GOVERNMENT COLLEGE OF COMMERCE & ECONOMICS
BORDA, MARGAO GOA
B. Com. (Sem.II) SEMESTER END EXAMINATION, JULY 2021
(Under OS-1 COVID-19 pandemic)

CC8 – Commercial Arithmetic II

Duration	Answering:	02 Hours	Max. Marks: **40**	No. of Pages: **02**
	Online Submission:	01 Hour		

Instructions: (i) Answer any **Four** out of **Six** questions.
(ii) Figures to the right indicate full marks.
(iii) Students need to submit **Handwritten** answer paper scanned in whiteboard mode in a single PDF file only.

Q.1. Answer the following: **(2 x 5 = 10 Marks)**

a) If the length of a line segment AB is 5 units and B = (5,7) then find the coordinates of A.

b) If the slope of a line $m = -3$ and the coordinates of a point $P = (1/2, 0)$ lie on the line, then find the equation of the line.

Q.2. Answer the following : **(2 x 5 = 10 Marks)**

c) Find the equation of a line segment AB containing a point P = (1,3) such that AB is perpendicular to line segment CD which is parallel to line segment EF having slope m = - 4

d) If PQ is the diameter of a circle with radius ' r ' such that P=(4,7) and Q= (-3,-5) then find the coordinates of the centre of the circle.

Q.3. Answer the following: **(2 x 5 = 10 Marks)**

e) Test the continuity of the following function at $x = -1$

$f(x) = 3x + 5$ for $-3 \le x < -1$

$= 2x + 1$ for $-1 \le x \le 2$

f) Find the second order partial derivatives of the following function
$f(x,y)=3xy^3-2x^2y+xy-y$

Q. 4. Answer the following: **(2 x 5 = 10 Marks)**

g) A guitar manufacturer can sell x guitars per week at p rupees each, where $5x=375-3p$. The cost of production is $500+13x+\frac{1}{5}x^2$. Find how many guitars he should manufacture for maximum profit and what is that profit?

h) For the following Linear Programming problem

Minimize $Z=3x+4y$
subject to $x+y\le 8$, $6x+4y\ge 12$, $5x+8y\ge 20$, $x\ge 0, y\ge 0$

Q. 5 Answer the following: **(2 x 5 = 10 Marks)**

i) The number of skilled workers, unskilled workers and clerks in a mill are in the ratio of 3:11:2 and their monthly wages are in the ratio of 4:2:3 . If the total monthly salary of the workers is Rs. 5,70,240 then find the monthly wages of a skilled worker, an unskilled worker and a clerk if the number of clerks is 12 .

j) Find the producer's surplus if the demand and supply functions are given by $p=136-x^2$ and $p=3x^2+36$ respectively and market equilibrium prevails.

Q. 6 Answer the following: **(2 x 5 = 10 Marks)**

k) Integrate the following functions with respect to x
(i) $x^3-2x^2+5-e^x$.
(ii) $\frac{(x^2-2)(2x+3)}{x^2}$

l) A Shopkeeper paid Rs. 493 for a parcel. This parcel contained 50 articles on which he was given 15% discount. Find the list price of the article.
