ADMISSION TEST 2015

MATH SECTION (TOTAL POINTS 100)   **STUDENT NAME** _____

1. A store owner is packing small radios into large rectangular box of dimensions 25 cm. by 42 cm. by 60 cm. If the dimension of each radio is 7 cm. by 6 cm. by 5 cm., then how many radios can be placed in that large box?

    A. 200
    B. 300
    C. 325
    D. 400
    E. 420

2. The initial price of a notebook at a store is 240 000 AMD, the owner makes at first 20% spring discount on initial price, and then further summer reduction of 30%. What would be the final price of a notebook after summer discount?

    A. 112 000 AMD
    B. 120 000 AMD
    C. 134 400 AMD
    D. 168 800 AMD
    E. none of the above

3. The graph of the exponential function y=10^x (with the base 10) is

    A. Decreasing and has no intersection points with axis
    B. Increasing and has no intersection points with axis
    C. Decreasing and (0,1) is the point of intersection with axis
    D. Increasing and (0,1) is the point of intersection with axis
    E. Increasing and (1,0) is the point of intersection with axis

4. Given equation of a line as y=mx-1, what is the value of m if the line is perpendicular to
    y= -2x+1

    A. -2
    B. -0.5
    C. 0
    D. 0.5
    E. 2

5. What is the value of sin(-240°)?

    A. $\frac{1}{2}$
    B. $-\frac{1}{2}$
    C. $\frac{\sqrt{3}}{2}$
    D. $-\frac{\sqrt{3}}{2}$
    E. None of the above

6. Which of the following functions is more drastically increasing or decreasing depending on the particular value of x?

A. $y = 2^x$
B. $y = log_2 x$
C. $y = 5x^4 + 4$
D. $y = 2x - 1$
E. $y = e^x$

7. How many integer (ամբողջ) numbers can be inserted between 3 and 287, if the difference between any successive (հաջորդական) terms is 4?

A. 71
B. 72
C. 75
D. 80
E. 95

8. In how many ways can 4 people be seated in a straight line?

A. 24
B. 20
C. 16
D. 12
E. 6

9. 92% of 900 employees of a company arrive at the workplace on time on Friday.
There are 500 female employees in the company and 94% of them have arrived at the workplace this Friday on time. What is the percentage of the men who are late?

A. 8%
B. 9%
C. 9.5%
D. 10%
E. 10.5 %

10 Armen is 180 cm tall and a shadow he cast on the ground is 150 cm. If his friend Hakob casts a shadow of 160 cm, then how tall is Hakob?

A. 185
B. 187
C. 190
D. 192
E. 195

1. (10 points) Chair producing factory is calculating its costs for the year 2015. Factory has 20 workers, and each of those gets paid 10 000 USD every year. Wood and steel for producing one chair cost 30 USD, nails, glue and other supplies costs are 5 USD per chair. Factory also pays 15 000 per year for renting the building (including electricity and water). If each chair is sold for 50 USD and the company produces 50 000 chairs every year, how much will be the yearly profit? (SHOW YOUR CALCULATIONS)

2. (8 points) The exchange rate between dram and dollar today is 1USD=475 AMD. If next year the exchange rate becomes 1USD = 560AMD all other things held constant, which of the following is more likely to be true :
   a. USA will export more to Europe
   b. USA will export more to Armenia
   c. Armenia well export more to USA
   d. Armenia will import more from USA

3. (10 points) Assume that Aram and Diana can switch between producing books and shoes at a constant rate.

	Labor Hours Needed to Make 1		Quantity Produced in 24 Hours	
	Shoes	Books	Shoes	Books
Aram	8	2	3	12
Diana	1.5	2	16	12

   Assume that Aram and Diana each has 24 labor hours available. If each person divides their time equally between the production of shoes and books, then total production is
   a. 4.75 shoes and 2 books.
   b. 9.5 shoes and 12 books.
   c. 16 shoes and 12 books.
   d. 19 shoes s and 24 books.

4. (7 points) Suppose Ani and Garik are the only two buyers of lemonade. Each month, Ani buys six glasses of lemonade when the price is $1.00 per glass, and she buys four glasses when the price is $1.50 per glass. Each month, Garik buys four glasses of lemonade when the price is $1.00 per glass, and he buys two glasses when the price is $1.50 per glass. Which of the following points is on the market demand curve?
   a. (quantity demanded = 2, price = $1.50)
   b. (quantity demanded = 4, price = $2.50)
   c. (quantity demanded = 10, price = $1.00)
   d. (quantity demanded = 16, price = $2.50)

5. (5 points) Which of the following events would definitely result in a higher price in the market for Snickers?
   a. Demand for Snickers increases and supply of Snickers decreases.
   b. Demand for Snickers and supply of Snickers both decrease.
   c. Demand for Snickers decreases and supply of Snickers increases.
   d. Demand for Snickers and supply of Snickers both increase

The table below contains data for the country which produces only cookies and books.

Year	Price of Cookies	Quantity of Cookies	Price of Books	Quantity of Books
2011	$4.00	90	$1.50	150
2012	$4.00	100	$2.00	180
2013	$5.00	120	$2.50	200
2014	$6.00	150	$3.50	200

6. (5 points) What is the Gross Domestic Product (GDP - Համախառն ներքին արդյունք) for the year 2013?

7. (5 points) Use the table above. What is the percent increase in GDP from 2011 to 2012? (SHOW YOUR CALCULATIONS)

8. (5 points) Bonds are a form of a debt that represent an ownership interest in a corporation
    a. True
    b. False

9. (5 points) Mari had deposited 2000 USD in the bank in the beginning of 2015. The bank pays 4% interest on deposits. What amount of money will she have in 3 years if she selects to compound the interest (բարդ տոկոս)?

10. (5 points) You put $75 in the bank one year ago and forgot about it. The bank sends you a notice that you now have $81 in your account. What interest rate did you earn?

a. 5 percent
b. 6 percent
c. 7 percent
d. 8 percent

11. (13 points) The table below uses data for the year 2003 provided by the Bureau of Labor Statistics and adjusted to be comparable to U.S. data. All values are in thousands. Fill in the blank entries in the table. (SHOW YOUR CALCULATIONS).

Country	Adult Population	Labor Force	Employed	Unemployed	Unemployment Rate	Labor-Force Participation Rate (within adult population)
Japan	109,474		62,510	3,500		
France		26,870		2,577		57.41
Germany	70,159	39,591			9.69	

12. (10 points) After the panic in banking sector, the Central Bank of Marathonia decided to increase the rate of commercial banks' reserve deposits. Why do you think it was done?

13. (5 points) If U.S. consumers increase their demand for apples from New Zealand, then other things the same New Zealand's
a. imports and net exports rise.
b. imports rise and net exports fall.
c. exports and net exports rise.
d. exports rise and net exports fall.

(7 points) The Demand function for ice-cream is given by the equation Q =40- 2P. Please find the price of ice-cream if the quantity sold is 10? Draw the demand function below.

Grammar (Each question is worth 3 points. Total: 30)

1) These books <u>have lay on</u> the table all week. Why don't you put them away now.
    a) have lay on
    b) have lain on
    c) had lay on
    d) had laid on
    e) would lie on

2) If you <u>finish </u>the project last week__ why haven't I received it yet?
    a) Finished, add comma
    b) have finished, no comma
    c)   were finished, no comma
    d) had been finished with, add comma
    e) would have finished, add comma

3) The depth of the water <u>effects the waters temperature</u>.
    a) affects the waters temperature.
    b) effects the waters temperature.
    c) affects the waters' temperature.
    d) effects the water's temperature.
    e) affects the water's temperature.

4) The hail was as big as <u>golf balls; I</u> was sure that the apricot harvest this year would be ruined.
    a) golf's balls, and I
    b) golf balls, because I
    c) golf ball's, and I
    d) golf balls, and I
    e) golf ball; I

5) The tractor <u>needed fixing,</u> after it rolled down the bank and into the river.
    a) needed fixing,
    b) needed a fix
    c) was fixed,
    d) needed to be fixed
    e) was fixing

6) If I had <u>had the address, I</u> would have delivered the package myself.
    a) have the address, I
    b) had the address; I
    c) had the address, I
    d) had the address I
    e) had had the address; I

7) John insists that the bakery on the corner <u>made the best cupcakes</u>. He goes there every week to buy some.
    a) makes the best cupcakes.
    b) made the best cupcakes.
    c) make the best cupcakes.
    d) could have made the best cupcakes.
    e) had the best cupcakes.

8) When <u>to take</u> a test it is good look over the whole thing <u>first, than</u> start with the easiest section first.
   a) Take/ first then
   b) taking/ first, then
   c) takes/ first-then
   d) For taking/ first, then
   e) To take, first, than

9) The office was <u>at</u> downtown. It was <u>in</u> the street he lived <u>near</u>.
   a) at, in, near
   b) in, near, on
   c) in, at, near
   d) on, near, in
   e) on, in, at

10) The project <u>was to build</u> new roads in rural <u>areas and it</u> started two years ago and was set to finish in 2016.
   a) was to build/ areas and it
   b) built/ areas and it
   c) had built/ areas; it
   d) to build/ areas. It
   e) was building/ areas. It

Vocabulary
Reading Comprehension (Section total: 60 points.)

From BBC.com
   US oilfield firm Halliburton has reported better-than-expected first quarter profits, helped by robust drilling activity in Russia, Saudi Arabia and Angola.
   The company said net income for the three months to the end of March [2014] was $622m (£370m).
   That compared with a loss of $18m in the same quarter a year earlier [2013].
   Those losses included a pre-tax charge of $1bn for Halliburton's part in the 2010 Gulf of Mexico oil spill.
   It was one of the contractors working for BP, owner of the Deepwater Horizon oil well that blew out, causing the worst offshore oil spill in US history.
   Halliburton has been making a big push overseas to combat weakness in its North American market.
   The company said drilling activity in North America had fallen because of weak natural gas prices, which had led to greater competition among oilfield services providers for a smaller number of contracts.
   Lower prices for pressure pumping services, higher logistics costs and disruptions in drilling due to the heavy winter weather weighed on Halliburton's operations in North America.

Answer the following questions according to the information in the article. (Each question is worth 6 points.)

1) What was $622 million?
   a) The amount lost in 2013
   b) The net income for the first quarter of 2014
   c) The projected loss due to lower prices
   d) The cost of working with BP

2) Which is not listed as a cause of the weakness in Halliburton's North American Market?
   a) Weak natural gas prices
   b) Government fines
   c) An unusually cold and long winter
   d) Higher logistic costs

From BBC.com

Netflix has reported profits of $53m (£32m) during the first quarter of 2014, and revealed plans for a subscription price increase.

The internet video streaming firm said it added 2.25 million new members during the period, bringing its total global membership to 48 million.

It also announced a potential "one or two dollar increase" in monthly rates for new members later this year.

Shares in the firm soared more than 6% in after hours trading.

Chief executive Reed Hastings said the success of Netflix's original programming was behind its membership increase, in particular highlighting Kevin Spacey-led drama House of Cards.

He said that increasing subscription rates would help the firm "acquire more content and deliver an even better streaming experience."

However, despite the firm's strong results, he set himself a larger target.

"We are approaching 50 million global members, but that is far short of HBO's 130 million," he wrote in a letter to shareholders, pointing to the US cable television leader.

"We are eager to close the gap."

Answer the following questions according to the information in the article. (Each question is worth 8 points.)

11) According to the CEO, the monthly rate increase will help:
    a) Increase global membership numbers
    b) Keep Kevin Spacey's show on
    c) Increase profitability
    d) Get more new shows and movies for subscribers

12) What 'gap' is Reed Hastings eager to close?
    a) The difference between after hours trading and regular trading.
    b) The difference between their member numbers and HBO's.
    c) The difference between monthly rates and costs.
    d) The one between its 2.25 million new members and its old members.

From A Brief History of Economics by E Ray Canterbery

THE GREAT CRASH

The panic of 1929 began on Black Thursday, October 24th. Shortly after a normal opening of the Exchange, prices began to fall on a rapidly rising volume. The stampede of selling by 11 o'clock was so wild, it would have scared even the Merrill-Lynch bull. The collapse of prices being so complete by eleven-thirty, fear became genuine panic. A crowd gathered outside the Exchange on Broad Street, New York City.

The first wave of panic subsided at noon, when word spread of a meeting at 23 Wall Street, the offices of J.P. Morgan and Company. The gathering of bankers pledged to pool their resources and turn the market around. But they could only lean-with their great bulk- into the wind. By Monday afternoon the effort had clearly failed. The Times industrials were down 49 points for the day, with General Electric alone down 48. Since the ticker tape could not keep abreast of trading, no one knew how bad it was by the end of the day. The bankers reassembled at Morgan's at four-thirty. Now they would try to save themselves, minimizing their losses by selling short. The next day, Tuesday, October 29, was the most devastating, with no buyers at all on many issues. As the Times industrials closed down 43 points on enormous volume, alarm gripped Wall Street.

The stock market would continue its relentlessly downward slide. The Times industrials, which had reached 331 at the start of 1929, closed at 58 on July 8, 1932. Its stocks had lost 82.5 percent of their value. General Motors had plummeted from 73 to 8. But the low was barely noticed in the press or in the market: Attention by now had shifted to an economy in free fall.

When the crash is viewed in the economist's rearview mirror, it is clear that early warning signs were abundant: The stock market collapse was a part of the already developing slump. But few were willing to believe this to be the end of the good times, and so the signs were ignored and the trauma made worse.

Answer the following questions according to the information in the article. (Each question is worth 8 points.)

15) The first period of panic calmed because:
   a) People started gathering outside the Exchange that afternoon.
   b) The market collapse was part of an already developing slump.
   c) People were more worried about the general economy.
   d) People heard about a meeting at the J.P. Morgan offices.

16) By Monday afternoon, October 28th, 1929, what had clearly failed?
   a) General Electric stock
   b) The bankers' attempt to save themselves
   c) The bankers' attempt to turn the market around
   d) Economists ability to see the warning signs

17) How did the bankers try to save themselves?
   a) Minimize their losses and sell short.
   b) Buying more stocks to try and stabilize the market.
   c) Making sure no one knew how bad it really was.
   d) Hide from the wild crowds.

18) How long did it take for the Times industrials lose over 80% of its value?
   a) three days
   b) almost three years
   c) half a day
   d) five days

Essay (Worth 10 points)
Write a short essay about where you see yourself in 5 years.