DOON UNIVERSITY, DEHRADUN
Semester Final Examination, odd Semester, 2015
School of social science
M.sc. (Economics) 1nd Sem
Course: SSEI 112-mathmatics1st

Time Allowed: 3Hours   *Maximum Marks: 50*

Note :- each carry equal marks i.e. 5 marks

Section A: attempt any three

Q.1:- $\lim_{x \to 1}(x^2 - 1)/(x - 1)^0 = \lim_{x \to k}(x^3 - k^3)/(x^2 - k^2)^0$ find the value of k.

Q. 2:- the function f is defined by

$$f(x) = \begin{cases} x^2 - 4, & for\ x < 0 \\ ax + b, & for\ 0 \le x \le 0 \\ -x^2 + 16, & for\ x > 2 \end{cases}$$

What must a & b for f to be continuous every where ?

Q.3:- Find dy/dx if Y = $[x + \sqrt{a^2 + x^2}]^n$

Q. 4:- find dy/dx if Y = tan⁻[2x/(1-x²)]

Section B: attempt any three.

Q.5:- what you understand by optimization of any function explain it with its necessity and sufficient condition.

Q.6:- A monopolistic has a demand curve x= 106 -2p and average cost curve AC= 5+ (x/50) where p is the price per unit output and x is the number of units of output. If the total revenue is R = x.p, determine the most profitable output and the maximum output.

Q.7:- Find the coordinates of the circumcentre of a triangle whose coordinates are (3,-2) (4,3) and (-6, 5). Hence find the circum radius.

Q.8:- find the coordinates of the point which divides externally the join of the points