

JNUEE PHD Regional Development Economics

Topic:- ECNH872A

- 1) Suppose two commodities are x_1 and x_2 and the utility function is $U(x_1, x_2) = \min\{x_1, 2x_2\}$. Then, the marginal rate of substitution between x_1 and x_2 .

[Question ID = 18943][Question Description = N_Ph.D.ECNH_Q001]

1. (1,0) [Option ID = 142100]
2. (1/2) [Option ID = 142101]
3. $(\infty, 0)$

[Option ID = 142102]

4. 2 [Option ID = 142103]

- 2) What would be the linear approximation to $f(x, y) = e^{x+y}(xy - 1)$ about (0,0)

[Question ID = 18944][Question Description = N_Ph.D.ECNH_Q002]

1. $-x-y$ [Option ID = 142104]
2. $x-y-1$ [Option ID = 142105]
3. $-1-x-y$ [Option ID = 142106]
4. $1-x-y$ [Option ID = 142107]

- 3) Consider a hypothesis testing problem related to the population variance, where H_0 and H_1 are the Null and Alternative hypotheses, respectively. Which one of the following is the left tail test for population variance?

[Question ID = 18945][Question Description = N_Ph.D.ECNH_Q003]

1. $H_0: \sigma^2 \leq 225, H_1: \sigma^2 > 225$

[Option ID = 142108]

2. $H_0: \sigma^2 \geq 225, H_1: \sigma^2 < 225$

[Option ID = 142109]

3. $H_0: \sigma^2 = 225, H_1: \sigma^2 \neq 225$

[Option ID = 142110]

4. $H_0: \sigma^2 \neq 225, H_1: \sigma^2 \leq 225$

[Option ID = 142111]

- 4) Assuming that matrix A, B and C are conformable for some matrix operations. Consider the following.

- I. AB not generally equal to BA, BA may not be conformable
- II. If $AB = 0$, neither A nor B necessarily is equal to 0
- III. If $AB = AC$, B is not necessarily equal to C

Which of the above statement is incorrect about the matrix operation?[Question ID = 18946][Question Description = N_Ph.D.ECNH_Q004]

1. All of them (I, II, III) are incorrect [Option ID = 142112]
2. Statement (II, III) are incorrect [Option ID = 142113]
3. Statement (III) is only incorrect [Option ID = 142114]
4. None of them is incorrect [Option ID = 142115]

- 5) Consider the following determinant A :

$$A = \begin{vmatrix} 1 & \omega^3 & \omega^5 \\ \omega^3 & 1 & \omega^4 \\ \omega^5 & \omega^5 & 1 \end{vmatrix}$$

Where, ω is the cube root of unity. Which of the following statement is incorrect?

[Question ID = 18947][Question Description = N_Ph.D.ECNH_Q007]

1. A is a non-singular matrix [Option ID = 142116]
2. A is not a symmetric matrix [Option ID = 142117]
3. A is a square matrix [Option ID = 142118]
4. A is diagonal matrix [Option ID = 142119]

- 6)

Consider function $x = \sqrt{1-x^2}$, $x \in [0, 1]$. Determine the value of the function at $x = 1$.

Consider a function $f: [a, b] \rightarrow \mathbb{R}$ such that $f'(x) = \frac{f(b) - f(a)}{b - a}$ for all $x \in [a, b]$. Determine all numbers in the specified intervals such that

[Question ID = 18948][Question Description = N_Ph.D.ECNH_Q008]

1. $x^* = \pm \frac{1}{\sqrt{2}}$

[Option ID = 142120]

2. $x^* = +\frac{1}{\sqrt{2}}$

[Option ID = 142121]

3. $x^* = -\frac{1}{\sqrt{2}}$

[Option ID = 142122]

4. $x^* = \pm \frac{\sqrt{2}}{2}, 0$

[Option ID = 142123]

7) Which of the following is not a non-probability sampling?[Question ID = 18949][Question Description = N_Ph.D.ECNH_Q011]

1. Quota sampling [Option ID = 142124]
2. Judgement sampling [Option ID = 142125]
3. Stratified sampling [Option ID = 142126]
4. Convenience sampling [Option ID = 142127]

8) Consider the following three statements about quasi-concave function:

- I. Any concave function is a quasi-concave function.
 - II. Any monotonically decreasing function is a quasi-concave function.
 - III. If (x) is quasi-concave function, then any monotonically increasing transformation of (x) is also a quasi concave function.
- Which of the following statements are correct?

[Question ID = 18950][Question Description = N_Ph.D.ECNH_Q012]

1. All the three statements are correct.
[Option ID = 142128]
2. Statement I, II are correct but III is not correct.
[Option ID = 142129]
3. Statement I, III are correct but II is not correct.
[Option ID = 142130]
4. Statement I, II are incorrect but III is correct.
[Option ID = 142131]

9) Assume a consumer's choice is based on only two commodities (1 and 2) i.e., $X \in \mathbb{R}^2_+$, where X is the set of all possible commodity bundles that the consumer can conceive of. Suppose x and y are the two different commodity bundles and the budget set (B) of the consumer can be written as: $B = \{(x, y): p_1x + p_2y \leq M\}; x_i > 0, i = 1, 2$

Which of the following statement is true?

[Question ID = 18951][Question Description = N_Ph.D.ECNH_Q013]

1. The budget set B is an open, bounded and convex set
[Option ID = 142132]
2. The budget set B is not a bounded set
[Option ID = 142133]
3. The budget set B is a closed and non convex set
[Option ID = 142134]
4. The budget set B is a closed, bounded and convex set
[Option ID = 142135]

10) Preston curve exhibits a relation between [Question ID = 18952][Question Description = N_Ph.D.ECNH_Q014]

1. Income and health indicators (like life expectancy) [Option ID = 142136]
2. Income and educational outcome [Option ID = 142137]
3. Malnutrition and life expectancy [Option ID = 142138]
4. Income inequality and health inequality [Option ID = 142139]

11) Consider a sample of 20 cigarettes with SD of 1.6 mg. Two critical Chi-square values $\chi^2_{0.025}$ and $\chi^2_{0.975}$ for 19 d.f are 32.852 and 8.907 for a given level of significance $\alpha=0.05$. What would be the interval estimates for population variance σ^2 at 95% confidence level?

[Question ID = 18953][Question Description = N_Ph.D.ECNH_Q015]

1. $1.5 < \sigma^2 < 5.5$

[Option ID = 142140]

2. $1.2 < \sigma^2 < 2.3$

[Option ID = 142141]

3. $1.97 < \sigma^2 < 5.12$

[Option ID = 142142]

4. $2.11 < \sigma^2 < 5.87$

[Option ID = 142143]

12)

Consider a production function, $q = f(k, l) = k + l + 2\sqrt{k \cdot l}$; where, k and l are the two inputs. Then the following statement is correct:

[Question ID = 18954][Question Description = N_Ph.D.ECNH_Q016]

1. The above production function q is homogeneous function of degree one.

[Option ID = 142144]

2. The marginal product of capital and labour are homogeneous of degree 0.

[Option ID = 142145]

3. The marginal product of capital and labour are functions of $\left(\frac{k}{l}\right)$.

[Option ID = 142146]

4. All the above three statements (a, b and c) are correct.

[Option ID = 142147]

13) Which of the following statement regarding stratified sampling is incorrect ?[Question ID = 18955][Question Description = N_Ph.D.ECNH_Q017]

1. Stratified sampling is used when population is heterogeneous [Option ID = 142148]

2. Units within the strata are heterogeneous and they are drawn randomly [Option ID = 142149]

3. Stratified random sampling is two stage sampling procedure where randomisation takes place in the second stage [Option ID = 142150]

4. Population is heterogeneous and units within the stratum are homogeneous [Option ID = 142151]

14)

Let $f(x)$ be the probability density function(pdf) under Normal distribution $N(\mu, \sigma^2)$.

$f(x)$ has two inflection points (where the second derivative of $f(x)$ is zero and changes sign, which are located:

[Question ID = 18956][Question Description = N_Ph.D.ECNH_Q018]

1. $x = \mu \pm \sigma$

[Option ID = 142152]

2. $x = \mu \pm 2\sigma$

[Option ID = 142153]

3. $x = \mu \pm 3\sigma$

[Option ID = 142154]

4. The pdf of $N(\mu, \sigma^2)$ has no inflection points at all.

[Option ID = 142155]

15)

Consider a Bertrand duopoly where firms produce a homogeneous product. Assume the market demand curve is $y = y_1 + y_2 = 1 - p$, where p is the relevant market price, y is the total amount demanded at that price, and y_1 and y_2 are the output levels for firms 1 and 2

respectively. Assume the firms' cost functions are $c(y_i) = \frac{1}{2}y_i$, for $i=1,2$. The rules of the pricing game are as follows. each firm must simultaneously quote a price in the interval $[0,1]$.

If the prices are different, the firm with the lower price sells all the units demanded at that price, while the other firm sells nothing. If they name the same price, the amount demanded at that price is split equally between the two firms. What would be the Nash equilibrium price and quantities?

[Question ID = 18957][Question Description = N_Ph.D.ECNH_Q019]

1. $P_1 = P_2 = 1; y_1 = y_2 = \frac{1}{2}y$; is one of the multiple Nash Equilibrium

[Option ID = 142156]

2. $P_1 = P_2 = \frac{1}{2}; y_1 = y_2 = \frac{1}{2}y$; is the unique Nash Equilibrium

[Option ID = 142157]

3. $P_1 > P_2 = \frac{1}{2}; y_1 = 0, y_2 = y$; is one of the multiple Nash Equilibrium.

[Option ID = 142158]

4. $P_1 < P_2 = \frac{1}{2}; y_1 = y, y_2 = 0$; is one of the multiple Nash Equilibrium.

[Option ID = 142159]

16) Suppose that f is a continuous function over a closed and bounded interval $[a, b]$. Then there exists a point d in $[a, b]$ where f has a minimum, and a point c in $[a, b]$ where f has a maximum, so that $f(d) \leq f(x) \leq f(c)$ for all x in $[a, b]$. The statement is derived from: [Question ID = 18958][Question Description = N_Ph.D.ECNH_Q024]

1. Intermediate Value Theorem [Option ID = 142160]
2. Rolle's Theorem [Option ID = 142161]
3. Mean Value Theorem [Option ID = 142162]
4. Extreme Value Theorem [Option ID = 142163]

17)

Assume a consumer's choice is based on only two commodities (1 and 2) i.e., $X \in \mathbb{R}^2_+$, where X is the set of all possible commodity bundles that the consumer can conceive of. Suppose x and y are the two different commodity bundles where, $x=(4, 4)$ and $y=(4, 8)$. What assumption of preference relation (\succ) is critical for preferring commodity bundle y over the commodity bundle x i.e., $y \succ x$:

[Question ID = 18959][Question Description = N_Ph.D.ECNH_Q025]

1. If the preference relation (\succ) is strongly monotone $\Rightarrow y \succ x$.
[Option ID = 142164]
2. If the preference relation (\succ) is monotone then $\Rightarrow y \succ x$.
[Option ID = 142165]
3. If the preference relation (\succ) is either strongly monotone or monotone then $\Rightarrow y \succ x$
[Option ID = 142166]
4. None of the above is correct. [Option ID = 142167]

18) The Societal Poverty Line (SPL) can be written as: $\max(US\$1.90, US\$1.00 + 0.5 \times median)$.

Some of the following elements are captured in the computation of SPL

- A. Relative poverty
- B. Absolute poverty
- C. Depth of poverty
- D. Income inequality

Choose the correct option given below.

[Question ID = 18960][Question Description = N_Ph.D.ECNH_Q029]

1. A and D [Option ID = 142168]
2. B and C [Option ID = 142169]
3. A and B [Option ID = 142170]
4. B, C and D [Option ID = 142171]

19) Consider the matrices given below.

(i) $\begin{bmatrix} 1 & 12 \\ 0 & 3 \end{bmatrix}$

(ii) $\begin{bmatrix} 1 & 1 \\ 6 & 8 \end{bmatrix}$

$\begin{bmatrix} 1 & -4 \end{bmatrix}$

$$(iii) \begin{bmatrix} 1 & 0 \\ 0 & 1/3 \end{bmatrix}$$

$$(iv) \begin{bmatrix} 4 & -1/2 \\ -3 & 1/2 \end{bmatrix}$$

Which of the above matrices is inverse of another?

[Question ID = 18961][Question Description = N_Ph.D.ECNH_Q030]

1. (i) and (ii); (i) and (iii)

[Option ID = 142172]

2. (i) and (iii); (ii) and (iii)

[Option ID = 142173]

3. (ii) and (iv); (i) and (iii)

[Option ID = 142174]

4. (i) and (iv); (i) and (iii)

[Option ID = 142175]

20) Average cost function is given as $AC = Q^2 - 4Q + 174$. State under what situation the given function is more appropriate.

[Question ID = 18962][Question Description = N_Ph.D.ECNH_Q031]

1. Long run function [Option ID = 142176]
2. Short run function [Option ID = 142177]
3. Medium run function [Option ID = 142178]
4. None of the above 3 options. [Option ID = 142179]

21) Suppose individual A's production function for transforming labor l into bread x is given by

$$x = 12\sqrt{l} \quad . \quad \text{Suppose individual B's utility function for labor and bread is } u(l, x) = x - \frac{l^2}{9}.$$

Suppose B owns A, and both the consumer and the firm (B and A) respectively are price takers.

Show that at the Pareto efficient outcome and market efficient outcome (l, x)

[Question ID = 18963][Question Description = N_Ph.D.ECNH_Q034]

1. $(l, x) = (9, 27)$ is pareto efficient outcome but not market equilibrium

[Option ID = 142180]

2. $(l, x) = (27, 36)$ is pareto efficient outcome but not market equilibrium

[Option ID = 142181]

3. $(l, x) = (27, 36)$ is both pareto efficient outcome and market equilibrium

[Option ID = 142182]

4. $(l, x) = (9, 36)$ is both pareto efficient outcome and market equilibrium

[Option ID = 142183]

22) According to Ramsey tax rule, efficiency in the economy can be promoted by which one of the following ways.[Question ID = 18964][Question Description = N_Ph.D.ECNH_Q035]

1. More tax on those activities that are relatively price inelastic [Option ID = 142184]
2. Less tax on those inputs and outputs that are price elastic in demand or supply [Option ID = 142185]
3. Equal tax on all activities [Option ID = 142186]
4. No tax on those activities that encourage production [Option ID = 142187]

23) Find the characteristic polynomial of the given matrix M.

Find the characteristic polynomial of the given matrix M.

$$M = \begin{bmatrix} 3 & 5 \\ -2 & -4 \end{bmatrix}$$

[Question ID = 18965][Question Description = N_Ph.D.ECNH_Q036]

1. $\lambda^2 - \lambda - 3$

[Option ID = 142188]

2. $\lambda^2 + \lambda - 2$

[Option ID = 142189]

3. $\lambda^2 - 2\lambda - 4$

[Option ID = 142190]

4. $\lambda^2 + 2\lambda - 6$

[Option ID = 142191]

24) For a linear regression model $y_i = x_i' \beta + \varepsilon_i$, the condition $V\{\varepsilon\} = \sigma^2 I_n$ refers to

[Question ID = 18966][Question Description = N_Ph.D.ECNH_Q037]

1. Multicollinearity [Option ID = 142192]
2. Homoscedasticity [Option ID = 142193]
3. Autocorrelation [Option ID = 142194]
4. Errors in variables [Option ID = 142195]

25)

Consider a linear wage model, $y_i = \beta_1 + \beta_2 x_i + \varepsilon_i$, where y_i is the daily wage rate of individual; $x_i = 1$ if individual is male and 0 otherwise. With the standard assumptions about the error term and x , what will be the expected daily wage rate for males?

[Question ID = 18967][Question Description = N_Ph.D.ECNH_Q038]

1. β_1

[Option ID = 142196]

2. β_2

[Option ID = 142197]

3. $\beta_1 - \beta_2$

[Option ID = 142198]

4. $\beta_1 + \beta_2$

[Option ID = 142199]

26)

Suppose the Cost function of producing q level of output is, $C(w, r, q) = q(\frac{w}{\alpha} + \frac{r}{\beta})$; where w and r are the wage cost and rental cost of the two inputs capital (k) and labour (l) respectively. What would be the production function of k and l ?

[Question ID = 18968][Question Description = N_Ph.D.ECNH_Q041]

1. $q = \alpha k + \beta l$

[Option ID = 142200]

2. $q = \min\{\alpha l, \beta k\}$

[Option ID = 142201]

3. $q = [k^\alpha + l^\beta]$

[Option ID = 142202]

4. $q = A(k^\alpha \cdot l^\beta)$

[Option ID = 142203]

27) What would be the $\lim_{x \rightarrow 0} \frac{e^{xt} - 1 - xt}{x^2}$?

[Question ID = 18969][Question Description = N_Ph.D.ECNH_Q045]

1. $\ln \frac{1}{t^2}$

[Option ID = 142204]

2. $\frac{1}{2} t^2$

[Option ID = 142205]

$\frac{1}{2} t$

3. $\frac{e}{2}$

[Option ID = 142206]

4. Limit doesn't exist

[Option ID = 142207]

28) Determine the domain and the range of the function for $f(x) = \frac{1}{2} \ln \frac{1+x}{1-x}$

[Question ID = 18970][Question Description = N_Ph.D.ECNH_Q046]

1. Domain of f is: $-1 < x < 1$; and the range of f is \mathbb{R}

[Option ID = 142208]

2. Domain of f is: $0 < x < 1$; and the range of f is \mathbb{R}_{++}

[Option ID = 142209]

3. Domain of f is: $1 < x < \infty$; and the range of f is \mathbb{R}_{++}

[Option ID = 142210]

4. None of the above is correct [Option ID = 142211]

29) Find the quadratic approximations of the function $f(x) = \ln(2x+4)$ at $x = 0$

[Question ID = 18971][Question Description = N_Ph.D.ECNH_Q047]

1. $\ln 4 + \frac{x}{2} - \frac{x^2}{8}$

[Option ID = 142212]

2. $\ln 4 + x(x+2)^{-1} - \frac{x^2}{2}(x+2)^{-2}$

[Option ID = 142213]

3. $\ln 4 + \frac{1}{2} - \frac{x^2}{4}$

[Option ID = 142214]

4. $\ln 4$

[Option ID = 142215]

30) Assume a consumer's choice is based on only two commodities (1 and 2) i.e., $X \in \mathbb{R}^2_+$, where, X is the set of all possible commodity bundles, which the consumer can conceive of. Suppose the consumer's preference ordering follows a lexicographic preference (the preference is similar to the ordering of a dictionary) and consumer is biased towards commodity

1. Let x and y are the two different commodity bundles. Then $x \succ y$ iff :

[Question ID = 18972][Question Description = N_Ph.D.ECNH_Q048]

1. If $x_1 = y_1$ and $x_2 \leq y_2$

[Option ID = 142216]

2. If $x_1 > y_1$ or $x_1 = y_1$; $x_2 \geq y_2$

[Option ID = 142217]

3. If $x_1 < y_1$ and $x_2 \geq y_2$

[Option ID = 142218]

4. If $x_1 < y_1$ and $x_2 > y_2$

[Option ID = 142219]

31)

Consider a monopoly firm in the sale of the commodity. Assume that the price per unit, $P(Q)$,

varies with Q according to the formula $p(q) = 100 - \frac{1}{3}q$; $q \in [0, 300]$. Suppose now the cost

function is $C(q) = \frac{q^3}{600} - \frac{q^2}{3} + 50q + \frac{1000}{3}$

[Question ID = 18973][Question Description = N_Ph.D.ECNH_Q049]

1. $q = \pm 100, \pi = \pm 3000$

[Option ID = 142220]

2. $q = \pm 100, \pi = (3000, 0)$

[Option ID = 142221]

3. $q = +100, \pi = 3000$

[Option ID = 142222]

4. None of the result is correct

[Option ID = 142223]

32) Find the integration $\int_0^1 \frac{x^2 + x + \sqrt{x+1}}{x+1} dx$

[Question ID = 18974][Question Description = N_Ph.D.ECNH_Q050]

1. $2\sqrt{2} + \frac{3}{2}$

[Option ID = 142224]

2. $\sqrt{2} - \frac{3}{2}$

[Option ID = 142225]

3. $2\sqrt{2} - \frac{3}{2}$

[Option ID = 142226]

4. None of the above

[Option ID = 142227]

33)

Assume a consumer's choice is based on only two commodities (1 and 2) i.e., $X \in \mathbb{R}_+^2$, where X is the set of all possible commodity bundles which a consumer can conceive of. Consider the following three statements:

A. A preference relation (\succsim) on X is monotone if for all commodity bundles $x, y \in X$, and $y \gg x$ and $y \neq x$ (means y and x bundles are distinctively different bundles); then $\Rightarrow y \succ x$

B. A preference relation (\succsim) on X is strongly monotone if for all commodity bundles $x, y \in X$, and $y \geq x$ and $y \neq x$; then $\Rightarrow y \succ x$

C. Monotonicity implies strong monotonicity but not the other way round.

Which of the above statements are correct?

[Question ID = 18975][Question Description = N_Ph.D.ECNH_Q051]

1. A, B and C are correct [Option ID = 142228]

2. A, B and C are incorrect [Option ID = 142229]

3. A and B are correct but C is incorrect [Option ID = 142230]

4. A and C are correct but B is incorrect [Option ID = 142231]

34)

Consider the consumer's real money demand function, $\phi(c, \gamma, P, R)$, which depends upon

the consumer's average holdings of real money $\left(\frac{\bar{m}}{P}\right)$, is given

by: $\phi(c, \gamma, P, R) = \frac{\bar{m}}{P} = \frac{1}{2} cT = \sqrt{\frac{\gamma c}{2PR}}$

Where, T is time (in years) between trips to the bank, γ is the opportunity cost of a trip to the

bank, P is the price of consumption, c is the consumption per year, \bar{m} is the consumer's average money holding, and R is the nominal interest rate.

What would be the effect of an increase in the consumer's consumption (c) on the money demand,

$\phi(c, \gamma, P, R)$?

[Question ID = 18976][Question Description = N_Ph.D.ECNH_Q052]

1. $\frac{\partial \phi(c, \gamma, P, R)}{\partial c} > 0 \Rightarrow$ An increase in consumption c causes the consumer to hold more real money.

[Option ID = 142232]

2. $\frac{\partial \phi(c, \gamma, P, R)}{\partial c} < 0 \Rightarrow$ An increase in consumption c causes the consumer to hold less real money

[Option ID = 142233]

3. $\frac{\partial \phi(c, \gamma, P, R)}{\partial c} < 0 \Rightarrow$ An increase in consumption c causes the consumer to hold more real money.

[Option ID = 142234]

4. $\frac{\partial \phi(c, \gamma, P, R)}{\partial c} > 0 \Rightarrow$ An increase in consumption c causes the consumer to hold less real money.

[Option ID = 142235]

35) Consumption function is given as $C = a + bY$, where $a > 0$ and $0 < b < 1$. The consumption function is inelastic when

[Question ID = 18977][Question Description = N_Ph.D.ECNH_Q053]

1. $Y < a + b$

[Option ID = 142236]

2. $bY > a + bY$

[Option ID = 142237]

3. $bY < a + bY$

[Option ID = 142238]

4. $Y > a + b$

[Option ID = 142239]

36) When the labour unions raise real wages to very high level, this results in excess supply of labour. The phenomenon is called as

[Question ID = 18978][Question Description = N_Ph.D.ECNH_Q054]

1. Keynesian unemployment [Option ID = 142240]
 2. Classical unemployment [Option ID = 142241]
 3. Seasonal unemployment [Option ID = 142242]
 4. Disguised unemployment [Option ID = 142243]

37) Suppose a square matrix A for which $A^{k+1} = A$, where k is positive integer. If $k=1$, the matrix A is called

[Question ID = 18979][Question Description = N_Ph.D.ECNH_Q057]

1. Symmetric matrix [Option ID = 142244]
 2. Transpose of matrix [Option ID = 142245]
 3. Idempotent matrix [Option ID = 142246]
 4. Nilpotent matrix [Option ID = 142247]

38) The weather storm can cause damage to a home in any year. Damage is random from year to year. Let Y be the value of damage in any given year. Suppose $Y = \text{Rs. } 0$ in 95% of the years and $Y = \text{Rs. } 20,000$ in 5% of the years. What is the mean damage in any year?

[Question ID = 18980][Question Description = N_Ph.D.ECNH_Q058]

1. 6000 [Option ID = 142248]
 2. 5000 [Option ID = 142249]
 3. 1000 [Option ID = 142250]
 4. 4000 [Option ID = 142251]

39) Consider a regression model $Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 (X_{1i} \times X_{2i}) + u_i$, where Y_i is the earnings of the i^{th} worker, X_{1i} is the years of experience and X_{2i} is the years of schooling completed. What is the effect on worker's earnings of a change in years of experience, holding education constant?

[Question ID = 18981][Question Description = N_Ph.D.ECNH_Q061]

1. $\beta_0 + \beta_1 + \beta_3 X_1$

[Option ID = 142252]

2. $\beta_1 + \beta_3 X_1$

[Option ID = 142253]

3. $\beta_1 + \beta_3 X_2$

[Option ID = 142254]

4. $\beta_0 + \beta_1 + \beta_3 X_2$

[Option ID = 142255]

- 40) Suppose a regression model is specified as $\ln Y_i = \beta_0 + \beta_1 \ln X_i + \beta_2 \ln X_i^2 + u_i$, where Y is consumption and X is income. State which of the following classical assumption on the linear regression model is violated in this model.

[Question ID = 18982][Question Description = N_Ph.D.ECNH_Q062]

1. Zero conditional mean [Option ID = 142256]
2. Homoscedasticity [Option ID = 142257]
3. No perfect collinearity [Option ID = 142258]
4. Linear parameters [Option ID = 142259]

- 41) Based on the estimated regression model, compute how much wage will increase if years of schooling of individuals increases for 2 more years?[Question ID = 18983][Question Description = N_Ph.D.ECNH_Q065]

1. 15.80% [Option ID = 142260]
2. 16.50% [Option ID = 142261]
3. 18.40% [Option ID = 142262]
4. 12.30% [Option ID = 142263]

- 42) If the production function is $Q = 10AL^{2/3}K^{3/4}$, then it exhibits[Question ID = 18984][Question Description = N_Ph.D.ECNH_Q066]

1. Constant returns to scale [Option ID = 142264]
2. Increasing returns to scale [Option ID = 142265]
3. Decreasing returns to scale [Option ID = 142266]
4. Diseconomies of scale [Option ID = 142267]

- 43) The evidence of factor intensity reversal shows that:[Question ID = 18985][Question Description = N_Ph.D.ECNH_Q067]

1. Neither Heckscher Ohlin theorem holds nor the factor price-equalization theorem holds [Option ID = 142268]
2. Heckscher Ohlin theorem holds but factor-price equalization theorem does not hold [Option ID = 142269]
3. Heckscher Ohlin theorem does not hold but factor-price equalization theorem holds [Option ID = 142270]
4. Both Heckscher Ohlin theorem and factor price equalization theorem hold [Option ID = 142271]

- 44) Consider the function:

$$f(x) = \begin{cases} x^3, & x \leq 1 \\ 3x - 2, & x \geq 1 \end{cases}$$

Whether $f(x)$ is continuous and/or differentiable at $x = 1$?

[Question ID = 18986][Question Description = N_Ph.D.ECNH_Q068]

1. $f(x)$ is not continuous and differentiable at $x = 1$

[Option ID = 142272]

2. $f(x)$ is continuous but not differentiable at $x = 1$

[Option ID = 142273]

3. $f(x)$ is a C^1 function at $x = 1$

[Option ID = 142274]

4. $f(x)$ is a C^2 function at $x = 1$

[Option ID = 142275]

- 45) Systematic sampling involves:

[Question ID = 18987][Question Description = N_Ph.D.ECNH_Q069]

1. Selecting the units randomly from each stratum
2. Selecting the first unit purposively and subsequent unit at k^{th} interval

[Option ID = 142276]

[Option ID = 142277]

3. Selecting the first unit purposively and subsequent unit at random

[Option ID = 142278]

4. Selecting the first unit at random and subsequent unit at k^{th} interval

[Option ID = 142279]

- 46) A research that integrates theoretical framework and methodology from two or more distinct disciplines is called[Question ID = 18988][Question Description = N_Ph.D.ECNH_Q070]

1. Multidisciplinary research [Option ID = 142280]
2. Transdisciplinary research [Option ID = 142281]

3. Interdisciplinary research [Option ID = 142282]
4. Social Research [Option ID = 142283]

47) A time series is said to be stationary if its [Question ID = 18989][Question Description = N_Ph.D.ECNH_Q071]

1. Mean, variance and covariance are constant overtime [Option ID = 142284]
2. Mean, variance and covariance are non-constant over time [Option ID = 142285]
3. Mean reversion is non-observable [Option ID = 142286]
4. None of the above [Option ID = 142287]

48) When the demand for commodity X is inelastic, an increase in the price of this commodity will cause the total expenditure of consumers to [Question ID = 18990][Question Description = N_Ph.D.ECNH_Q072]

1. Decrease [Option ID = 142288]
2. Increase [Option ID = 142289]
3. Remain unchanged [Option ID = 142290]
4. None of the above [Option ID = 142291]

49) For a given technology and saving rate, when a country's GDP is far off from the steady-state, it may grow faster in the subsequent years. This is known as :[Question ID = 18991][Question Description = N_Ph.D.ECNH_Q073]

1. Income convergence [Option ID = 142292]
2. Income divergence [Option ID = 142293]
3. Investment convergence [Option ID = 142294]
4. All the above [Option ID = 142295]

50) Cost push inflation leads to[Question ID = 18992][Question Description = N_Ph.D.ECNH_Q074]

1. Decrease in unemployment [Option ID = 142296]
2. Increase in unemployment [Option ID = 142297]
3. Increase in employment [Option ID = 142298]
4. Increase in aggregate output [Option ID = 142299]

51) If $f(x, y)$ is homogeneous of degree 2 with $f'_1(2, 3) = 4$ and $f'_2(4, 6) = 12$, find $f(6, 9)$

[Question ID = 18993][Question Description = N_Ph.D.ECNH_Q075]

1. 117 [Option ID = 142300]
2. 234 [Option ID = 142301]
3. 115 [Option ID = 142302]
4. 243 [Option ID = 142303]

52) The Cobb-Douglas production function has three inputs. K is capital (the number of machines), L is labor (the number of workers), and H is human capital (the number of years of education).

The production function is given as: $Y = K^{1/3} H^{1/3} L^{1/3}$ Derive an expression for the marginal product of human capital.

[Question ID = 18994][Question Description = N_Ph.D.ECNH_Q076]

1. $\frac{1}{3} K^{1/3} H^{-3/2} L^{1/3}$

[Option ID = 142304]

2. $\frac{1}{3} K^{1/3} H^{1/3} L^{1/3}$

[Option ID = 142305]

3. $\frac{1}{3} K^{1/3} H^{-2/3} L^{1/3}$

[Option ID = 142306]

4. None of the above [Option ID = 142307]

53) The systematic bias may lead to:[Question ID = 18995][Question Description = N_Ph.D.ECNH_Q081]

1. Consistently over-or under-estimating some population parameters [Option ID = 142308]
2. A misrepresented sample due to recall errors [Option ID = 142309]
3. Error in sampling design and is addressed through hypothesis testing [Option ID = 142310]
4. Errors associated with the quota sampling [Option ID = 142311]

54) If the matrix $A = \begin{bmatrix} 1 & 2 & 1 \\ 2 & 0 & \alpha \\ 1 & \alpha & 1 \end{bmatrix}$

What would be the value of α (alpha) if A is a singular matrix?

[Question ID = 18996][Question Description = N_Ph.D.ECNH_Q082]

1. 1 [Option ID = 142312]
2. 2 [Option ID = 142313]
3. 3 [Option ID = 142314]
4. 4 [Option ID = 142315]

55) Presume that the government gives out a total of Rs. 1.0 million as tax refunds due to which there is a Rs. 4 million increase in real GDP. What will be the tax multiplier ?[Question ID = 18997][Question Description = N_Ph.D.ECNH_Q083]

1. - 4.0 [Option ID = 142316]
2. 4 [Option ID = 142317]
3. - 3.0 [Option ID = 142318]
4. 3 [Option ID = 142319]

56) The intra-industry trade theory[Question ID = 18998][Question Description = N_Ph.D.ECNH_Q084]

1. Explains why China might export cars and import clothing [Option ID = 142320]
2. Explains why China might export and import differentiated versions of the same product, such as different types of cars [Option ID = 142321]
3. Assumes that transport costs are very low or do not exist [Option ID = 142322]
4. Ignores seasonal considerations for agricultural goods [Option ID = 142323]

57) Let $8X-10Y+66 = 0$ and $40X-18Y = 214$ be the lines of regression of Y on X and X on Y, respectively. Find the regression coefficient of Y on X and the regression coefficient of X on Y.[Question ID = 18999][Question Description = N_Ph.D.ECNH_Q085]

1. 2/5, 3/7 [Option ID = 142324]
2. 1/3, 6/15 [Option ID = 142325]
3. 4/5, 9/20 [Option ID = 142326]
4. 7/12, 8/3 [Option ID = 142327]

58) Let α be the level of significance.

A. If P value $< \alpha \Rightarrow$ Reject the Null Hypothesis

B. If P value $\leq \alpha \Rightarrow$ Do not Reject the Null Hypothesis

C. If P value $\geq \alpha \Rightarrow$ Reject the Null Hypothesis

D. If P value $\geq \alpha \Rightarrow$ Do not Reject the Null Hypothesis

Which of the above statements regarding hypothesis testing are correct?

[Question ID = 19000][Question Description = N_Ph.D.ECNH_Q086]

1. A, C and D are correct [Option ID = 142328]
2. A and D are correct [Option ID = 142329]
3. A, B and C are correct [Option ID = 142330]
4. B and C are correct. [Option ID = 142331]

59) Vaccinating people for CORONA Virus is aimed to substantially increase net social benefits by improving the health and productivity of the population is an example of[Question ID = 19001][Question Description = N_Ph.D.ECNH_Q087]

1. Negative externality [Option ID = 142332]
2. Economies of scale [Option ID = 142333]
3. External economies [Option ID = 142334]
4. Net present value [Option ID = 142335]

60) Monetary policy is least effective when[Question ID = 19002][Question Description = N_Ph.D.ECNH_Q088]

1. IS curve is horizontal and LM curve is vertical [Option ID = 142336]
2. LM curve is horizontal and IS curve is downward sloping [Option ID = 142337]
3. IS curve is vertical and LM curve is horizontal [Option ID = 142338]
4. LM curve is upward sloping and IS curve is downward sloping [Option ID = 142339]

61) The Solow residual can be estimated as the difference between[Question ID = 19003][Question Description = N_Ph.D.ECNH_Q089]

1. Growth in investment and growth in output [Option ID = 142340]
2. Growth in output and growth in inputs [Option ID = 142341]
3. Growth in saving and growth in output [Option ID = 142342]
4. Growth in productivity and investment [Option ID = 142343]

62) Which of the following are NOT true about the likely effects of fiscal stimulus in the economy?

- A. Reduction in an inflationary gap
- B. Increase in net export spending
- C. Fall in investment

Choose the correct answer from the option given below :

[Question ID = 19004][Question Description = N_Ph.D.ECNH_Q090]

1. A only
[Option ID = 142344]
2. A and B
[Option ID = 142345]
3. B and C
[Option ID = 142346]

4. A and C

[Option ID = 142347]

63) Which of the following condition is required for an economy to be in a steady state? Let Y is income, K is capital and N is population.

[Question ID = 19005][Question Description = N_Ph.D.ECNH_Q091]

1. $\Delta Y/Y > \Delta K/K > \Delta N/N$

[Option ID = 142348]

2. $\Delta Y/Y = \Delta K/K = \Delta N/N$

[Option ID = 142349]

3. $\Delta Y/Y < \Delta K/K < \Delta N/N$

[Option ID = 142350]

4. $\Delta Y/Y > \Delta K/K$

[Option ID = 142351]

64) Dutch disease is associated with[Question ID = 19006][Question Description = N_Ph.D.ECNH_Q092]

1. Corruption, poor governance, and institutional failures [Option ID = 142352]

2. The abundance of natural resources artificially pushes upward the exchange rate leading to a crowding out of other economic activities [Option ID = 142353]

3. Rent from the natural resource abundance may be misused by the political leaders and bureaucrats leading to corruption and neglect of social sectors [Option ID = 142354]

4. None of the above [Option ID = 142355]

65) Which of the following are not correct about the Gini Coefficient?[Question ID = 19007][Question Description = N_Ph.D.ECNH_Q093]

1. It is a statistical measure of inequality, in which a Gini value of 0 implies perfect equality and a Gini score of 1 implies perfect inequality [Option ID = 142356]

2. Countries with different income distributions but equal levels of income can have the same value for the Gini coefficient [Option ID = 142357]

3. In a cross-country comparison of inequality, the coefficient does not depend upon the size of the population [Option ID = 142358]

4. The coefficient is sensitive to the size of the total wealth of the country [Option ID = 142359]

66) When individuals demand a greater price to induce them to give up a commodity that they already have than they are willing to pay to acquire that same commodity, it is termed as:[Question ID = 19008][Question Description = N_Ph.D.ECNH_Q094]

1. Endowment effect [Option ID = 142360]

2. Commodity fetishism [Option ID = 142361]

3. Veblen paradox [Option ID = 142362]

4. Wealth effect [Option ID = 142363]

67) What is the annual inflation in an economy where velocity of money equals to 5.0, output grows at 3.0% a year and money supply grows at 5.0% a year?

[Question ID = 19009][Question Description = N_Ph.D.ECNH_Q095]

1. 2.0%

[Option ID = 142364]

2. 5.0%

[Option ID = 142365]

3. 3.0%

[Option ID = 142366]

4. 0.0%

[Option ID = 142367]

68) Consider the following statements.

A. A Type II error means not rejecting the null hypothesis when it's actually false.

B. A Type I error means rejecting the null hypothesis when it's actually true.

C. The Type I and Type II error rates influence each other.

Which of the above are true? [Question ID = 19010][Question Description = N_Ph.D.ECNH_Q096]

1. A and B [Option ID = 142368]

2. B and C [Option ID = 142369]

3. A, B and C [Option ID = 142370]

4. A and C [Option ID = 142371]

69) "Policies aimed at reducing urban unemployment are likely to backfire; they will raise rather than reduce urban unemployment". This is known as: [Question ID = 19011][Question Description = N_Ph.D.ECNH_Q097]

1. Todaro Paradox [Option ID = 142372]

2. Surplus labour criterion [Option ID = 142373]

3. Voting by feet [Option ID = 142374]

4. Fallacy of Composition [Option ID = 142375]

70) In a share-cropping tenancy, the risk of output loss is[Question ID = 19012][Question Description = N_Ph.D.ECNH_Q098]

1. Borne only by the landlord. [Option ID = 142376]

2. Borne exclusively by the tenant. [Option ID = 142377]

3. Shared equally by the tenant and the landlord. [Option ID = 142378]
4. Shared by the tenant and the landlord according to the respective shares of the landlord and the tenant. [Option ID = 142379]

71) Which of the following statements about the Human Development Index is NOT correct?

[Question ID = 19013][Question Description = N_Ph.D.ECNH_Q099]

1. The HDI measures the average achievements in a country in three basic dimensions of human development: a long and healthy life, access to knowledge, and a decent standard of living.
[Option ID = 142380]
2. The HDI is the geometric mean of normalized indices from each of these three dimensions.
[Option ID = 142381]
3. The Inequality-adjusted Human Development Index (IHDI) accounts for inequalities in HDI dimensions by discounting each dimension's average value according to its level of inequality.
[Option ID = 142382]
4. The IHDI equals the HDI when there is no inequality across people but is greater than the HDI as inequality rises.
[Option ID = 142383]

72) Consider the following statements regarding the methodological problems to address the selection bias.

- A. Selection bias may occur due to errors of omission and errors of observations.**
B. In the presence of selection bias, the error term ϵ in the regression reflects only observed characteristics that also affect Y.
C. The presence of selection bias may lead to overestimation or underestimation of regression coefficients.
D. In the case of unobserved factors, the error term may contain variables that are also correlated with some of the predictor variables X.e., i.e., $\text{Cov}(X, \epsilon) \neq 0$

Which of the above statement(s) is(are) NOT correct?

[Question ID = 19014][Question Description = N_Ph.D.ECNH_Q100]

1. Statement B and C
[Option ID = 142384]
2. Statement B only
[Option ID = 142385]
3. Statement A, B and C
[Option ID = 142386]
4. None of the above 4 statements (1 to 4) are incorrect.
[Option ID = 142387]

Topic:- ECNH872B

1) Attempt following questions

Different students of Jawaharlal Nehru University (JNU) have different preferences about the subject Economics. The Students measure *Economics Books* along the horizontal axis and *Books about other Subjects* along the vertical axis. What will be the indifference curves associated with each of the two following statements and what would the direction of arrow for an increase in utility?

I care only about the total amount of knowledge I acquire. It is the same whether that is economics knowledge or knowledge of any other kind.

[Question ID = 19015][Question Description = N_Ph.D.ECNH_Q005]

1. The indifference curves are downward-sloping parallel lines with a slope of (-1) and the arrow pointing towards northeast.
[Option ID = 142388]
2. The indifference curves are upward-sloping with the arrow pointing towards northwest.
[Option ID = 142389]
3. The indifference curves are vertical with the arrow pointing to the right
[Option ID = 142390]
4. The indifference curves are downward-sloping and convex with the arrow pointing northeast.
[Option ID = 142391]

2) Attempt following questions

Different students of Jawaharlal Nehru University (JNU) have different preferences about the subject Economics. The Students measure Economics Books along the horizontal axis and Books about other Subjects along the vertical axis. What will be the indifference curves associated with each of the two following statements and what would the direction of arrow for an increase in utility?

I hate the Mascollel, Whinston and Green textbook and all other Economics books. On the other hand, I love everything else in the curriculum.

[Question ID = 19016][Question Description = N_Ph.D.ECNH_Q006]

1. The indifference curves are downward-sloping parallel lines with a slope of (-1) and the arrow pointing towards northeast.

[Option ID = 142392]

2. The indifference curves are vertical with the arrow pointing to the right.

[Option ID = 142393]

3. The indifference curves are upward-sloping with the arrow pointing towards northwest.

[Option ID = 142394]

4. The indifference curves are upward-sloping with the arrow pointing towards northeast.

[Option ID = 142395]

Topic:- ECNH872C

1) Attempt following question

Consider the following Battle of Sexes Game with 2 players: player 1 being the Girl friend and player 2 being the boyfriend. The partners are looking for some entertainment in the weekend. They can think of the options of either watching a cricket match, or a movie. Following is the payoff matrix of the two partners for these pair of strategies

		Boy friend	
		Cricket	Movie
Girl Friend	Cricket	1, 3	0, 0
	Movie	0, 0	3, 1

What would be the pure strategy Nash equilibrium of the Battle of Sexes Game?

[Question ID = 19017][Question Description = N_Ph.D.ECNH_Q009]

1. Unique Nash equilibrium (Cricket, Cricket)

[Option ID = 142396]

2. Unique Nash equilibrium (Movie, Movie)

[Option ID = 142397]

3. Multiple Nash equilibria in pure strategy (Cricket, Cricket), (Movie, Movie)

[Option ID = 142398]

Two Nash equilibria in pure strategy (Cricket, Cricket), (Movie, Movie) and a Mixed

4. Strategy Nash equilibrium $\left[\left(\frac{1}{4}, \frac{1}{4}\right), \left(\frac{3}{4}, \frac{3}{4}\right)\right]$

[Option ID = 142399]

2) Attempt following questions

Consider the following Battle of Sexes Game with 2 players: player 1 being the Girl friend and player 2 being the boyfriend. The partners are looking for some entertainment in the weekend. They can think of the options of either watching a cricket match, or a movie. Following is the payoff matrix of the two partners for these pair of strategies

		Boy friend	
		Cricket	Movie
Girl Friend	Cricket	1, 3	0, 0
	Movie	0, 0	3, 1

Consider the same Battle of Sexes Game in the above question. Will there be any Mixed Strategy Nash equilibrium for the partners?

[Question ID = 19018][Question Description = N_Ph.D.ECNH_Q010]

1. Mixed Strategy Nash Equilibrium $\left[\left(\frac{1}{4}, \frac{3}{4}\right), \left(\frac{3}{4}, \frac{1}{4}\right)\right]$

[Option ID = 142400]

2. Mixed Strategy Nash Equilibrium $\left[\left(\frac{1}{4}, \frac{3}{4}\right), \left(\frac{1}{4}, \frac{3}{4}\right)\right]$

[Option ID = 142401]__

3. Mixed Strategy Nash Equilibrium $\left[\left(\frac{1}{4}, \frac{1}{4}\right), \left(\frac{3}{4}, \frac{3}{4}\right)\right]$

[Option ID = 142402]

4. No Mixed Strategy Nash equilibrium exists

[Option ID = 142403]

Topic:- ECNH872D

1) **Attempt following questions**

Assume that there are two firms producing steel. There is a negative externality due to production causing pollution. Firm 1's output is q_1 and firm 2's is q_2 . Assume that the market price for steel is $P_S - 1$. Firm 1's operation causes firm 2's costs to rise. Assume that firm 1's cost function is $C_1(q_1) = q_1^2$, and that firm 2's cost function is $C_2(q_2, q_1) = (q_2 + 0.75 q_1)^2$. In short, firm 1 is not affected by firm 2, but firm 2 is adversely affected by firm 1.

What is the equilibrium profit of firm 2 in the short run?[Question ID = 19022][Question Description = N_Ph.D.ECNH_Q_020]

1. $\pi_2 = 0.025$ [Option ID = 142416]
2. $\pi_2 = 0.125$ [Option ID = 142417]
3. $\pi_2 = -0.125$ [Option ID = 142418]
4. $\pi_2 = 0.75$ [Option ID = 142419]

2) **Attempt following questions**

Assume that there are two firms producing steel. There is a negative externality due to production causing pollution. Firm 1's output is q_1 and firm 2's is q_2 . Assume that the market price for steel is $P_S - 1$. Firm 1's operation causes firm 2's costs to rise. Assume that firm 1's cost function is $C_1(q_1) = q_1^2$, and that firm 2's cost function is $C_2(q_2, q_1) = (q_2 + 0.75 q_1)^2$. In short, firm 1 is not affected by firm 2, but firm 2 is adversely affected by firm 1.

What is the long run profit of firm 1 and firm 2?[Question ID = 19019][Question Description = N_Ph.D.ECNH_Q_021]

1. $\pi_1 = 0.025, \pi_2 = 0.125$ [Option ID = 142404]
2. $\pi_1 = 0, \pi_2 = 0.125$ [Option ID = 142405]
3. $\pi_1 = 0.25, \pi_2 = 0$ [Option ID = 142406]
4. $\pi_1 = 0.125, \pi_2 = 0$ [Option ID = 142407]

3) **Attempt following questions**

Assume that there are two firms producing steel. There is a negative externality due to production causing pollution. Firm 1's output is q_1 and firm 2's is q_2 . Assume that the market

price for steel is $P_S = 1$. Firm 1's operation causes firm 2's costs to rise. Assume that firm 1's

cost function is $C_1(q_1) = q_1^2$, and that firm 2's cost function is

$C_2(q_2, q_1) = (q_2 + 0.75 q_1)^2$. In short, firm 1 is not affected by firm 2, but firm 2 is adversely affected by firm 1.

Assume that negative externality works both ways i.e., the both the firms face the adverse impact. So, assume $C_2(q_1, q_2) = (q_1 + 0.75 q_2)^2$ and

$C_2(q_2, q_1) = (q_2 + 0.75 q_1)^2$. What would be the market equilibrium profit of the two firms?

[Question ID = 19020][Question Description = N_Ph.D.ECNH_Q_022]

1. $\pi_1 = 1/28, \pi_2 = 1/28$

[Option ID = 142408]

2. $\pi_1 = 2/7, \pi_2 = 2/7$

[Option ID = 142409]

3. $\pi_1 = 1/14, \pi_2 = 1/14$

[Option ID = 142410]

4. $\pi_1 = 0, \pi_2 = 0$

[Option ID = 142411]

4) Attempt following questions

Assume that there are two firms producing steel. There is a negative externality due to production causing pollution. Firm 1's output is q_1 and firm 2's is q_2 . Assume that the market price for steel is $P_S = 1$. Firm 1's operation causes firm 2's costs to rise. Assume that firm 1's cost function is $C_1(q_1) = q_1^2$, and that firm 2's cost function is

$C_2(q_2, q_1) = (q_2 + 0.75 q_1)^2$. In short, firm 1 is not affected by firm 2, but firm 2 is adversely affected by firm 1.

Do you think the externality can be resolved in the equilibrium outcome (described in question 21) and leads to efficiency?

[Question ID = 19021][Question Description = N_Ph.D.ECNH_Q_023]

1. The externality can't be resolved at all. The equilibrium outcome of the firms is just the profit-maximizing outcome. [Option ID = 142412]

2. The externality can be resolved by closing down both the firms $\pi_1 = 0, \pi_2 = 0$

[Option ID = 142413]

3. If one of the firms is forced to close down, the externality can be resolved and their joint profit is $\pi_1 + \pi_2 = 0.109$

[Option ID = 142414]

4. If one of the firms is forced to close down the externality can be resolved and their joint profit is $\pi_1 + \pi_2 = 0.071$

[Option ID = 142415]

1) **Attempt following questions**

There are three people who consume public good, (say x_i) and private goods (say y_i , where $i=1,2,3$) respectively. Suppose the prices of both the public goods and the private goods are Rs.1 per unit. The initial endowments of the private goods are $(M_1, M_2, M_3)=(10, 10, 10)$. Three people have the following utility functions:

$$U_1(x, y_1) = \ln x + y_1$$

$$U_1(x, y_2) = 2\ln x + y_2$$

$$U_1(x, y_3) = 3\ln x + y_3$$

Assume that the public good is purchased privately, and that person 3 is the first to go to the market and buy the public good. Assume person 3 completely ignores persons 1 and 2's decision during his purchase when he buys x , and thinks only of his own utility maximization problem. His purchase is followed by person 2 and 1, who decide on public goods consumption after observing person 3's purchase. How much of the public goods and private goods do person 1 and 2 and 3 buy in the equilibrium?

[Question ID = 19023][Question Description = N_Ph.D.ECNH_Q26]

1. (3, 3, 3) [Option ID = 142420]
2. (1, 1, 3) [Option ID = 142421]
3. (0, 0, 3) [Option ID = 142422]
4. None of the above is correct [Option ID = 142423]

2) **Attempt following questions**

There are three people who consume public good, (say x_i) and private goods (say y_i , where $i=1,2,3$) respectively. Suppose the prices of both the public goods and the private goods are Rs.1 per unit. The initial endowments of the private goods are $(M_1, M_2, M_3)=(10, 10, 10)$. Three people have the following utility functions:

$$U_1(x, y_1) = \ln x + y_1$$

$$U_1(x, y_2) = 2\ln x + y_2$$

$$U_1(x, y_3) = 3\ln x + y_3$$

The Samuelson optimality condition to find the Pareto optimal quantity of the public good X^* is decided by:[Question ID = 19024]
[Question Description = N_Ph.D.ECNH_Q27]

1. $MB_1 = MB_2 = MB_3 = MC = 1 \Rightarrow x^* = 1$

[Option ID = 142424]

2. $MB_1 + MB_2 + MB_3 = MC = 1 \Rightarrow x^* = 6$

[Option ID = 142425]

3. $MB_3 = MC = 1 \Rightarrow x^* = 3$

[Option ID = 142426]

4. $MB_1 + MB_2 = MC = 1 \Rightarrow x^* = 3$

[Option ID = 142427]

3) **Attempt following questions**

There are three people who consume public good, (say x_i) and private goods (say y_i , where $i=1,2,3$) respectively. Suppose the prices of both the public goods and the private goods are Rs.1 per unit. The initial endowments of the private goods are $(M_1, M_2, M_3)=(10, 10, 10)$. Three people have the following utility functions:

$$U_1(x, y_1) = \ln x + y_1$$

$$U_1(x, y_2) = 2\ln x + y_2$$

$$U_1(x, y_3) = 3\ln x + y_3$$

The Lindahl equilibrium is :[Question ID = 19025][Question Description = N_Ph.D.ECNH_Q28]

1. Tax share of the three persons are $t_1x = 1, t_2x = 2$ and $t_3x = 3$
[Option ID = 142428]
2. The entire tax share will be borne by the person having highest marginal benefit i.e. $t_3x = 6$
[Option ID = 142429]
3. The entire tax share will be borne by the marginal consumers $t_1x = t_2x = 3$
[Option ID = 142430]
4. The government subsidizes the entire expenses for the creation of public goods. [Option ID = 142431]

Topic:- ECNH872F

1)

Attempt following questions

Suppose a consumer i has a utility function : $U_i(x) = 10\sqrt{x}$; where x is the money income of the consumer. Suppose the consumer's initial endowment is Rs 50. Suppose, she may suffer a loss of Rs 25 with a probability of 0.5 for some random event and therefore we may assume probability of no loss is 0.5.

What is the consumer i's certainty equivalent of the loss? [Question ID = 19026][Question Description = N_Ph.D.ECNH_Q32]

1. 12.5 [Option ID = 142432]
2. 14.41 [Option ID = 142433]
3. 11.59 [Option ID = 142434]
4. 13.57 [Option ID = 142435]

2)

Attempt following questions

Suppose a consumer i has a utility function : $U_i(x) = 10\sqrt{x}$; where x is the money income of the consumer. Suppose the consumer's initial endowment is Rs 50. Suppose, she may suffer a loss of Rs 25 with a probability of 0.5 for some random event and therefore we may assume probability of no loss is 0.5.

The risk preference of the consumer is [Question ID = 19027][Question Description = N_Ph.D.ECNH_Q33]

1. Risk neutral because certainty equivalent of the loss is equal to expected value of the loss [Option ID = 142436]
2. Risk averse because certainty equivalent of the loss is greater than the expected value of the loss [Option ID = 142437]
3. Risk lover because certainty equivalent of the loss is greater than the expected value of the loss [Option ID = 142438]
4. Risk averse because certainty equivalent of the loss is less than the expected value of the loss [Option ID = 142439]

Topic:- ECNH872G

1) Attempt following questions

Grades on a common admission test for post-graduate programmes found to have a mean of 1000 for students in India. The test is administered to 453 randomly selected students in Delhi. For this sample, mean is 1013 and the standard deviation is 108.

What is the 95% confidence interval for the average test score for students in Delhi? [Question ID = 19028][Question Description = N_Ph.D.ECNH_Q39]

1. [1003.05, 1022.95] [Option ID = 142440]
2. [1004.50, 1035.22] [Option ID = 142441]
3. [995.00, 1013.12] [Option ID = 142442]
4. [870.25, 980.56] [Option ID = 142443]

2) Attempt following questions

Grades on a common admission test for post-graduate programmes found to have a mean of 1000 for students in India. The test is administered to 453 randomly selected students in Delhi. For this sample, mean is 1013 and the standard deviation is 108.

What is the test result on the null hypothesis that Delhi students have the same average performance as the students in overall India? [Question ID = 19029][Question Description = N_Ph.D.ECNH_Q40]

1. Fail to reject the null hypothesis [Option ID = 142444]
2. Reject the null hypothesis [Option ID = 142445]
3. Neither reject nor accept the null hypothesis [Option ID = 142446]
4. Insufficient information [Option ID = 142447]

1) **Attempt following questions**

Consider a Stackelberg Duopoly model, where firm 1 is a Stackelberg leader and firm 2 is a follower. Firms face an inverse demand function: $P(y_1 + y_2) = 100 - y_1 - y_2$. The cost functions are: $25y_1$ and $C_1(y_2) = 25y_2$. Firm 2's reaction function is:
 $y_2 = R_2(y_1) = 37.5 - \frac{1}{2}y_1$.

What would be the Stackelberg equilibrium quantities for firm 1 and firm 2? [Question ID = 19030] [Question Description = N_Ph.D.ECNH_Q42]

1. $y_1^* = 25, y_2^* = 25$

[Option ID = 142448]

2. $y_1^* = 37.5, y_2^* = 25$

[Option ID = 142449]

3. $y_1^* = 37.5, y_2^* = 21.75$

[Option ID = 142450]

4. $y_1^* = 37.5, y_2^* = 18.75$

[Option ID = 142451]

2) **Attempt following questions**

Consider a Stackelberg Duopoly model, where firm 1 is a Stackelberg leader and firm 2 is a follower. Firms face an inverse demand function: $P(y_1 + y_2) = 100 - y_1 - y_2$. The cost functions are: $25y_1$ and $C_1(y_2) = 25y_2$. Firm 2's reaction function is:
 $y_2 = R_2(y_1) = 37.5 - \frac{1}{2}y_1$.

What would the Stackelberg equilibrium price? [Question ID = 19031] [Question Description = N_Ph.D.ECNH_Q43]

1. $p^* = 41.75$

[Option ID = 142452]

2. $p^* = 43.75$

[Option ID = 142453]

3. $p^* = 55.00$

[Option ID = 142454]

4. $p^* = 43.55$

[Option ID = 142455]

3) **Attempt following questions**

Consider a Stackelberg Duopoly model, where firm 1 is a Stackelberg leader and firm 2 is a follower. Firms face an inverse demand function: $P(y_1 + y_2) = 100 - y_1 - y_2$. The cost functions are: $25y_1$ and $C_1(y_2) = 25y_2$. Firm 2's reaction function is:
 $y_2 = R_2(y_1) = 37.5 - \frac{1}{2}y_1$.

What would be the profit of the two firms, if both the firms believe that they are the Stackelberg leader? [Question ID = 19032] [Question Description = N_Ph.D.ECNH_Q44]

1. $\pi_1^* = 703.13, \pi_2^* = 0$

[Option ID = 142456]

2. $\pi_1^* = 351.56, \pi_2^* = 351.56$

[Option ID = 142457]

3. $\pi_1^* = 0, \pi_2^* = 0$

[Option ID = 142458]

4. $\pi_1^* = 0, \pi_2^* = 625$

[Option ID = 142459]

Topic:- ECNH872I

1) **Attempt following questions**

The first order autoregressive process for the residual (ε_t) of an estimated linear regression

model can be specified as $\varepsilon_t = \rho \varepsilon_{t-1} + v_t$. Suppose the estimated first order autoregressive process provides the value of $\rho=0.401$ and $T=30$.

Compute the asymptotic t statistic for testing the null hypothesis, $H_0: \rho = 0$.

Compute the asymptotic t statistic for testing the null hypothesis, $H_0: \rho = 0$.

[Question ID = 19033][Question Description = Ph.D.ECNH_Q55]

1. 1.90

[Option ID = 142460]

2. 2.50

[Option ID = 142461]

3. 2.19

[Option ID = 142462]

4. 1.81

[Option ID = 142463]

2) **Attempt following questions**

The first order autoregressive process for the residual (ε_t) of an estimated linear regression

model can be specified as $\varepsilon_t = \rho \varepsilon_{t-1} + v_t$. Suppose the estimated first order autoregressive process provides the value of $\rho=0.401$ and $T=30$.

Compute the asymptotic t statistic for testing the null hypothesis, $H_0: \rho = 0$.

What decision will you take based on the t statistic at 5% level of significance?

[Question ID = 19034][Question Description = Ph.D.ECNH_Q56]

1. Reject the null hypothesis

[Option ID = 142464]

2. Fail to reject the null hypothesis

[Option ID = 142465]

3. Neither reject nor accept the null hypothesis

[Option ID = 142466]

4. Insufficient information

[Option ID = 142467]

Topic:- ECNH872J

1) **Attempt following questions**

Consider the following linear regression models.

$$\ln(Y_i) = \beta_0 + \beta_1 X_i + u_i \dots\dots\dots (A1)$$

$$\ln(Y_i) = \beta_0 + \beta_1 \ln(X_i) + u_i \dots\dots\dots (A2)$$

In the Model A1, β_1 measures

[Question ID = 19035][Question Description = N_Ph.D.ECNH_Q59]

1. $\frac{dY/Y}{dX/X}$

[Option ID = 142468]

2. $\frac{dY/Y}{dX}$

[Option ID = 142469]

3. $\frac{dY}{dX/X}$

[Option ID = 142470]

4. $\frac{dY}{dX}$

[Option ID = 142471]

2) **Attempt following questions**

Consider the following linear regression models.

$$\ln(Y_i) = \beta_0 + \beta_1 X_i + u_i \dots\dots\dots (A1)$$

$$\ln(Y_i) = \beta_0 + \beta_1 \ln(X_i) + u_i \dots\dots\dots (A2)$$

In the model A2, β_1 measures

[Question ID = 19036][Question Description = N_Ph.D.ECNH_Q60]

1. $\frac{dY/Y}{dX/X}$

[Option ID = 142472]

2. $\frac{dY/Y}{dX}$

[Option ID = 142473]

3. $\frac{dY}{dX/X}$

[Option ID = 142474]

4. $\frac{dY}{dX}$

[Option ID = 142475]

Topic:- ECNH872K

1) **Attempt following questions**

Consider the estimated regression model as

$$\ln \hat{y}_i = 0.284 + 0.092x_{1i} + 0.0041x_{2i} + 0.022x_{3i}$$

$$(0.104) \quad (0.007) \quad (0.0017) \quad (0.003)$$

$$n = 526, R^2 = 0.316$$

Where, y_i is wage of i^{th} individual, x_{1i} is years of schooling completed, x_{2i} is years of experience and x_{3i} is tenure. Figures in parenthesis are standard errors of the estimated coefficients.

What is the value of test statistic that you will compute to test the null hypothesis (H_0) that return to education is zero? [Question ID = 19037][Question Description = N_Ph.D.ECNH_Q63]

1. 1.77 [Option ID = 142476]

2. 13.14 [Option ID = 142477]
3. 1.58 [Option ID = 142478]
4. 10.65 [Option ID = 142479]

2) **Attempt following questions**

Consider the estimated regression model as

$$\ln \hat{y}_i = 0.284 + 0.092x_{1i} + 0.0041x_{2i} + 0.022x_{3i}$$

(0.104) (0.007) (0.0017) (0.003)

$$n = 526, R^2 = 0.316$$

Where, y_i is wage of i^{th} individual, x_{1i} is years of schooling completed, x_{2i} is years of experience and x_{3i} is tenure. Figures in parenthesis are standard errors of the estimated coefficients.

What decision will you take based on the test statistic at 5% level of significance? [Question ID = 19038][Question Description = N_Ph.D.ECNH_Q64]

1. Fail to reject H_0 [Option ID = 142480]
2. Reject H_0 [Option ID = 142481]
3. Neither reject or accept H_0 [Option ID = 142482]
4. Insufficient information [Option ID = 142483]

Topic:- ECNH872L

1) **Attempt following questions**

In the simple Keynesian model, assume that the consumption function is given by: $C = 200 + 0.75 (Y - T)$. Let the planned investment be Rs.100, government purchases and taxes be both Rs.100.

If government purchases increase to Rs.125, what is the new equilibrium income? [Question ID = 19039][Question Description = N_Ph.D.ECNH_Q77]

1. $Y = 1400$ [Option ID = 142484]
2. $Y = 1300$ [Option ID = 142485]
3. $Y = 1200$ [Option ID = 142486]
4. $Y = 1100$ [Option ID = 142487]

2) **Attempt following questions**

In the simple Keynesian model, assume that the consumption function is given by: $C = 200 + 0.75 (Y - T)$. Let the planned investment be Rs.100, government purchases and taxes be both Rs.100.

What level of government purchases (G) is needed to achieve an income of Rs. 1,600? [Question ID = 19040][Question Description = N_Ph.D.ECNH_Q78]

1. G must increase to 170 [Option ID = 142488]
2. G must increase to 175 [Option ID = 142489]
3. G must increase to 180 [Option ID = 142490]
4. G must increase to 185 [Option ID = 142491]

Topic:- ECNH872M

1) **Attempt following questions**

The index of export prices, import prices, the volume of exports, and productivity in the export sector in a country is equal to 100 each in 1980.

What would be the commodity terms of trade in 2000, if the index of its export prices rises by 10 percent but the index of its import prices rise by 20 percent? [Question ID = 19041][Question Description = N_Ph.D.ECNH_Q79]

1. Commodity terms of trade would be 91.1 [Option ID = 142492]
2. Commodity terms of trade would be 91.2 [Option ID = 142493]
3. Commodity terms of trade would be 91.4 [Option ID = 142494]
4. Commodity terms of trade would be 91.7 [Option ID = 142495]

2) **Attempt following questions**

The index of export prices, import prices, the volume of exports, and productivity in the export sector in a country is equal to 100 each in 1980.

What would be the country's single factorial terms of trade if its productivity index in the export sector rises to 140 by 2000? [Question ID = 19042][Question Description = N_Ph.D.ECNH_Q80]

1. Single factorial terms of trade would be 128.4 [Option ID = 142496]
2. Single factorial terms of trade would be 130.4 [Option ID = 142497]
3. Single factorial terms of trade would be 132.4 [Option ID = 142498]
4. Single factorial terms of trade would be 134.4 [Option ID = 142499]

