CONTINUE

01:59:46

Name: DEMO_QAB_NAME CRN: DEMO_QAB Quantitative Analysis for Business

ICAP

Pre-Requisite Competencies

Quantitative Analysis for Business

INSTRUCTIONS

Carefully read the following instructions before attempting the test:

1.	The total duration of the test is **2 hours**. No specific time is allocated to individual questions, and questions may be attempted in any sequence.
2.	All questions are compulsory. Each question carries **02 marks** unless stated otherwise.
3.	There is no negative marking.
4.	The requirement of each question should be read carefully before selecting your answer.
5.	Your answers are saved automatically when you navigate between

CONTINUE

01:59:38

INSTRUCTIONS

Carefully read the following instructions before attempting the test:

1.	The total duration of the test is **2 hours**. No specific time is allocated to individual questions, and questions may be attempted in any sequence.
2.	All questions are compulsory. Each question carries **02 marks** unless stated otherwise.
3.	There is no negative marking.
4.	The requirement of each question should be read carefully before selecting your answer.
5.	Your answers are saved automatically when you navigate between questions. You may also click **SAVE**, **NEXT**, or **BACK** to ensure your answer is saved.
6.	You are not allowed to open or use any other application or website during the exam.
7.	A calculator is available within the exam software. You may use an external calculator only if it is included in the list of permissible calculators issued by ICAP.
8.	Mathematical tables will be available within the exam software. The use of any external mathematical tables is strictly prohibited.
9.	A sheet will be provided for rough work. You must submit this rough work sheet to the invigilator after completing your exam. No additional sheets will be provided. A notepad is also present within the exam

CONTINUE

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4.	The requirement of each question should be read carefully before selecting your answer.
5.	Your answers are saved automatically when you navigate between questions. You may also click **SAVE**, **NEXT**, or **BACK** to ensure your answer is saved.
6.	You are not allowed to open or use any other application or website during the exam.
7.	A calculator is available within the exam software. You may use an external calculator only if it is included in the list of permissible calculators issued by ICAP.
8.	Mathematical tables will be available within the exam software. The use of any external mathematical tables is strictly prohibited.
9.	A sheet will be provided for rough work. You must submit this rough work sheet to the invigilator after completing your exam. No additional sheets will be provided. A notepad is also present within the exam software for rough work.
10.	Any workings made on the rough work sheet or in the notepad will not be considered for marking.
11.	Discussion with any other student during the exam is strictly prohibited. If you have any confusion or queries, please contact the nearest invigilator or centre supervisor.

CONTINUE

Saleem plans to invest Rs. 160,000 annually at the beginning of each year for 5 years in a scheme offering 14% interest compounded annually.

What will be the future value of his investment at the end of the 5th year?

Selection	Option(s)
○	Rs. 1,057,617
○	Rs. 1,133,740
○	Rs. 1,205,681
○	Rs. 1,225,000

A company intends to invest Rs. 6 million in a project that would yield returns of 10, 12, and 14 percent during the first three years, respectively. The company would also recover the original investment after three years. If the company's cost of capital is 9%, the NPV of this project would be:

Selection	Option(s)
○	Rs. 648,634
○	Rs. 393,745
○	Rs. 438,204
○	Rs. 1,805,103

Rashid wants to obtain a bank loan. The following offers are available:

- Bank A: 14% nominal rate, compounded monthly
- Bank B: 14.5% nominal rate, compounded quarterly
- Bank C: 14.75% effective annual rate

Arrange the banks in order from lowest to highest effective annual interest rate.

Selection	Option(s)
○	Bank C → Bank A → Bank B
○	Bank B → Bank A → Bank C
○	Bank B → Bank C → Bank A
○	Bank A → Bank B → Bank C

The monthly payment necessary to pay off a loan of Rs. 8,000 at 18% per annum compounded monthly in two years is:

Selection	Option(s)
○	Rs. 399.40
○	Rs. 419.40
○	Rs. 389.40
○	Rs. 409.40

If the rate of interest is 9% per annum compounded monthly, what is the present value of a perpetuity that pays Rs. 3,000 per month indefinitely?

Selection	Option(s)
○	Rs. 400,000
○	Rs. 390,000
○	Rs. 410,000
○	Rs. 425,000

Nisar had taken Rs. 900,000 from his office at 13.5% simple interest for a period of 5 years and 5 months. The principal amount was paid at the expiry of the loan period.

What was the total amount of interest payable over the loan period?

Selection	Option(s)
○	Rs. 658,125
○	Rs. 530,625
○	Rs. 545,000
○	Rs. 675,000

A project costing Rs. 2 million is expected to yield Rs. 300,000, Rs. 400,000, and Rs. 1,900,000 at the end of each of the next three years, respectively. The IRR of the project is:

Selection	Option(s)
○	11.15%
○	10.66%
○	10.18%
○	11.51%

Sohail receives interest from Fast Bank Limited (FBL) at 14% per annum compounded semi-annually. Slow Bank Limited (SBL) offers the same nominal annual rate but compounds quarterly.

If Sohail invests Re. 1 for 10 years, what additional amount will he earn under the SBL scheme as compared with FBL?

Selection	Option(s)
○	0.09x
○	0.05x
○	0.07x
○	0.10x

Following are the cash flows of a particular project:

Year	Cash flow amount (Rs. in '000)	Type
0	300	Cash Out Flow
1	75	Cash In Flow
2	125	Cash In Flow
3	150	Cash In Flow

Calculate the Payback Period.

Selection	Option(s)
○	2.25 Years
○	2.5 Years
○	2 Years
○	2.67 years

A person borrowed Rs. 20,000 from a bank at a simple interest rate of 12 percent per annum. In how many years will he owe interest of Rs. 3,600?

Selection	Option(s)
○	1.45 years
○	1.50 years
○	1.60 years
○	1.55 years

Which **TWO** of the following options are correct?

To _____ the present value of a project, the discount rate should be adjusted _____.

Selection	Option(s)
☐	decrease; downward
☐	increase; upward
☐	increase; downward
☐	decrease; upward

A person deposits Rs. 30,000 every six months into a retirement account. The account pays an annual interest rate of 12 percent compounded semi-annually. The value of the account after 15 years would be:

Selection	Option(s)
○	Rs. 2,351,746
○	Rs. 2,371,746
○	Rs. 2,331,746
○	Rs. 2,341,746

Sadiq earned a score of 940 on a general knowledge test. The mean test score was 850 with a standard deviation of 100.

What proportion of students had a higher score than Sadiq? (Assume that test scores are normally distributed)?

Selection	Option(s)
○	18%
○	82%
○	32%
○	10%

To decide whether to use a z-test or t-test, which **TWO** of the following would need to be considered?

Selection	Option(s)
☐	population mean
☐	whether population variance is known or unknown
☐	size of sample
☐	size of population

Question: 15/50
Marks: 02

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Overview: 11 12 13 14 15 16 17 18 19 20

01:58:07

Name: DEMO_QAB_NAME | **CRN: DEMO_QAB** | **Quantitative Analysis for Business**

Let x assumes the value 0, 1, 2, and 3 with the respective probabilities 0.51, 0.38, 0.10 and 0.01 the mean of distribution is:

Selection	Option(s)
○	0.38
○	0.58
○	0.61
○	0.49

Question: 15/50
Marks: 02

BACK | NEXT | SAVE | END

Overview: 11 12 13 14 15 16 17 18 19 20

01:58:07

Name: DEMO_QAB_NAME | **CRN: DEMO_QAB** | **Quantitative Analysis for Business**

Let x assumes the value 0, 1, 2, and 3 with the respective probabilities 0.51, 0.38, 0.10 and 0.01 the mean of distribution is:

Selection	Option(s)
○	0.38
○	0.58
○	0.61
○	0.49

In how many different ways can the letters of the word 'LEADING' be arranged in such a way that the vowels always come together?

Selection	Option(s)
○	720
○	5040
○	360
○	120

If three dice are rolled; then the number of outcomes is:

Selection	Option(s)
○	36
○	216
○	72
○	18

An analysis of the frequency with which a football team scores goals in a match shows that the probability of securing goals in a match is as follows:

Goals	0	1	2	3	4	5	More than 5
Probability	0.10	0.25	0.20	0.15	0.20	0.05	0.05

The probability that the team will score a total of 5 goals in a two-match series is:

Selection	Option(s)
○	0.83
○	0.82
○	0.17
○	0.12

Question: 19/50
Marks: 02

BACK | NEXT | SAVE | END

Overview: 15 16 17 18 19 20 21 22 23 24

01:57:44

Name: DEMO_QAB_NAME | **CRN: DEMO_QAB** | **Quantitative Analysis for Business**

In a certain town, 50% of households own a cellular phone, 40% own a pager, and 20% own both a cellular phone and a pager.

What percentage of households own neither a cellular phone nor a pager?

Selection	Option(s)
○	30%
○	25%
○	15%
○	35%

Question: 19/50
Marks: 02

BACK | NEXT | SAVE | END

Overview: 15 16 17 18 19 20 21 22 23 24

01:57:44

Name: DEMO_QAB_NAME | **CRN: DEMO_QAB** | **Quantitative Analysis for Business**

In a certain town, 50% of households own a cellular phone, 40% own a pager, and 20% own both a cellular phone and a pager.

What percentage of households own neither a cellular phone nor a pager?

Selection	Option(s)
○	30%
○	25%
○	15%
○	35%

A student randomly guesses on 20 multiple-choice questions, each having four possible choices (only one correct).

What is the probability that the student gets exactly 4 answers correct?

Selection	Option(s)
○	0.5623
○	0.4623
○	0.1623
○	0.1897

A committee of 7 people is to be selected at random from a group of 10 men and 11 women.

What is the probability that at least 5 men will be included in the committee?

Selection	Option(s)
○	0.1867
○	0.1124
○	0.0915
○	0.1401

The prices of a commodity in different years are given below:

Years	Prices
2010	49
2011	53
2012	58
2013	62

The chain indices in the above case would be:

Selection	Option(s)
○	100, 92.50, 91.40, 93.55
○	100, 108.16, 109.43, 106.90
○	100, 105.50, 116.50, 114.50
○	100, 105.50, 118.40, 112.80

Consider the following:

I Useful aid to give a visual impression of the relationship between variables.
II Might indicate a relationship where there is none.
III Might lead to incorrect conclusions if there are only a few data points available or the data collected is atypical for some reason.

Identify the limitation(s) of a scatter diagram.

Selection	Option(s)
○	Statement I and II only
○	Statement II and III only
○	Statement I only
○	Statement I and III only

Which **TWO** of the following statements are correct regarding the construction of a frequency distribution?

Selection	Option(s)
☐	It begins by recording the number of times a particular value occurs
☐	It sometimes leads to providing incorrect data
☐	It is the least method of summarizing large data
☐	It is the basis for the construction of a percentage distribution

Which **TWO** of the following statements are correct?

Selection	Option(s)
☐	If the coefficient of correlation, i.e., r = 0, it means there is a perfect correlation between x and y
☐	The value of the coefficient of determination is in the range –1 to +1
☐	The perfect negative or positive coefficient of correlation cannot be achieved in a real-life scenario
☐	The value of the coefficient of determination shows how much variation in the value of y is explained by variation in the value of x

The Human Resource Director of a large company wants to know what the employees of his company think about the proposed changes in the remuneration package. A questionnaire is given to 250 employees. 220 employees returned the questionnaire, of which 180 employees support the proposed change in the remuneration package. The population is:

Selection	Option(s)
○	250 employees received the questionnaire
○	220 questionnaires have been returned
○	all employees of the company
○	180 employees who support the proposed change in the remuneration package

Which **TWO** of the following statements are correct?

Selection	Option(s)
☐	An Ogive is constructed by joining the midpoints of the top of each rectangle of a histogram with straight lines
☐	An Ogive is the least desirable method of presentation of data
☐	Median of a grouped frequency distribution can be found by constructing an Ogive
☐	An Ogive is the graph of a cumulative frequency distribution

Team A scored an average of 205 runs in 21 one-day international matches, with a standard deviation of 10, whereas Team B scored an average of 190 runs in the same number of matches, with a standard deviation of 8.

Based on the data, which of the following statements is correct?

Selection	Option(s)
○	Team B is more consistent because it has a lower standard deviation
○	Team A is more consistent because it has a higher mean
○	Team B is more consistent because it has a lower mean
○	Team A is more consistent because it scored higher in most matches

If $\bar{x}$ = 11.33; $\bar{y}$ = 33.56 and byx = 2.832 then a is equal to:

Selection	Option(s)
○	11.85
○	1.47
○	4.00
○	0.96

A batter scored following runs in eleven T20 matches played in a calendar year:

35, 15, 51, 28, 0, 3, 85, 20, 45, 30, 0

What is the mode of his scores?

Selection	Option(s)
○	20
○	30
○	15
○	0

The mean of 11 numbers is 7. One of the numbers, 17, is deleted. What will be the mean of the remaining 10 numbers?

Selection	Option(s)
○	5.50
○	6.50
○	6.09
○	6.00

The average daily sales and the related standard deviation of Ali, Atif, Ahmed, and Azeem in thousands of rupees are 41 & 4.3, 36 & 3.2, 26 & 2.9, and 24 & 2.5, respectively. Who is the most inconsistent among them?

Selection	Option(s)
○	Azeem
○	Ali
○	Ahmed
○	Atif

The average daily sales and the related standard deviation of Ali, Atif, Ahmed, and Azeem in thousands of rupees are 41 & 4.3, 36 & 3.2, 26 & 2.9, and 24 & 2.5, respectively. Who is the most inconsistent among them?

Selection	Option(s)
○	Azeem
○	Ali
○	Ahmed
○	Atif

Over a period of 4 years, an employee's salary has increased in the ratios 1.072, 1.086, 1.069, and 1.098. The average of these ratios and hence the average percent increase are:

Selection	Option(s)
○	1.08119 and 8.6%
○	1.086 and 8.6%
○	1.08125 and 8.125%
○	1.08119 and 8.12%

Lower quartile is equal to the:

Selection	Option(s)
○	25th Percentile
○	25th Decile
○	50th Percentile
○	30th Decile

Sohrab & Company increased the wages of its workers by 20% during the year 2006, whereas the consumer price index changed from 240 to 270. Compute the increase/decrease in real wages.

Selection	Option(s)
○	Real wages increased by 6.67 %
○	Real wages increased by 7.5 %
○	Real wage decreased by 7.8%
○	Real wage decreased by 6.17%

If $\sum x = 58, \sum y = 313, \sum xy = 3{,}015, \sum x^2 = 594$ and $n = 6$ then equation for regression line of y on x (line of best fit) would be:

Selection	Option(s)
○	y = 55.26 + 0.32x
○	y = 0.32 – 55.26x
○	x = –0.32 + 55.26y
○	y = 55.26 – 0.32x

For 10 pairs of observations, the ranks of two variables are exactly in reverse order. In this situation, what is the value of Σd^2?

Selection	Option(s)
○	33
○	1
○	–1
○	330

Question: 38/50
Marks: 02

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Overview: 34 35 36 37 38 39 40 41 42 43

01:55:37

Name: DEMO_QAB_NAME **CRN: DEMO_QAB** **Quantitative Analysis for Business**

A pharmaceutical company sent its teams into rural areas of the country to interview all mothers with children under 2 years of age.

This sampling method is an example of:

Selection	Option(s)
○	Convenience sampling
○	Cluster sampling
○	Systematic sampling
○	Stratified sampling

XYZ and Company has developed a new product that would generate revenue of Rs. 80 million during the first year. Thereafter, the revenue would decline by 20% each year. The company would be able to earn a revenue of _____ million over the life of the product.

Selection	Option(s)
○	Rs. 400 million
○	Rs. 300 million
○	Rs. 100 million
○	Rs. 450 million

A firm is introducing a new washing detergent. The firm plans to sell the family size box for Rs. 24. Production estimates have shown that the variable cost of producing one unit of the product is Rs. 21.60. Fixed cost of production is Rs. 36,000. It is assumed that both the total revenue and total cost functions are linear over the relevant sales quantity range. Then the break-even volume of sales is:

Selection	Option(s)
○	1,500 boxes
○	150 boxes
○	15,000 boxes
○	150,000 boxes

A firm is introducing a new washing detergent. The firm plans to sell the family size box for Rs. 24. Production estimates have shown that the variable cost of producing one unit of the product is Rs. 21.60. Fixed cost of production is Rs. 36,000. It is assumed that both the total revenue and total cost functions are linear over the relevant sales quantity range. Then the break-even volume of sales is:

Selection	Option(s)
○	1,500 boxes
○	150 boxes
○	15,000 boxes
○	150,000 boxes

The cost of production of a product in rupees is: C = 15x + 9,750 where x is the number of items produced. If the selling price of each item is Rs. 30, the sales quantity at which there would be no profit or loss is:

Selection	Option(s)
○	650 units
○	560 units
○	600 units
○	500 units

Question: 42/50
Marks: 02

BACK | NEXT | SAVE | END

Overview: 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47

01:55:11

Name: DEMO_QAB_NAME **CRN: DEMO_QAB** **Quantitative Analysis for Business**

Which **TWO** of the following are **NOT** quadratic equations?

Selection	Option(s)
☐	$\sqrt{3}x^2 - 12x = 15$
☐	$\frac{3}{5}x - 12 = 2x$
☐	$5x^2 - 7 = 2x$
☐	$2x - 11 = 5x$

Linear programming model can be used for _____.

Selection	Option(s)
○	profit determination
○	cost minimization
○	graphical analysis of cost and profit
○	break-even calculation

For the following set of inequalities and objective function. Identify the optimal solution using corner point theorem:

Constraints

(i) $x \geq 0$
(ii) $y \geq 0$
(iii) $x+y \leq 8$

Objective function

Profit = $10x+2y$

Selection	Option(s)
○	(4, 4)
○	(0, 8)
○	(0, 0)
○	(8, 0)

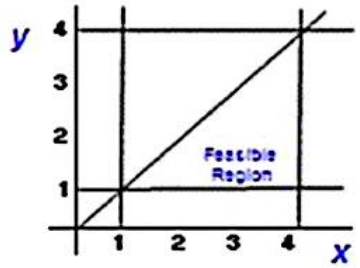
The sum of a certain number of terms of an arithmetic progression series –8, –6, –4, _____ is 52. The number of terms is:

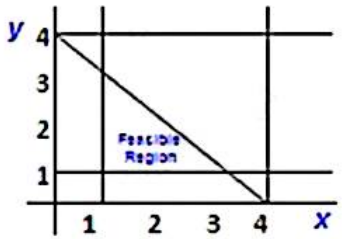
Selection	Option(s)
○	11
○	12
○	13
○	1

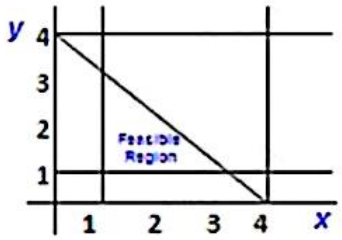
Which of the following graphs represents the given set of inequalities?

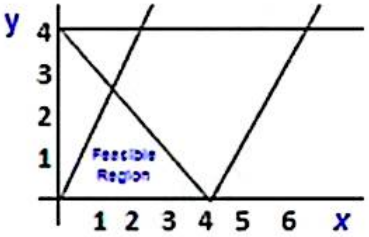
- $x,y \geq 1$
- $x,y \leq 4$
- $x \geq y$

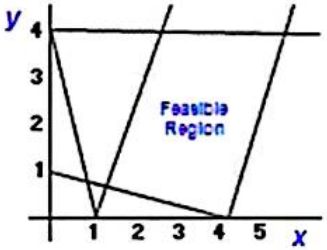
Selection	Option(s)





○ 

○ 

○ 

A company makes and sells two products, X and Y. The contribution per unit is Rs. 250 for product X and Rs. 375 for product Y. Due to various constraints, the company cannot produce more than 750 units of X and 500 units of Y per month.

If x represents the number of product X, y represents the number of product Y, and C represents contribution, which of the following equations correctly represents the total contribution?

Selection	Option(s)
○	C = 375x + 250y
○	C = 250x – 375y
○	C = 250x + 375y
○	C = 625(x + y)

$\sqrt{x^4 - 18x^2 + 81} = 0$

Which of the following represents the roots of the above equation?

Selection	Option(s)
○	$\pm 2\sqrt{3}$
○	$\pm\sqrt{3}$
○	± 3
○	± 9

Question: 49/50
Marks: 02

BACK | NEXT | SAVE | END

Overview: 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50

01:54:22

Name: DEMO_QAB_NAME **CRN: DEMO_QAB** **Quantitative Analysis for Business**

If thrice Ali's age 6 years ago is subtracted from twice his present age, the result would be equal to his present age. Find Ali's present age.

Selection	Option(s)
○	12 years
○	10 years
○	9 years
○	8 years

Question: 50/50
Marks: 02

BACK | NEXT | SAVE | END

Overview: 41 42 43 44 45 46 47 48 49 50

01:54:15

A company makes and sells two products, X and Y. The related information is as follows:

Description	X	Y
Contribution per unit **(Rs.)**	450	375
Maximum sales demand per month	2,800	1,200
Direct labour hours per unit	2	5
Machine hours per unit	6	7

A total of 10,000 direct labour hours and 22,000 machine hours are available per month.

Which of the following correctly represents the objective function (Z) and the set of constraints for this situation?

Selection	Option(s)
○	$Z = 375x + 450y$ $2x + 5y \leq 22{,}000$ $6x + 7y \leq 10{,}000$ $x \leq 2{,}800, \quad y \leq 1{,}200, \quad x, y \geq 0$

$Z = 450x + 375y$