

**.OR.**

c) Two workers Ritesh and Preetesh are getting their salaries in the ratio 9:7 and the sum of their salaries was 6400. It was decided to deduct an equal amount from their salary so that they may be paid in the ratio 3:2. How much is the deduction? Explain.

Q.5. Attempt the following:

a) The supply function for a commodity is  $p = 3x^2 + 5$ . Calculate the Producer's Surplus when  $x = 5$

b) If 8, 3, 32, x are in proportion, then determine the value of x.

**.OR.**

c) Solve the equation :  $3x^2 + 7x + 4 = 0$

$$\leq \leq \leq 0 \leq 0 \leq \leq \leq 0 \leq 0 \leq \leq \leq$$