APPLIED ECONOMICS RESEARCH CENTRE
UNIVERSITY OF KARACHI

M.S / M.PHIL. PROGRAMME: 2027-28 (FALL)

SAMPLE TEST
FOR
NON-ECONOMISTS

SAMPLE TEST PAPER: 2027-28 (FALL)

READ CAREFULLY THE FOLLOWING INSTRUCTIONS

INSTRUCTIONS

- **The paper contains 80 questions and comprises FIVE following sections.**

Section-I	**Mathematics**
Section-II	**Calculus & Matrices**
Section-III	**Basic Economics**
Section-IV	**Data Interpretation**
Section-V	**Pakistan's Economy**

- **For each correct answer 1 mark will be awarded. There will be no negative marking for wrong answer.**
- **Write the capital letter (A - D) for the correct choice in the box against each question on the Answer Sheet (provided separately to you) and avoid overwriting.**
- **More than one answer to any question in the space provided shall be considered wrong.**
- **Use of PENCIL is NOT allowed. Please use PEN to write your answer on the answer sheet.**
- **Rough work can be done on a separate sheet provided for this purpose. Do not write anything on the test booklet.**
- **Do not detach pages of question paper.**
- **CALCULATORS ARE NOT ALLOWED.**
- **Be sure to return the test booklet after completion along with answer sheet. Failure to do so may result in the cancellation of the paper.**
- **Mobile phones MUST be POWERED OFF.**

NON-ECONOMISTS: 2027-28 (FALL)

SECTION - I
MATHEMATICS

Total Marks: (25)

Q.1 Find the value of *lne + log 1/10*

(A) 1/10 **(B) 10** **(C) 1**
(D) 0 **(E) 2.718**

Q.2 Let *A* be the set of primes less than 6, and *B* be the set of positive odd numbers less than 6. How many different sums of the form a + b are possible, if a is A and B is in B ?

(A) 6 **(B) 7** **(C) 8**
(D) 9 **(E) 10**

Q.3 Find *dy/dx*, if *f(x) = 4/(x²+9)³*

(A) $\frac{12x}{x^2+9}$ **(B)** $\frac{-24x}{(x^2+9)^4}$ **(C)** $\frac{-24x}{(x^2+9)^2}$

(D) $\frac{24x}{(x^2+9)^4}$ **(E)** $\frac{-4x}{(x^2+9)^9}$

Q.4 Find the value of determinant of A

A = $\begin{bmatrix} 2 & 5 & 1 \\ 3 & 2 & 4 \\ 1 & 4 & 2 \end{bmatrix}$

(A) 20 **(B) -34** **(C) -24**
(D) -30 **(E) 22**

Q.5 Find $\int \sqrt[3]{6x}\, dx$

(A) $\frac{\int \sqrt[3]{6}\, x^{4/3}}{4} + c$ **(B)** $3\sqrt{6}\, x^{4/3} + c$ **(C)** $\frac{3\sqrt{6}\, x^{4/3}}{4} + c$

(D) $\frac{3\sqrt[3]{6x}}{4} + c$ **(E) None of the above**

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Q.6 **if $C \neq 0$ and the slope of line passing through $(-c,c)$ and $(3c,a)$ is 1, which of the following is an expression for a in terms of c?**

(A) $-3c$ **(B)** $-c/3$ **(C)** $2c$
(D) $3c$ **(E)** $5c$

Q.7 **If $mx + ny = 12my$ and my is not equal to zero, then $\frac{x}{y}+\frac{n}{m}=$**

(A) 12 **(B)** $12mn$ **(C)** $12m + 12y$
(D) 0 **(E)** $mn + ny$

Q.8 **Find x if $(25)^{x+2} = 5^{3x-4}$**

(A) 8 **(B)** 1/5 **(C)** 6
(D) 5 **(E)** None of these

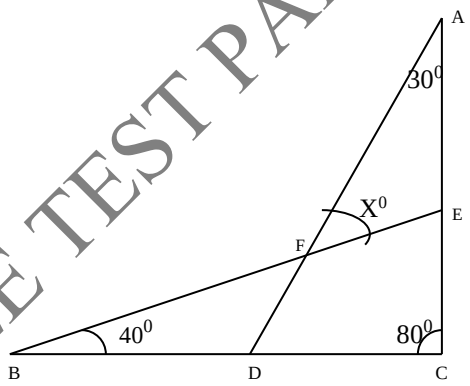
Q.9 **If p, q and r are odd numbers, which of the following could be true?**
(I) $p+q$ **is odd** **(II)** $p+q+r$ **is odd** **(III)** qr **is odd**

(A) I only **(B)** II only **(C)** I and II only
(D) II and III only **(E)** I, II and III only

Q.10 **A bag contains 5 red balls, 3 yellow and 7 black balls. Two balls are drawn without replacement. Given that the first ball is yellow, what is the probability that the second ball drawn is also yellow?**

(A) 3/15 **(B)** 2/15 **(C)** 3/14
(D) 1/7 **(E)** None of above

Q.11



Note: Not drawn to scale

In the above figure, x^0 =

(A) 30^0 **(B)** 40^0 **(C)** 45^0
(D) 60^0 **(E)** 80^0

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SECTION – II
CALCULUS

Total Marks: (15)

Q.1 $y=\frac{x-a}{x+a}$, *find* $\frac{dy}{dx}$

(A) $\frac{2a}{(x+a)^2}$ **(B)** $\frac{2x}{(x+a)^2}$

(C) $-a(x+a)^2$ **(D)** (x^2-a^2)

(E) **None of the above**

Q.2 **Find** $\int e^{3s}\,dx$

(A) $3e^{3x}+c$ **(B)** $3e^{x}+c$

(C) $3x+c$ **(D)** $\frac{e^{3x}+c}{3}$

(E) **None of the above**

Q.3 **If** $A=\begin{bmatrix}2 & 1 & 3\\ 1 & 3 & 4\end{bmatrix}, B=\begin{bmatrix}3 & 1\\ 1 & 4\\ 2 & 5\end{bmatrix}$ *find* AXB

(A) $\begin{bmatrix}33 & 12\\ 21 & 13\end{bmatrix}$ **(B)** $\begin{bmatrix}13 & 21\\ 12 & 33\end{bmatrix}$

(C) $\begin{bmatrix}12 & 21\\ -13 & 12\\ 21 & -33\end{bmatrix}$ **(D)** $\begin{bmatrix}13 & 21 & 12\\ 12 & 33 & 13\end{bmatrix}$

(E) **None of the above**

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SECTION – III
BASIC ECONOMICS

Total Marks: (10)

Q.1 If the CPI in 2000 is 100 and the CPI in 2008 is 110, there has been:

(A) Slight inflation (B) light deflation
(C) Extreme inflation (D) Extreme deflation
(E) Stagflation

Q.2 The opportunity cost of an item is

(A) What you give up to get that item. (B) The dollar value of the item.
(C) Usually less than the dollar value of the item.
(D) The number of hours needed to earn money to buy the item.
(E) None of the above

Q.3 Which of the following is not among the reasons why we need the government?

(A) The government provides social welfare services for the poor and the needy
(B) The government provides public goods and services
(C) The government regulates markets when there is a market failure
(D) The government provides free food for everyone
(E) The government imposes laws and controls to protect competitiveness of the indus

Q.4 The Production Possibility Frontier of a nation shows:

(A) How much people consume
(B) How much production takes place with the existing resources
(C) The prices of products
(D) The population
(E) All of the above

Q.5 A person who starts a business to produce a new product in the marketplace is known as:

(A) A manager (B) A bureaucrat
(C) An Entrepreneur (D) None of the above

Q.6 If the real gross domestic product of a country has increased, but the production of goods has remained the same, then the production of services has:

(A) Increased (B) Decreased
(C) Remained the same (D) None of the above

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SECTION – IV
DATA INTERPRETATION

Total Marks: (15)

Rank	Number in each Rank	Wages Paid to Employees in Rank
Manager	**05**	**$110,000**
Supervisor	**25**	**$350,000**
Assembly Worker	**500**	**$600,000**
Total	**530**	**$1060,000**

Q.1 The wages paid to managers make up to what percent (the nearest percent) of the total payroll?

(A) 05 (B) 09 (C) 10
(D) 11 (E) 42

Q.2 The average wage for all employees is

(A) $1,200 (B) $2,000 (C) $18,000
(D) $20,000 (E) $22,000

Next three questions refer to the following table:

Persons in millions. Civilian non-institutional population as of Nov.01. based on post-election surveys of persons reporting whether or not they voted.

Characteristics	1964		1968		1972	
	Persons of voting age	Percent voted	Persons of voting age	Percent voted	Persons of voting age	Percent voted
Total	**111**	**69**	**117**	**68**	**136**	**63**
Male	**52**	**72**	**54**	**70**	**64**	**64**
Female	**58**	**67**	**62**	**66**	**72**	**62**
White	**99**	**71**	**105**	**69**	**121**	**64**
Negro and other	**11**	**57**	**12**	**56**	**15**	**51**
Negro	**10**	**58**	**11**	**58**	**13**	**52**
Region:						
North and West	**78**	**75**	**82**	**71**	**94**	**66**
South	**32**	**57**	**35**	**60**	**43**	**55**
Age						
18 – 24 years	**10**	**51**	**12**	**50**	**25**	**50**
25 – 45 years	**45**	**69**	**46**	**67**	**49**	**63**
46 – 64 years	**38**	**76**	**40**	**75**	**42**	**71**
65 years and above	**17**	**66**	**18**	**66**	**20**	**63**

Q.3 Which of the following groups had the highest percentage of voters in 1968?

(A) 18 – 24 years (B) Females (C) South
(D) 25 – 44 years (E) Male

Q.4 In 1972, what percent (to the nearest percent) of persons of voting age were female?

(A) 52 (B) 53 (C) 62
(D) 64 (E) 72

Q.5 In 1968, how many males of voting age voted?

(A) 37,440,000 (B) 37,800,000 (C) 42,160,000
(D) 62,000,000 (E) 374,400,000

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SECTION – V
PAKISTAN'S ECONOMY

Total Marks: (15)

Q.1 National savings as percent of GDP of Pakistan is around:

(A) 18% (B) 15% (C) 11%

(D) 12% (E) 8%

Q.2 The major share in total exports of Pakistan consists of:

(A) Carpet and Rugs (B) Surgical Goods (C) Textile and Textile Articles

(D) Leather Goods (E) Rice

Q.3 The two major sources of federal tax revenues in Pakistan are:

(A) Custom Duties and Income Tax (B) Sales Tax and Income Tax

(C) Excise Duties and Custom Duties (D) Excise Duties and Custom Duties

(E) Sales Tax and Capital Value Tax

Q.4 The recorded growth in real Gross Domestic Product in fiscal year 2003 was

(A) 4.5% (B) 4.1% (C) 5.1%

(D) 5.8% (E) 3.9%

Q.5 The total volume of exports of Pakistan in the fiscal year 2003 was close to:

(A) $11 billions (B) $11 trillion (C) $ 20 billions

(D) $ 8 billions (E) $ 15 billions

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