Section A: Q.1 – Q.10 Carry ONE mark each.	
Q.1	Which one of the following is a non-parametric test?
(A)	χ^2 - test
(B)	t - test
(C)	F - test
(D)	z - test
Q.2	Let x and y be two consumption bundles, assumed to be non-negative and perfectly divisible. Further, the assumptions of completeness, transitivity, reflexivity, non-satiation, continuity, and strict convexity are satisfied. Then, which of the following statements is NOT CORRECT?
(A)	Either $x \gtrsim y$, or $y \gtrsim x$, or both
(B)	$y \succ x$ if y contains more of at least one good and no less of any other
(C)	x is not indifferent to itself
(D)	For x (or y), its better set is strictly convex

Q.3	Consider a production function of the form: $$Y = a\log L + (1-a)\log K\,, \qquad a \in (0,1), \qquad a \neq 0.5$$ where, Y is output, L is labour, and K is capital. Then, the absolute value of elasticity of substitution is
(A)	1
(B)	a
(C)	$(1-a)$
(D)	∞
Q.4	Consider a closed economy with consumption function $C = 2 + 0.5Y$, where Y is income. The government expenditure is 3 and investment function is $I = 4 - 0.5r$, where r is interest rate. Then, the slope of the IS curve will be
(A)	1
(B)	-0.5
(C)	1.5
(D)	-1

Q.5	Which of the following was announced in the Union Budget 2023-24 to enhance the skills of lakhs of youth in the next 3 years?
(A)	Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 1.0
(B)	Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 2.0
(C)	Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 3.0
(D)	Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 4.0
Q.6	Suppose a random variable X follows an exponential distribution with mean 50. Then, the value of the conditional probability $P(X > 70 \mid X > 60)$ is
(A)	$e^{-\frac{7}{5}}$
(B)	$e^{-\frac{6}{5}}$
(C)	$e^{-\frac{1}{5}}$
(D)	$e^{-\frac{7}{6}}$

Q.7	Which of the following measures was NOT initiated by the Government of India as a part of economic reforms in 1991?
(A)	Announcement of new industrial policy
(B)	Full convertibility of rupee on the capital account
(C)	Removal of Quantitative Restrictions
(D)	Guidelines for investment by Foreign Institutional Investors (FIIs) in the capital market
Q.8	Suppose nominal GDP equals 1,000 units and money supply equals 250 units. Based on the quantity theory of money, the velocity of money equals
(A)	40
(B)	4
(C)	2,50,000
(D)	500

Q.9	Let $S_1 = \{(x,y) \in R^2 : x+y \geq 1,\ x+y \leq 2,\ y \geq x^2,\ x,y \geq 0\}$ and $S_2 = \{(x,y) \in R^2 : x+y \geq 1,\ x+y \leq 2,\ y \leq x^2,\ x,y \geq 0\}$. Then, which of the following is CORRECT ?
(A)	Both S_1 and S_2 are convex sets
(B)	S_1 is a convex set but S_2 is not a convex set
(C)	S_2 is a convex set but S_1 is not a convex set
(D)	Neither S_1 nor S_2 are convex sets
Q. 10	$\lim_{x\to\infty}\left(1+\frac{1}{x}\right)^x$ is equal to
(A)	e
(B)	$1/e$
(C)	1
(D)	∞

Section A: Q.11 – Q.30 Carry TWO marks each.	
Q.11	Two distinct integers are chosen randomly from 5 consecutive integers. If the random variable X represents the absolute difference between them, then the mean and variance of X are, respectively,
(A)	1 and $\frac{3}{2}$
(B)	2 and 5
(C)	1 and 3
(D)	2 and 1
Q.12	Consider two independent random variables: $X \sim N(5,4)$ and $Y \sim N(3,2)$. If $(2X+3Y) \sim N(\mu, \sigma^2)$, then the values of mean (μ) and variance (σ^2) are
(A)	$\mu = 19$ and $\sigma^2 = 34$
(B)	$\mu = 8$ and $\sigma^2 = 14$
(C)	$\mu = 19$ and $\sigma^2 = 14$
(D)	$\mu = 8$ and $\sigma^2 = 34$

Q. 13	The optimal value of the linear programming problem Maximise $Z = 2x + 3y$ subject to $5x + 4y \leq 20,$ $3x + 5y \leq 15,$ $2x + y \leq 4,$ $x, y \geq 0,$ is
(A)	4
(B)	$\frac{64}{7}$
(C)	9
(D)	$\frac{72}{7}$

Q.14	The solution of the differential equation $$xy\,dx - (x^2 + y^2)\,dy = 0,\ \ y(0) = 1$$ is
(A)	$y = e^{\frac{x}{y}}$
(B)	$y^2 = e^{\frac{x^2}{y^2}}$
(C)	$y^2 = e^{\frac{x}{y}}$
(D)	$y = e^{\frac{x^2}{y^2}}$
Q.15	Which of the following is NOT CORRECT?
(A)	Permanent settlement was introduced by Lord Cornwallis in Bengal in 1793
(B)	The First War of Indian Independence occurred in 1857
(C)	Dadabhai Naoroji prepared the estimate of national income in 1860
(D)	In 1905, Swadeshi Movement was started in India

Q.16

In a two-player game, player 1 can choose either M or N as strategies. Player 2 can choose either X, Y, or Z as strategies. The payoff matrix is as follows:

	X	Y	Z
M	$3, 1$	$0, 0$	$-1, 2$
N	$0, 0$	$1, 3$	$0.5, 1$

Which set of strategy profiles survives iterated elimination of strictly dominated strategies?

(A) (N, Y)

(B) (M, X)

(C) (N, Z)

(D) (M, Z)

Q.17	For a profit maximising monopolist, the ratio of the profit margin to price (also known as the Lerner Index or the relative mark-up) has a relationship with the price-elasticity of demand at the profit maximising price. Then, which of the following statements is CORRECT?
(A)	The larger the elasticity of demand at the profit maximising price, the greater is the relative mark-up
(B)	The power to sustain a price higher than the marginal cost depends only on the profit maximising price
(C)	At the profit maximising price, given costs are greater than zero, the price elasticity of demand is strictly larger than unity
(D)	At the revenue maximising price, the price elasticity of demand is greater than unity

Q.18 To study the effect of X_1 and X_2 on Y, the following regression model is estimated using a large sample:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

The OLS estimates and standard errors are presented below:

	α	β_1	β_2
Estimates	2.30	0.39	1.80
Standard errors	1.15	0.13	1.00

Given the above information, which of the following is CORRECT?

(A) α is statistically significant at 1% level, β_1 is statistically significant at 5% level, and β_2 is statistically significant at 10% level

(B) α is statistically significant at 1% level, β_1 is statistically significant at 10% level, and β_2 is statistically significant at 5% level

(C) α is statistically significant at 5% level, β_1 is statistically significant at 1% level, and β_2 is statistically significant at 10% level

(D) α is statistically significant at 5% level, β_1 is statistically significant at 10% level, and β_2 is statistically significant at 5% level

Q.19	Suppose high quality and low quality products are sold at the same price to the buyers. The buyers have less information to determine the quality of the product compared to the sellers at the time of purchase. Which of the following problems arises in this situation?
(A)	Moral hazard problem
(B)	Market signaling problem
(C)	Principal-agent problem
(D)	Adverse selection problem
Q.20	Individuals who were either unemployed or out of labour force but had worked for at least 30 days over the reference year were included in the labour force by the NSSO in its labour force surveys. Under which one of the following classifications does the above procedure appear?
(A)	Usual Principal Status
(B)	Usual Principal and Subsidiary Status
(C)	Current Weekly Status
(D)	Current Daily Status

Q.21	Let the production function be given by $$Y_t = A_t K_t^{\alpha} H_t^{\beta} L_t^{1-\alpha-\beta}$$ where, at time t, Y_t is output, A_t is level of Total Factor Productivity, K_t is physical capital, H_t is human capital, and L_t is labour. $\alpha = \frac{1}{5}$ and $\beta = \frac{2}{5}$. If the growth rate of Y_t equals 10 percent, the growth rate of K_t equals 5 percent, the growth rate of H_t equals 5 percent, and the growth rate of L_t equals 10 percent, then the growth rate of A_t is
(A)	2 percent
(B)	3 percent
(C)	5 percent
(D)	10 percent

Q.22	Consider an economy where technology is characterised by the production function: $$Y = 50K^{0.4}L^{0.6}$$ where, Y is output, K is capital, and L is labour. Assuming perfect competition in the product market and in the factor markets, the share of total income paid to labour is equal to
(A)	0.2
(B)	0.3
(C)	0.4
(D)	0.6

Q.23 In a two-player game, player 1 can choose either U or D as strategies. Player 2 can choose either L or R as strategies. Let c be a real number such that $0 < c < 1$. If the payoff matrix is

	L	R
U	$0, 0$	$0, -c$
D	$-c, 0$	$1 - c, 1 - c$

then the number of pure strategy Nash Equilibria in the game equals

(A) 1

(B) 2

(C) 3

(D) 4

Q24	The Rangarajan Panel on 4th June 1993 submitted recommendations related to Balance of Payment (BoP). Which one of the following was NOT a part of the Panel's recommendations?
(A)	Efforts should be made to replace debt flows with equity flows
(B)	The ratio of debt linked to equity should be limited to 1:4
(C)	The minimum targets for foreign reserves should be fixed in such a way that the reserves are generally in a position to accommodate imports of 3 months
(D)	No sovereign guarantee should be extended to private sector

Q.25	According to the "State of Inequality in India Report" from the Institute for Competitiveness, released on 18th May 2022, which of the following statements is CORRECT?
(A)	In India, the percentage of anaemic children under 5 years of age has decreased from 67.1 percent in 2015-16 to 58.6 percent in 2019-21
(B)	The female labour force participation rate in India has increased from 49.8 percent in 2017-18 to 53.5 percent in 2019-20
(C)	Using data from the Periodic Labour Force Survey (PLFS) 2019-20, the report shows that individuals with monthly salary of Rs. 25,000 are among the top 10 percent of total wage earners
(D)	By the end of 2019-20, 95 percent of all schools in India have functional toilets for girls

Q.26	Consider the production function: $$Q(K,L) = \left(2\sqrt{K} + 3\sqrt{L}\right)^2$$ where Q is the output, K is capital, and L is labour. If η_K and η_L denote the output elasticities with respect to capital and labour, respectively, then the value of $(\eta_K + \eta_L)$ is
(A)	2
(B)	1
(C)	4
(D)	0.5
Q.27	Consider a short-run Phillips curve with a constant expected rate of inflation. If the aggregate demand decreases unexpectedly and the labour force remains the same, then what will happen to aggregate price and unemployment rate?
(A)	Aggregate price rises and unemployment rate falls
(B)	Aggregate price falls and unemployment rate rises
(C)	Aggregate price rises and unemployment rate rises
(D)	Aggregate price falls and unemployment rate falls

Q.28	Suppose the price elasticity of demand (e_D) is $-\frac{1}{5}$ and the price elasticity of supply (e_S) is $\frac{2}{5}$. Then, the incidence of a specific (or unit) tax on the firms is equal to
(A)	$\frac{1}{3}$
(B)	$\frac{2}{3}$
(C)	$\frac{1}{2}$
(D)	$\frac{1}{4}$

Q.29	The differential equation satisfied by circles with radius 3 and center lying on the Y-axis is
(A)	$\left(\frac{dy}{dx}\right)^2 = \frac{x^2}{9 + x^2}$
(B)	$\left(\frac{dy}{dx}\right)^2 = \frac{9 + y^2}{y^2}$
(C)	$\left(\frac{dy}{dx}\right)^2 = \frac{x^2}{9 - x^2}$
(D)	$\left(\frac{dy}{dx}\right)^2 = \frac{9 - y^2}{y^2}$

Q.30	Suppose expected inflation rate (π_t^e) of an individual is formed as: $$\pi_t^e = (1-\theta)\,\bar{\pi} + \theta\,\pi_{t-1}$$ where, $\bar{\pi}$ is constant inflation rate, π_{t-1} is previous year's inflation rate, and $0 \leq \theta \leq 1$ is weight assigned to inflation rate at different points in time. Then, which of the following is NOT CORRECT?
(A)	If $\theta = 0$, then the individual assumes a constant inflation rate
(B)	If $\theta \approx 1$ and $\bar{\pi} < \pi_{t-1}$, then the individual expects this year's inflation rate to be similar to last year
(C)	The original Phillips curve is derived under the assumption of $\theta \approx 1$
(D)	A modified Phillips curve is derived under the assumption of $\theta = 1$

Section B: Q.31 – Q.40 Carry TWO marks each.	
Q.31	In the case of a small open economy with fixed exchange rate regime and imperfect capital mobility, which of the following is/are CORRECT?
(A)	Fiscal contraction will lead to Balance of Payment deficit in the short-run if the slope of LM curve is greater than the slope of Balance of Payment curve
(B)	Fiscal contraction will lead to Balance of Payment deficit in the short-run if the slope of LM curve is less than the slope of Balance of Payment curve
(C)	Monetary expansion leads to Balance of Payment surplus in the short-run irrespective of the slopes of the LM curve and the Balance of Payment curve
(D)	Monetary expansion leads to Balance of Payment deficit in the short-run irrespective of the slopes of the LM curve and the Balance of Payment curve

Q.32	Consider the following three utility functions: $F = (4x_1 + 2x_2), \quad G = \min(4x_1, 2x_2)$ and $H = (\sqrt{x_1} + x_2)$ where, x_1 and x_2 are two goods available at unit prices p_{x_1} and p_{x_2}, respectively. Which of the following is/are CORRECT for the above utility functions?
(A)	The marginal rate of substitution is given by $-1, -2,$ and $-0.5\sqrt{x_1}$ for the utility functions F, G, and H, respectively
(B)	If $p_{x_1} = p_{x_2}$, then the utility maximisation problem with utility function F has a corner solution
(C)	If income is 100 and $p_{x_1} = p_{x_2} = 2$, then in the utility maximisation problem with utility function G, the sum of the optimal values of x_1 and x_2 is 50
(D)	If income is 100, $p_{x_1} = 5$, and $p_{x_2} = 5000$, then in the utility maximisation problem with the utility function H, the optimal value of x_2 is 20

Q.33	The characteristics of pure public good is/are
(A)	rival in consumption
(B)	excludable in consumption
(C)	non-rival in consumption
(D)	non-excludable in consumption

Q.34 Consider a hypothetical economy where only apples and oranges are produced for three years:

	Apples		Oranges	
Year	Quantity (Kg.)	Price (Rs. per Kg.)	Quantity (Kg.)	Price (Rs. per Kg.)
2015	10	180	5	200
2016	15	200	12	300
2017	18	250	15	350

Which of the following is/are CORRECT?

(A) Real GDP in the year 2017 (base year = 2016) is Rs. 4,250

(B) Real GDP in the year 2016 (base year = 2015) is Rs. 3,500

(C) Nominal GDP in the year 2015 is Rs. 6,600

(D) Price level, as measured by GDP deflator, increased in 2017 as compared to 2016 (base year = 2016)

Q.35	Let a random variable X has mean μ_x and non-zero variance σ_x^2, and another random variable Y has mean μ_y and non-zero variance σ_y^2. If the correlation coefficient between X and Y is ρ, then which of the following is/are CORRECT?
(A)	$\lvert\rho\rvert \leq 1$
(B)	The regression line of Y on X is $y = \mu_y + \frac{\rho\sigma_x}{\sigma_y}(x - \mu_x)$
(C)	The variance of $X - Y$ is $\sigma_x^2 + \sigma_y^2 - 2\rho\sigma_x\sigma_y$
(D)	$\rho = 0$ implies X and Y are independent random variables

Q.36	Let $X_1, X_2, \ldots, X_n$ be a random sample of size $n > 1$ drawn from a probability distribution having mean μ and non-zero variance σ^2. Then, which of the following is/are CORRECT?
(A)	The sample mean has standard deviation $\frac{\sigma}{\sqrt{n}}$
(B)	The probability distribution of $\frac{\Sigma_{i=1}^{n}(X_i - \mu)}{\sigma\sqrt{n}}$ will tend to follow standard normal distribution as $n \to \infty$
(C)	$\frac{(n-1)S^2}{\sigma^2}$ will follow χ^2 distribution with $(n-1)$ degrees of freedom, where S^2 is the sample variance
(D)	The sample mean is always a consistent estimator of μ

Q.37	Let $M = \begin{pmatrix} \alpha & -6 \\ -1 & 1 \end{pmatrix}$, $\alpha \in R$ be a 2×2 matrix. If the eigenvalues of M are β and 4, then which of the following is/are CORRECT?
(A)	$\alpha + \beta = 1$
(B)	An eigenvector corresponding to β is $[2, 1]^T$
(C)	The rank of the matrix M is 2
(D)	The matrix $M^2 + M$ is invertible
Q. 38	Let $f : R^2 \to R$ be a function defined as $$f(x,y) = \begin{cases} \dfrac{x^2 y}{x^4 + y^2}, & \text{if } (x,y) \neq (0,0), \\ 0, & \text{if } (x,y) = (0,0). \end{cases}$$ Then, which of the following is/are CORRECT?
(A)	$\lim_{(x,y) \to (0,0)} f(x,y) = 0$
(B)	$f_x(0,0) = 0$
(C)	$f(x,y)$ is not continuous at $(0,0)$
(D)	Both f_x and f_y do not exist at $(0,0)$

Q.39	Which of the following is/are NOT CORRECT?
(A)	Under the Reserve Bank of India Act, 1938, every scheduled bank has to keep certain minimum cash reserves with the RBI
(B)	CRR is the statutory reserve requirements to be kept by every scheduled bank with the RBI
(C)	A higher SLR increases the capacity of commercial banks to grant loans and advances
(D)	A high SLR can be considered as a tax on the banking system

Q.40	According to the NITI Aayog's "National Multidimensional Poverty Index: A Progress Review 2023", which of the following is/are CORRECT?
(A)	The rural areas in India have experienced fastest decline in percentage of multidimensional poverty from 35.59 percent in 2015-16 to 21.28 percent in 2019-21
(B)	The incidence of poverty in urban areas in India increased from 5.27 percent in 2015-16 to 8.65 percent in 2019-21
(C)	A decline in India's Multidimensional Poverty Index in 2019-21 is due to improvement in all the 12 indicators
(D)	At the national level, there is a decline in the intensity of poverty between 2015-16 and 2019-21

Section C: Q.41 – Q.50 Carry ONE mark each.	
Q.41	A firm has a production function that is homogenous of degree one given by $Q = 2\sqrt{LK}$, where Q is quantity, L is labour and K is capital. The unit price of L is Rs. 4 and the unit price of K is Rs. 16. Assuming that there is zero fixed cost, the total cost (long run) of producing 10 units of Q is Rs. _____ (*in integer*).
Q.42	Two students A and B are assigned to solve a problem separately. The (conditional) probability that A can solve the problem given that B cannot solve it, is $\frac{1}{5}$. The (conditional) probability that B can solve the problem given that A can solve the problem is $\frac{3}{5}$. The probability that A can solve the problem is $\frac{1}{10}$. Then, the probability that B can solve the problem is _____ (*rounded off to one decimal place*).
Q.43	Suppose the cash reserve ratio is 5 percent in a country. Assume that commercial banks keep zero excess reserve and the cash-to-deposit ratio is 5 percent. To increase the money supply by Rs. 10,500 crores, the central bank of the country should inject Rs. _____ crores (*in integer*).

Q.44	Suppose an Indian company borrowed 300 dollars from a foreign bank at the beginning of the year and repaid it in dollars along with the agreed interest rate of 12 percent per annum. At the time of borrowing, the exchange rate was Rs. 70 per dollar. Assuming zero inflation rate in both the countries, the real cost of borrowing will be zero if the exchange rate is Rs. _____ per dollar at the time of repayment (*rounded off to one decimal place*).
Q.45	There are 32 students in a class. Three courses namely English, Hindi and Mathematics are offered to them. Each student must register for at least one course. If 16 students take English, 8 students take Hindi, 18 students take Mathematics, 4 students take both English and Hindi, 5 students take both Hindi and Mathematics, and 5 students take both English and Mathematics, then the number of students who take Mathematics only is _____ (*in integer*).
Q.46	Let an inverse demand function for a commodity be $p = e^{-\frac{x}{2}}$, where x is the quantity and p is the price. Then, at $p = 0.5$, the consumer surplus is equal to _____ (*rounded off to two decimal places*).

Q.47	The linear system of equations $$x + y = 3,$$ $$x + (k^2 - 8)y = k, \quad k \in R$$ has no solution for $k =$ _____ (*in integer*).
Q.48	A manufacturer producing pens has the following information regarding the cost of production of pens: Output (Q): 1, 2, 3 Total Costs (TC): 4, 13, 32 If the total cost function is of the form $TC(Q) = aQ^2 + bQ + c$ where a, b, and c are constants, then the value of $TC(Q)$ at $Q = 4$ is _____ (*in integer*).

Q.49 Consider the information given in the table below:

Year	Unemployment Rate (in percent)	Number of unemployed (in millions)	Labour Force Participation Rate (in percent)
2010	15	30	70
2020	20	50	80

The percentage change in working-age population from 2010 to 2020 is _____ (*rounded off to two decimal places*).

Q.50 Consider the following information:

Consumption $(C) = 250 + 0.25Y_d$, where Y_d is disposable income

Autonomous Investment $(I_0) = 100$

Government Expenditure $(G_0) = 50$

Income tax rate $(t) = 20$ percent

The equilibrium level of consumption in the economy is _____ (*in integer*).

Section C: Q.51 – Q.60 Carry TWO marks each.	
Q.51	An individual owns a mobile phone, currently valued at Rs. 40,000. The current wealth of the individual is Rs. 2,00,000 (including the value of the mobile phone). According to reports, there is a 20 percent chance of mobile phone theft and an actuarially fair insurance policy is available to insure the loss of the mobile phone against a theft. The individual's von-Neumann-Morgenstern utility of wealth function is given by $U(W) = \sqrt{W}$, where W is the wealth. Then, the maximum willingness to pay for such an actuarially fair insurance policy is Rs. _____ (*rounded off to nearest integer*).
Q.52	Consider the following AK model where the production function is given by $$Y = AK$$ where Y is output, K is capital, and A is a constant that reflects the level of technology. Suppose there is zero technological progress in the economy and $A = 0.50$. In the economy, the savings rate equals 0.60 and the depreciation rate for the capital stock equals 0.05. The population growth rate equals zero and the size of the labour force is normalised to 1. Based on the AK model, the steady state growth rate of output per capita in the economy equals _____ percent (*in integer*).

<table>
<tr><td></td><td></td></tr>
<tr><td>Q.53</td><td>A regression equation $Y = -2.5 + 2X$ is estimated using the following data:

<table><tr><td>Y</td><td>2</td><td>5</td><td>9</td><td>14</td></tr><tr><td>X</td><td>2</td><td>4</td><td>6</td><td>8</td></tr></table>
The coefficient of determination is _____ (rounded off to two decimal places).</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Q.54</td><td>A consumer’s utility function is given by:

$$u(x_1, x_2) = (2x_1 - 1)^{0.25}(x_2 - 4)^{0.75}$$

If the consumer has a budget of 73 and the unit prices of x_1 and x_2 are given by 2 and 1, respectively, then the value of $(x_1 + x_2)$ is _____ (rounded off to two decimal places).</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Q.55</td><td>An industry has 6 firms in Cournot competition. Each of the 6 firms has zero fixed costs, and a constant marginal cost equal to 20. The product is homogenous and the industry inverse demand function is given by $P = 230 - Q$, where P is the market price and Q is the industry output (sum of outputs of the 6 firms). The market price under Cournot-Nash equilibrium is equal to _____ (in integer).</td></tr>
</table>

Q.56	Let the value of a random sample drawn from a normal distribution with mean 5 and unknown standard deviation σ be $4.8, 4.5, 5.1, 5.2, 5.3, 5.5$. Then, the maximum likelihood estimate of σ^2 is _____ (*rounded off to two decimal places*).
Q.57	An economy produces a consumption good and also has a research sector which produces new ideas. Time is discrete and indexed by $t = 0, 1, 2, ...$ The production function for the consumption good is given by $$Y_t = A_t L_{yt}$$ where, at time t, Y_t is the amount of consumption good produced, A_t is the stock of existing knowledge, and L_{yt} is the amount of labour devoted to production of consumption good. It is known that $A_0 = 1$. The production function for new ideas is given by $$A_{t+1} - A_t = \frac{1}{250} A_t L_{at}$$ where L_{at} is the amount of labour devoted to production of new ideas at time t. Suppose that for all t, $L_{at} = 10$ and $L_{yt} = 90$. Then, the growth rate of the consumption good (Y_t) at $t = 50$ is _____ percent (*in integer*).

Q.58	Consider a closed economy IS-LM model. The goods and the money market equations are respectively given as follows: $$Y = 90 + 0.8Y_d - 100i + G$$ $$M_s = 750 + 0.2Y - 260i$$ where, $Y =$ national income; $Y_d =$ disposable income; $T =$ total tax given by $T = 5 + 0.2Y$; $i =$ interest rate; $G =$ government expenditure $= 300$; $M_s =$ constant money supply $= 950$. The value of T at equilibrium Y is _____ (*rounded off to the nearest integer*).
Q.59	The supply curve is given as $p = 10 + x + 0.1x^2$, where p is the market price and x is the quantity of goods supplied. The change in the producer surplus due to an increase in market price from 30 to 70 is _____ (*rounded off to nearest integer*).

Q.60	There are two goods X and Y and there are two consumers A and B in a pure exchange economy. A and B have Cobb-Douglas utility functions of the form $U_A = 2X^{0.4}Y^{0.6}$ and $U_B = X^{0.3}Y^{0.7}$, respectively. Initially, A is endowed with 50 units of good X and 20 units of good Y. Similarly, B is endowed with 50 units of good X and 20 units of good Y. If the unit price of good Y is normalised to 1, then the equilibrium unit price for good X is _____ (*rounded off to two decimal places*).