Topic:- DU_J19_MA_ECO

1) The range of the function $f : \Re \to \Re$ defined by

$$f(x) = \frac{x^2 + x + 2}{x^2 + x + 1} \text{ is}$$

[Question ID = 2922]

1. $[\frac{1}{3}, \frac{8}{3}]$ [Option ID = 11688]
2. $(1, \infty)$ [Option ID = 11685]
3. $[1, \frac{7}{3}]$ [Option ID = 11687]
4. $[1, \frac{4}{3}]$ [Option ID = 11686]

Correct Answer :-

2)

Scenario 3 (this scenario appears in multiple questions):

Data from a random sample of 107 home sales in 2003 yielded the regression

$$\begin{array}{lllllll} \hat{P} = & 119.2+ & 0.485^*BD+ & 23.4^*BA+ & 0.156^*HS+ & 0.002^*PS+ & 0.090^*A- \quad 35.6^*PC \\ & (23.9) & (2.61) & (10.76) & (0.011) & (0.00048) & (0.311) \quad (10.5) \end{array}$$

$R^2 = 0.72$; $SER = 41.5$, P is price or value (Rs. 1000), BD is number of bedrooms, BA is number of baths, HS is house size (sq. ft.), PS is plot size (sq. ft.), A is age (years), PC is a dummy variable $= 1$ if the house is in poor condition and $= 0$ otherwise; and the parentheses contain standard errors of the corresponding coefficients. SER is the standard error of the regression.

Question: If a homeowner adds a new bathroom to her house which increases the house size by 100 sq. ft., what is the expected increase in the value of the house?

[Question ID = 2951]

1. Rs. 37,000 [Option ID = 11801]
2. Rs. 39,450 [Option ID = 11802]

3. Rs. 39,000 [Option ID = 11804]

4. Rs. 37,200 [Option ID = 11803]

Correct Answer :-

- Rs. 39,000 [Option ID = 11804]

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3)

The maximum value attained by the function $f(x) = x^3 - x^2 - x - 1$ on the set $S = \{x | x^2 - x - 2 \leq 0\}$ occurs at

[Question ID = 2929]

1. $x = 2$ [Option ID = 11715]

2. $x = 5/2$ [Option ID = 11716]

3. $x = 1$ [Option ID = 11713]

4. $x = 1/3$ [Option ID = 11714]

Correct Answer :-

- $x = 2$ [Option ID = 11715]

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4) A random variable X has a standard normal distribution. What is the closest guess to the probability that X lies in the interval $[2, 3]$?

[Question ID = 2946]

1. 0.05 [Option ID = 11784]

2. 0.001 [Option ID = 11781]

3. 0.25 [Option ID = 11783]

4. 0.025 [Option ID = 11782]

Correct Answer :-

- 0.025 [Option ID = 11782]

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5)

Consider **Scenario 1 (this scenario appears in multiple questions):**

Consider utility functions

$$u_1(x,y) = \begin{cases} 2x, & \text{if } y/x > 2 \\ \max\{x,y\}, & \text{if } y/x \in [1/2, 2] \\ 2y, & \text{if } y/x < 1/2 \end{cases}$$

and

$$u_2(x,y) = \begin{cases} 2x, & \text{if } y/x > 2 \\ x+y, & \text{if } y/x \in [1/2, 2] \\ 2y, & \text{if } y/x < 1/2 \end{cases}$$

Let $p_x > 0$ and $p_y > 0$ be the prices of goods x and y respectively. Let $w > 0$ denote wealth (or income).

Question: For $i = 1, 2$, let $h_i(p_x, p_y, U)$ denote the set of solutions of the problem: choose $x > 0$ and $y > 0$ to minimise $p_x x + p_y y$ subject to $u_i(x,y) \geq U$. Let $e_i(p_x, p_y, U) = p_x X + p_y Y$, where $(X, Y) \in h_i(p_x, p_y, U)$.

[Question ID = 2907]

1. None of the above hold necessarily. [Option ID = 11628]
2. $h_1(p_x, p_y, U) = h_2(p_x, p_y, U)$ [Option ID = 11627]
3. $h_1(p_x, p_y, U) \subset h_2(p_x, p_y, U)$ [Option ID = 11625]
4. $h_1(p_x, p_y, U) \supset h_2(p_x, p_y, U)$ [Option ID = 11626]

Correct Answer :-

- None of the above hold necessarily. [Option ID = 11628]

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6) $\lim_{x\to\infty}\left(\frac{x^2-x+1}{x+1} - c_1 x - c_2\right) = -5$. So, it must be that (c_1, c_2) equals

[Question ID = 2924]

1. $(1,3)$ [Option ID = 11696]
2. $(2,-3)$ [Option ID = 11693]
3. $(1,2)$ [Option ID = 11695]
4. $(2,3)$ [Option ID = 11694]

Correct Answer :-

$(1, 3)$

- [Option ID = 11696]

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7) The efficiency wage theory argues that

[Question ID = 2937]

1. Firms choose to pay a lower wage than the classical equilibrium wage, thus the real wage is lower than the wage at which the labor market clears. [Option ID = 11747]
2. Firms choose to pay a higher wage than the classical equilibrium wage, thus the real wage is higher than the wage at which the labor market clears. [Option ID = 11745]
3. Firms choose to pay a higher wage than the classical equilibrium wage, thus the real wage is lower than the wage at which the labor market clears. [Option ID = 11746]
4. Firms choose to pay a lower wage than the classical equilibrium wage, thus the real wage is higher than the wage at which the labor market clears. [Option ID = 11748]

Correct Answer :-

- Firms choose to pay a higher wage than the classical equilibrium wage, thus the real wage is higher than the wage at which the labor market clears. [Option ID = 11745]

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8) According to the theory of comparative advantage, countries gain from trade because

[Question ID = 2913]

1. All firms can take advantage of cheap labor. [Option ID = 11650]
2. Trade makes firms behave more competitively, reducing their market power. [Option ID = 11649]
3. Output per worker in each firm increases. [Option ID = 11651]
4. World output can rise when each country specializes in what its does relatively best. [Option ID = 11652]

Correct Answer :-

- World output can rise when each country specializes in what its does relatively best. [Option ID = 11652]

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9) In the 2-factor, 2-good Heckscher-Ohlin model, the two countries differ in

[Question ID = 2915]

1. tastes [Option ID = 11660]
2. relative availabilities of factors of production [Option ID = 11659]
3. labour productivities [Option ID = 11658]
4. technologies [Option ID = 11657]

Correct Answer :-

- relative availabilities of factors of production [Option ID = 11659]

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10)
The line $y = 2x + 5$ is tangent to a circle with equation $x^2 + y^2 + 16x + 12y + c = 0$, at point P. So, P equals

[Question ID = 2923]

1. $(-6, -7)$ [Option ID = 11691]
2. $(-9, -7)$ [Option ID = 11689]
3. $(-11, -15)$ [Option ID = 11692]
4. $(-10, -12)$ [Option ID = 11690]

Correct Answer :-

- $(-6, -7)$ [Option ID = 11691]

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11)
The random variable X denotes the number of successes in a sequence of independent trials, each with a probability p of success. Let $\overline{X}$ denote the mean number of successes. We know that $\overline{X}$

[Question ID = 2949]

1. approximates a Normal distribution with mean p [Option ID = 11795]
2. has a Binomial distribution with mean p [Option ID = 11793]
3. None of the above [Option ID = 11796]
4. has a Normal distribution with mean p [Option ID = 11794]

Correct Answer :-

- approximates a Normal distribution with mean p [Option ID = 11795]

12)

Consider **Scenario 2 (this scenario appears in multiple questions):**

Trader 1 is endowed with 100 identical Left shoes. Trader 2 is endowed with 99 identical Right shoes. Each trader's utility from her allocation of shoes is equal to the number of complete pairs of shoes in the allocation. Traders 1 and 2 trade shoes in competitive markets and arrive at a competitive equilibrium. Assume that shoes are infinitely divisible.

Question: Given their endowments, an efficient allocation

[Question ID = 2910]

1. must give trader 1 at least 99 Left shoes [Option ID = 11639]
2. must give trader 1 at least 50 Right shoes [Option ID = 11638]
3. none of the above [Option ID = 11640]
4. must give trader 1 at least 50 Left shoes [Option ID = 11637]

Correct Answer :-

- none of the above [Option ID = 11640]

13)

A family has two children and it is known that at least one is a girl. What is the probability that both are girls given that at least one is a girl?

[Question ID = 2943]

1. $\frac{1}{2}$ [Option ID = 11769]
2. $\frac{2}{3}$ [Option ID = 11772]
3. $\frac{1}{3}$ [Option ID = 11770]
4. $\frac{3}{4}$ [Option ID = 11771]

Correct Answer :-

- $\frac{1}{3}$ [Option ID = 11770]

14)

It is known that there is a rational number between any two distinct irrational numbers. Consider a continuous function $f : \Re \to \Re$ such that $f(x) = \sin x$ for every rational number x. If x is an irrational number, then

[Question ID = 2918]

1. $f(x) = \sin x$ [Option ID = 11672]
2. $f(x) = (\sin x)/2 + (\cos x)/2$ [Option ID = 11670]
3. $f(x) = \sin(x/2) + \cos(x/2)$ [Option ID = 11669]
4. $f(x) = \cos x$ [Option ID = 11671]

Correct Answer :-

- $f(x) = \sin x$ [Option ID = 11672]

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15)

Consider **Scenario 2 (this scenario appears in multiple questions):**

Trader 1 is endowed with 100 identical Left shoes. Trader 2 is endowed with 99 identical Right shoes. Each trader's utility from her allocation of shoes is equal to the number of complete pairs of shoes in the allocation. Traders 1 and 2 trade shoes in competitive markets and arrive at a competitive equilibrium. Assume that shoes are infinitely divisible.

Question: An equilibrium allocation of shoes gives trader 2

[Question ID = 2909]

1. at most 50 Right shoes [Option ID = 11636]
2. at least 99 Left shoes [Option ID = 11634]
3. at most 50 Left shoes [Option ID = 11633]
4. at most 99 Left shoes [Option ID = 11635]

Correct Answer :-

- at least 99 Left shoes [Option ID = 11634]

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16)

Assume that the aggregate production of an economy is $Y_t = \sqrt{K_t L_t}$, where $K_{t+1} = (1-\delta)K_t + I_t, S_t = sY_t$ and $L_t = L$ (i.e., the notation and meanings correspond to the setting for the Solow Model with constant population). Then, the savings rate s that maximizes the steady state rate of consumption equals

[Question ID = 2932]

1. $1/2$ [Option ID = 11726]
2. $\delta/(1+\delta)$ [Option ID = 11725]
3. None of the above. [Option ID = 11728]
4. $1/(1+\delta)$ [Option ID = 11727]

Correct Answer :-

- $1/2$ [Option ID = 11726]

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17)

Consider a function $f : \Re^2 \to \Re$. Suppose, for every $p \in \Re^2$, there exists $x(p) \in \Re^2$ such that $f(x(p)) \geq 1$ and $p.x(p) \leq p.y$ for every $y \in \Re^2$ such that $f(y) \geq 1$. Define $g : \Re^2 \to \Re$ by $g(p) = p.x(p)$. Then, g is

[Question ID = 2920]

1. linear [Option ID = 11677]
2. quasi-convex [Option ID = 11679]
3. convex [Option ID = 11678]
4. concave [Option ID = 11680]

Correct Answer :-

- concave [Option ID = 11680]

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18)

Given nonempty subsets of $\Re^2$, say $Y_1, \ldots, Y_n$, let $Y^* = \{\sum_{j=1}^n y_j \mid y_1 \in Y_1, \ldots, y_n \in Y_n\}$. Given $p \in \Re^2$ and a nonempty set $Y \subset \Re^2$, let $V(p, Y) = \sup\{p.y \mid y \in Y\}$. Then, for every p,

[Question ID = 2921]

1. $v(p, Y^*) \geq \sum_{j=1}^n v(p, Y_j)$ [Option ID = 11684]
2. $v(p, Y^*) = \sum_{j=1}^n v(p, Y_j)$ [Option ID = 11682]
3. $v(p, Y^*) \leq \sum_{j=1}^n v(p, Y_j)$ [Option ID = 11683]
4. $v(p, Y^*) < \sum_{j=1}^n v(p, Y_j)$ or $v(p, Y^*) \geq \sum_{j=1}^n v(p, Y_j)$ [Option ID = 11681]

Correct Answer :-

- $v(p, Y^*) = \sum_{j=1}^{n} v(p, Y_j)$ [Option ID = 11682]

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19)
In a simple open economy framework, an increase in government spending leads to

[Question ID = 2939]

1. A rise in budget deficit and a fall in current account deficit [Option ID = 11753]
2. A fall in both budget and current account deficits [Option ID = 11756]
3. A fall in budget deficit and a rise in current account deficit [Option ID = 11754]
4. A rise in both budget and current account deficits [Option ID = 11755]

Correct Answer :-

- A rise in both budget and current account deficits [Option ID = 11755]

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20) The matrix $Q = PAP^T$, where P^T is the transpose of the matrix P, and

$$P = \begin{pmatrix} \sqrt{3}/2 & 1/2 \\ -1/2 & \sqrt{3}/2 \end{pmatrix}$$

$$A = \begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$$

Then, $P^T Q^{12} P$ equals

[Question ID = 2925]

1. $\begin{pmatrix} 1 & 0 \\ 144 & 1 \end{pmatrix}$ [Option ID = 11699]
2. $\begin{pmatrix} 1 & 144 \\ 0 & 1 \end{pmatrix}$ [Option ID = 11698]
3. $\begin{pmatrix} 2+\sqrt{3} & 1 \\ -1 & 2-\sqrt{3} \end{pmatrix}$ [Option ID = 11700]

4. $\begin{pmatrix} 1 & 12 \\ 0 & 1 \end{pmatrix}$ [Option ID = 11697]

Correct Answer :-

- $\begin{pmatrix} 1 & 12 \\ 0 & 1 \end{pmatrix}$ [Option ID = 11697]

21)

Nitin is a stamp collector and consumes only stamps and cheese sandwiches. His utility function is $u(s, c) = s + \log c$. If Nitin is at a point where he is consuming both goods, then the total amount that he is spending on cheese sandwiches depends

[Question ID = 2912]

1. on all three of the above [Option ID = 11648]
2. only on the price of stamps [Option ID = 11646]
3. only on the price of sandwiches [Option ID = 11645]
4. only on his income [Option ID = 11647]

Correct Answer :-

- only on the price of stamps [Option ID = 11646]

22)
[Question ID = 2933]

1. [Option ID = 11732]
2. [Option ID = 11730]
3. [Option ID = 11729]
4. [Option ID = 11731]

Correct Answer :-

- [Option ID = 11730]

23)
[Question ID = 2930]

1. [Option ID = 11719]
2. [Option ID = 11720]
3. [Option ID = 11718]
4. [Option ID = 11717]

Correct Answer :-

- [Option ID = 11718]

24)
[Question ID = 2934]

1. [Option ID = 11736]
2. [Option ID = 11735]
3. [Option ID = 11733]
4. [Option ID = 11734]

Correct Answer :-

- [Option ID = 11735]

25)
[Question ID = 2911]

1. [Option ID = 11643]
2. [Option ID = 11644]
3. [Option ID = 11641]
4. [Option ID = 11642]

Correct Answer :-

- [Option ID = 11641]

26)
[Question ID = 2927]

1. [Option ID = 11705]
2. [Option ID = 11707]
3. [Option ID = 11708]
4. [Option ID = 11706]

Correct Answer :-

- [Option ID = 11708]

27)
[Question ID = 2954]

1. [Option ID = 11815]
2. [Option ID = 11813]
3. [Option ID = 11816]
4. [Option ID = 11814]

Correct Answer :-

- [Option ID = 11815]

28)
[Question ID = 2938]

1. [Option ID = 11749]
2. [Option ID = 11751]
3. [Option ID = 11752]
4. [Option ID = 11750]

Correct Answer :-

- [Option ID = 11749]

29)
[Question ID = 2917]

1. [Option ID = 11666]
2. [Option ID = 11665]
3. [Option ID = 11668]
4. [Option ID = 11667]

Correct Answer :-

- [Option ID = 11668]

30)
[Question ID = 2919]

1. [Option ID = 11676]
2. [Option ID = 11675]
3. [Option ID = 11673]
4. [Option ID = 11674]

Correct Answer :-

- [Option ID = 11674]

31)
[Question ID = 2908]

1. [Option ID = 11630]
2. [Option ID = 11631]
3. [Option ID = 11629]
4. [Option ID = 11632]

Correct Answer :-

- [Option ID = 11632]

32)
[Question ID = 2952]

1. [Option ID = 11805]
2. [Option ID = 11807]
3. [Option ID = 11806]
4. [Option ID = 11808]

Correct Answer :-

- [Option ID = 11807]

33)
[Question ID = 2931]

1. [Option ID = 11724]
2. [Option ID = 11721]
3. [Option ID = 11723]
4. [Option ID = 11722]

Correct Answer :-

- [Option ID = 11722]

34)
[Question ID = 2947]

1. [Option ID = 11785]
2. [Option ID = 11788]
3. [Option ID = 11786]
4. [Option ID = 11787]

Correct Answer :-

- [Option ID = 11787]

35)
[Question ID = 2950]

1. [Option ID = 11800]
2. [Option ID = 11799]
3. [Option ID = 11797]

4. [Option ID = 11798]

Correct Answer :-

- [Option ID = 11798]

36) **[Question ID = 2936]**

1. [Option ID = 11744]
2. [Option ID = 11743]
3. [Option ID = 11742]
4. [Option ID = 11741]

Correct Answer :-

- [Option ID = 11741]

37) **[Question ID = 2953]**

1. [Option ID = 11812]
2. [Option ID = 11811]
3. [Option ID = 11809]
4. [Option ID = 11810]

Correct Answer :-

- [Option ID = 11809]

38) **[Question ID = 2926]**

1. [Option ID = 11704]
2. [Option ID = 11703]
3. [Option ID = 11702]
4. [Option ID = 11701]

Correct Answer :-

- [Option ID = 11702]

39) **[Question ID = 2955]**

1. [Option ID = 11817]
2. [Option ID = 11818]
3. [Option ID = 11820]
4. [Option ID = 11819]

Correct Answer :-

- [Option ID = 11818]

40) **[Question ID = 2945]**

1. [Option ID = 11779]
2. [Option ID = 11778]
3. [Option ID = 11780]
4. [Option ID = 11777]

Correct Answer :-

- [Option ID = 11778]

41)

[Question ID = 2928]

1. [Option ID = 11712]
2. [Option ID = 11711]
3. [Option ID = 11709]
4. [Option ID = 11710]

Correct Answer :-

- [Option ID = 11710]

42)
[Question ID = 2940]

1. [Option ID = 11760]
2. [Option ID = 11758]
3. [Option ID = 11757]
4. [Option ID = 11759]

Correct Answer :-

- [Option ID = 11759]

43)
[Question ID = 2941]

1. [Option ID = 11762]
2. [Option ID = 11764]
3. [Option ID = 11763]
4. [Option ID = 11761]

Correct Answer :-

- [Option ID = 11763]

44)
[Question ID = 2944]

1. [Option ID = 11774]
2. [Option ID = 11773]
3. [Option ID = 11775]
4. [Option ID = 11776]

Correct Answer :-

- [Option ID = 11776]

45)
[Question ID = 2914]

1. [Option ID = 11654]
2. [Option ID = 11653]
3. [Option ID = 11656]
4. [Option ID = 11655]

Correct Answer :-

- [Option ID = 11654]

46)
[Question ID = 2935]

1. [Option ID = 11740]
2. [Option ID = 11739]
3. [Option ID = 11738]
4. [Option ID = 11737]

Correct Answer :-

- [Option ID = 11737]

47)
[Question ID = 2948]

1. [Option ID = 11792]
2. [Option ID = 11790]
3. [Option ID = 11789]
4. [Option ID = 11791]

Correct Answer :-

- [Option ID = 11790]

48)
[Question ID = 2916]

1. [Option ID = 11662]
2. [Option ID = 11661]
3. [Option ID = 11663]
4. [Option ID = 11664]

Correct Answer :-

- [Option ID = 11664]

49)
[Question ID = 2942]

1. [Option ID = 11767]
2. [Option ID = 11768]
3. [Option ID = 11765]
4. [Option ID = 11766]

Correct Answer :-

- [Option ID = 11767]

50)
[Question ID = 2906]

1. [Option ID = 11623]
2. [Option ID = 11624]
3. [Option ID = 11621]
4. [Option ID = 11622]

Correct Answer :-

- [Option ID = 11623]