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**Roll No. \_\_\_\_\_\_\_\_\_\_\_\_**

**AEC-1562**

**B.A. (I Semester) Examination, Dec. 2018**

**ECONOMICS**

**MATHEMATICAL METHODS OF ECONOMICS**

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

**Note:** Answer **all** questions.

**Q. 1.** Attempt any **six** of the following. **5\*6=30**

fuEufyf[kr esa ls fdUgha N% iz'uksa ds mRrj nhft, %

1. What do you understand by Square Matrix?
oxZ lewg ls vki D;k le>rs gSa\
2. $\left[\begin{matrix}7&8\\4&5\end{matrix}\right]$ + $\left[\begin{matrix}4&8\\6&7\end{matrix}\right]$

Find the addition of Matrix?

$\left[\begin{matrix}7&8\\4&5\end{matrix}\right]$ + $\left[\begin{matrix}4&8\\6&7\end{matrix}\right]$

;ksx vkO;wg dks gy dhft,A

1. Find the value of Determinants.

$$\left[\begin{matrix}4&7\\8&-3\end{matrix}\right]$$

fu/kkZfjr dhft,

$\left[\begin{matrix}4&7\\8&-3\end{matrix}\right]$

1. $Lim^{}\frac{x^{2}-9}{x-3}$

$x $ 4 Solve?

gy djsaA

1. Demand function is given by

Q= 80-12P

P= 5

Find the Elasticity

ekax Qyu fn;k gksus ij

Q= 80-12P

P= 5

1. Define Arc elasticity of demand.

frjNh ¼vkM+h½ ekax dh yksp dks ifjHkkf"kr djsaA

1. Define Monopolistic Market.

,dkf/kdkfjd cktkj dks ifjHkkf"kr djsaA

1. MR = 8 lhekUr vk; ¼,e0vkj0½= 8

e = 3 e = 3

Find the price dher Kkr dhft,A

**Q.2.** If ;fn

 A=$\left[\begin{matrix}4&3\\6&2\end{matrix}\right]$ B=$\left[\begin{matrix}9&7\\8&5\end{matrix}\right]$

 So, Find out multiplication of matrix. rks xq.kkRed vkO;wg Kkr dhft,A

**Or/vFkok**

 Obtain the universe of Matrix. vkO;wg ds foijhr izkIr dhft,A

 of

 $A=\left[\begin{matrix}4&2&3\\3&5&7\\6&4&5\end{matrix}\right]$ Find A-1 Kkr dhft, A-1

**Q.3.** TC = 150+7Q2+3 Q4+ 7Q3+ 4Q3 TC = 150+7Q2+3 Q4+ 7Q3+ 4Q3 Q =3 Q = 3

Find out MC, AC and AFC rks lhekUr ykxr ¼,lh½ vkSj vkSlr fLFkr ykxr ¼,0,Q0lh0½ Kkr dhft,A

**Or/vFkok**

* + 1. If Y = √2x3-3 then find $\frac{dx}{dy}$ and d2Y/dX2
1. Prove d2Y /dX2 - 1 /y ($\frac{dy}{dx}$)2 = Y/X if Y=X2
	* 1. ;fn Y = √2x3-3 rks Kkr djsa $\frac{dx}{dy}$ and $\frac{d^{2}y}{dx^{2}}$

ii.

**Q4.** Briefly explain relationship between average and marginal cost curve. **10**

laf{kIr esa vkSlr vkSj lhekUr ykxr odz laca/k dh O;k[;k dhft,A

**Or/vFkok**

If the elasticity of function f(x) has been defined

 E=x/f(x) . d/dx [f(x)]

 Find

1. X f(x) elasticity?
2. Elasticity of 1/x f(x)

;fn yksp Qyu $f=\left(x\right)$ ifjHkkf"kr gks&

$E=\frac{x}{f(x)}$ $\frac{d}{dx [f\left(x\right)]}$

Kkr djsa &

¼i½ $xf(x)$ yksp\

¼ii½ yksp dh $\frac{1}{xf(x)}$

**Q.5.** Total revenue (R) and Total Cost (C) function of a firm given by

 R=40Q-Q2, C=20+4Q

 Where Q is the output. Find the equilibrium output of firm. **10**

 dqy vk; (R) dqy ykxr (C) QeZ dk Qyu fn;k gksus ij

 R=40Q-Q2, C=20+4Q

 mRiknu ¼fuxZr gS½ rks QeZ dk mRiknu larqyu Kkr dhft,A

**Or/vFkok**

If the demand function is P=√8-Q. Find at what level of output Q the TR will be maximum and what will it be?

;fn ekax Qyu gS & $p=\sqrt{8-8} $rks mRiknu Lij ij Q D;k gksxkA tgkW dqy vk; ¼,e0vkj0½ vf/kdre gksA