**ATC 2017 Entrance Exam**

**Math Section (Total Points 100) Student Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Mery has to store 6 colored balls on 6-storey (level) shelves. Each of the 6 balls has a single solid color as follows: Green (G), Brown (B), Orange (O), Purple (P), Red (R), Yellow (Y). In which order each of the balls has to be stored one on each level (from 1st to 6th) IF

* P should be located on a lower level than O
* R should be located on adjacent to B level (either immediately above or below)
* G should be on the 5th level

1. G, Y, B, R, P, O
2. B, G, P, R, O, Y
3. B, R, P, Y, G, O
4. O, Y, R, B, G, P
5. R, P, B, Y, G, O
6. Which of the following is true about the exponential function of the form y = 2x

A. the function is increasing and touches x-axis

B. the function is increasing and tends to infinity as x becomes positively large

C. the function is decreasing and tends to infinity as x becomes negatively large

D. function doesn’t have intersection point with y-axis

E. non of the above

1. Any 3 letters taken all at a time can be written in
2. 2 ways
3. 6 ways
4. 24 ways
5. 27 ways
6. 120 ways
7. What is the slope (coefficient of x in an equation) of a line perpendicular to y=-0.5x+4?

A-0.5

B. 0.5

C. -2

D. 2

E. 4

1. What is the acceleration (³ñ³·³óáõÙ) of an object at time equal to 5, if it is moving according to the function S(t) = 3t3-2, where S is distance traveled, t is time and velocity (³ñ³·áõÃÛáõÝ) is constant (doesn’t change over time)?
2. 90
3. 120
4. 225
5. 373
6. 375
7. In a rectangular triangle (áõÕÕ³ÝÏÛáõÝ »é³ÝÏÛáõÝ) what are the values of legs (¿ç»ñ), if one of the angles is 300 and hypotenuse (Ý»ñùÝ³ÓÇ·) is equal to 5?
8. 2.5; 2.5
9. 1.7; 4.7
10. 3; 4
11. 2.25; 4.46
12. 2.5; 4.33
13. Which of the functions is NOT even (½áõÛ·), that is f(-x) = -f(x)?

A. f(x) = x2

B. f(x) = sinx

C. f(x) = cosx

D. f(x) = lgx

E. f(x) = ex

8. What is the derivative (³Í³ÝóÛ³É) of lne2x ?

1. e-2x
2. 2/e2x
3. 2x
4. 2
5. 1
6. How many odd (Ï»Ýï) numbers are in a sequence of natural (µÝ³Ï³Ý) numbers from 7 to 99?

A. 42

B. 45

C. 47

D. 48

E. 50

1. What was the original price of a commodity (³ñï³¹ñ³Ýù) if the final price after discounting it at first by 20%, then by 40% became 24,000 AMD?
2. 48,000 AMD
3. 50,000 AMD
4. 60,000 AMD
5. 72,000 AMD
6. None of these

**Economics Section (Total Points 100) Student Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| MARGO’S SHOP | |
| **Number of  Workers** | **Total Revenue  per Day** |
| 1 | $200 |
| 2 | $320 |
| 3 | $400 |
| 4 | $460 |

1. Assume that the daily wage of a worker at MARGO’s Shop is $100 and that labor is the only cost of production at the shop. To earn the largest profit, how many workers should MARGO hire?

1. 1
2. 2
3. 3
4. 4
5. Please look at the diagram below. If the price for cameras is set at 300 dollars, then
   1. There will be market surplus of about 200 cameras
   2. There will be shortage of about 200 cameras
   3. There will be market surplus of about 300 cameras
   4. There will be shortage of about 300 cameras
6. Suppose that the value of the Armenian Dram declines relative to the United States dollar in foreign exchange markets. United States exports to Armenia and United States imports from Armenia are most likely to change in which of the following ways?

|  |  |  |
| --- | --- | --- |
|  | **United States Exports  to Armenia** | **United States Imports  from Armenia** |
|  | Increase | Increase |
|  | Increase | Decrease |
|  | Decrease | Increase |
|  | Decrease | Decrease |

1. If your income during one year is USD 10,000 and the following year it is USD 12,000, then it has grown by
   1. 20%
   2. 2%
   3. 12%
   4. 16%
2. [Suppose a gardener produces both green beans and corn in her garden. If she must give up 14 kg of corn to get 5 kg of green beans, then her opportunity cost of 1 kg of green beans is](https://www.proprofs.com/discuss/q/113803/suppose-gardener-produces-green-beans-garden-bushels-opportu)
3. 0.36 kg of corn.
4. 2.4 kg of corn.
5. 2.8 kg of corn.
6. 70 kg of corn.
7. 1 kg of corn.
8. Suppose Spencer and Kate are the only two demanders of lemonade. Each month, Spencer buys six glasses of lemonade when the price is $1.00 per glass, and he buys four glasses when the price is $1.50 per glass. Each month, Kate buys four glasses of lemonade when the price is $1.00 per glass, and she buys two glasses when the price is $1.50 per glass. Which of the following points is on the market demand curve?
   1. quantity demanded = 2, price = $1.50
   2. quantity demanded = 4, price = $2.50
   3. quantity demanded = 10, price = $1.00
   4. quantity demanded = 16, price = $2.50
9. A country club usually only allows members to purchase tickets for its celebrity golf tournament, but the club is considering allowing non-members to purchase tickets this year. The demand and supply schedules are as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Price | Quantity Demanded by Members | Quantity Demanded by Non-members | Quantity Supplied |
| $10 | 1000 | 500 | 600 |
| $15 | 800 | 400 | 600 |
| $20 | 600 | 300 | 600 |
| $25 | 400 | 200 | 600 |
| $30 | 200 | 100 | 600 |

If both members and non-members are allowed to purchase tickets to this year's celebrity golf tournament, then what will be the equilibrium price?

* 1. $10
  2. $15
  3. $20
  4. $25

1. In the economy of Neverland in 2008, exports were $500, GDP was $6400, government purchases were $1500, imports were $600, and investment was $2000. What was Neverland’s consumption in 2008?
2. If the nominal interest rate is 6 percent and the real interest rate is 2 percent, then what is the inflation rate?
   1. 8 percent
   2. 4 percent
   3. 3 percent
   4. None of the above is correct
3. Vahe puts $100 into an account with an interest rate of 10 percent per year. How much money will he have in 2 years?
4. Suppose the interest rate is 8 percent. Consider three payment options.

1. $300 today.

2. $330 one year from today.

3. $360 two years from today.

Which of the following is correct?

1. 1 has the highest present value and 2 has the lowest.
2. 2 has the highest present value and 3 has the lowest.
3. 3 has the highest present value and 1 has the lowest.
4. None of the above is correct.
5. Suppose a bank’s reserve ratio is 6.5 percent and the bank has $1,950 in reserve. Banks total deposits equal to
   1. $62.25
   2. $126.75
   3. $22500
   4. $30000
6. The market demand curve for a perfectly competitive industry is Q = 12 - 2P. The market supply curve is Q = 3 + P. The market will be in equilibrium if
   1. P = 6 and Q = 9
   2. P = 5 and Q = 2
   3. P = 4 and Q = 4
   4. P = 3 and Q = 6
7. If there are many producers and the product is similar but not the same, then we have which of the following market stuctures?
   1. Monopoly
   2. Olygopoly
   3. Monopolistic Competition
   4. Normal Economy
8. Varduhi LLC is producing chairs. The cost of material for producing one chair is 40 USD. Varduhi also pays 100 USD per day to each employee; she has 5 peope working on the production. If each employee makes 5 chairs a day, and Varduhi sells each chair at 80 USD, then what will be the daily profit of Varduhi LLC.

**English Section \_\_\_\_\_\_\_\_\_\_/100 (100 Total Points)**

**Multiple Choice General (42 points, 2 points each)**

1. I \_\_\_\_ too many new people there and \_\_\_\_\_\_\_ remember their names. From 2016
   1. meet/ could
   2. met/ should
   3. meet/ could not
   4. met/ could
   5. met/ could not (Correct)
2. On my way \_\_\_\_ the airport, I stopped \_\_\_\_ the store to buy some snacks to eat \_\_\_\_ the plane. From 2016
   1. from/ in/ at
   2. to/ in/ in
   3. to/ at/ on (correct)
   4. from/ to/ on
   5. from/ by/ for
3. He didn’t know that the assignment was \_\_\_\_\_ on Friday, so he didn’t hand it in until Monday.
   1. doe
   2. due (correct)
   3. do
   4. until
   5. final
4. The current US President Donald Trump used to have his own reality TV show.
   1. , President Donald, Trump used
   2. President, Donald Trump used
   3. President Donald Trump, used
   4. President, Donald Trump, used (correct)
   5. President, Donald, Trump used
5. If I have the money\_\_ I will lend it to you. From 2016
   1. , (Correct)
   2. leave blank
   3. .
   4. ;
   5. , however,
6. I went to the store and got all of the things on the list\_\_\_\_ milk, bread, coffee, eggs, and flour. From 2016
   1. ;
   2. : (Correct)
   3. .
   4. ,
   5. etc.
7. I \_\_\_\_\_\_\_ the answer to the question once, but I have forgotten it.
   1. no
   2. knew (correct)
   3. know
   4. new
   5. known
8. I told you that is \_\_\_\_\_\_\_\_ that bit me. I am sure it is that one. From 2016
   1. a dog
   2. dog
   3. all of the dogs
   4. the dog (correct)
   5. which dog
9. I gave her \_\_\_\_\_\_\_ report, not realizing that it was not \_\_\_\_\_\_ one she asked for in \_\_\_\_\_ email. From 2016
   1. leave blank/ a/ her
   2. a/ the/ leave blank
   3. the/ a/ the
   4. a/ a/ leave blank
   5. a/ the/ her (Correct)
10. While Christmas is always \_\_\_\_ December 25th in America, Easter is sometime \_\_\_\_ the spring and not always \_\_\_\_ the same day. From 2016
    1. on/ in/ on (correct)
    2. around/ in/ at
    3. on/ around/ in
    4. at/ around/ in
    5. in/ on/ at
11. She had \_\_\_\_ idea what he was asking her because she didn’t understand Armenian.
    1. new
    2. nose
    3. no (correct)
    4. know
    5. knew
12. He was \_\_\_\_\_\_\_\_\_\_ the street when the bus \_\_\_\_\_\_\_\_\_\_\_ him. From 2016
    1. crossed/ was hitting
    2. crossing/ hit (correct)
    3. to cross/ hitting
    4. crossing/ hitting
    5. across/ to hit
13. I went \_\_\_\_\_ because he told me they had the best sushi in town.
    1. there (correct)
    2. their
    3. heir
    4. they’re
    5. fare

(The following Sentence is from A Very Short Introduction Econ Book by Partha Dasgupta)

A (15) country GDP is the value (16) \_\_\_ all the final goods that are produced by (17) it’s residents (18) \_\_\_ a given year.

1. Which should replace the word in the sentence:
   1. country
   2. countries
   3. country’s (correct)
   4. countries’
2. What word should be placed in the blank?
   1. in
   2. minus
   3. on
   4. of (correct)
3. Which should replace the word in the sentence:
   1. it’s
   2. its (correct)
   3. it is
   4. is
4. What word should be placed in the blank?
   1. at
   2. on
   3. in (correct)
   4. none, leave blank

(The following Sentence is from Technical Communication: Situations and Strategies by Mike Markel)

A (19) \_\_\_\_ part of presenting yourself effectively is showing that you know the appropriate information about your (20) \_\_\_\_\_\_\_\_\_ you also need (21) \_\_\_\_\_\_\_\_\_ across as a professional.

1. Choose the best word:
   1. biggest
   2. most
   3. big (correct)
   4. largest
2. Choose the most correct punctuation:
   1. subject, however,
   2. subject. However, (correct)
   3. subject, however
   4. subject: However,
3. Choose the most correct form to fill in the blank:
   1. for coming
   2. come
   3. came
   4. to come (correct)

**Vocabulary (30 points total, 2 points each)**

1. He didn’t like the idea of having to walk all the way there, but the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ was missing his flight, which was much worse. From 2016
   1. option
   2. alternative (correct)
   3. point
   4. replacement
   5. alternate
2. I can’t force you to get good grades, but I can \_\_\_\_\_\_\_\_\_\_ you to work hard and do the best you can. From 2016
   1. insult
   2. encourage (correct)
   3. enrage
   4. dissuade
   5. regulate
3. The \_\_\_\_\_\_\_\_\_\_\_\_ of the European Union has resulted in the organization having 28 member states. From 2016
   1. retreat
   2. swelling
   3. recession
   4. confusion
   5. expansion (correct)
4. It wasn’t his \_\_\_\_\_\_\_\_\_\_\_ to take care of the car. Someone else was supposed to do that. From 2016
   1. process
   2. responsibility (correct)
   3. issue
   4. maintenance
   5. alternative
5. Owning a car means that you have to spend money \_\_\_\_\_\_\_\_\_\_\_\_ it. You need to do things like change the oil, fix the breaks and buy new tires. From 2016
   1. selling
   2. replacing
   3. letting
   4. maintaining (correct)
   5. depleting
6. It is important to \_\_\_\_\_\_\_\_\_\_\_\_\_\_ problems that you might face when starting a business. You need to think ahead and have a plan for how to deal with difficulties before they happen. From 2016
   1. ignore
   2. aggregate
   3. anticipate (correct)
   4. participate
   5. maintain
7. She insisted that it was a(n)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. She claimed that she didn’t do it on purpose. From 2016
   1. accident (correct)
   2. tragedy
   3. retreat
   4. expansion
   5. feature
8. The enemy was being beaten so badly that they started to \_\_\_\_\_\_\_\_\_\_. From 2016
   1. participate
   2. expand
   3. replace
   4. recover
   5. retreat (Correct)
9. She was able to give such a good \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the person we were looking for. When I saw him, I recognized him right away. From 2016
   1. confusion
   2. requirement
   3. detail
   4. description (correct)
   5. prescription
10. The definition of extreme \_\_\_\_\_\_\_\_\_\_\_\_ is living off of less than $1.25 a day. From 2016
    1. maintenance
    2. sadness
    3. expansion
    4. poverty (correct)
    5. occupation
11. A better camera was the main \_\_\_\_\_\_\_\_\_\_\_\_\_ of the new phone. All of the ads talked about it, and the company thought that is what would convince people to buy it. From 2016
    1. description
    2. anticipation
    3. disappointment
    4. feature (correct)
    5. problem
12. Your active \_\_\_\_\_\_\_\_\_\_\_\_ in class is necessary for you to get a good grade. From 2016
    1. participation (correct)
    2. solicitation
    3. judgement
    4. organization
    5. purpose
13. The application \_\_\_\_\_\_\_\_\_\_\_\_\_ was May 2nd. From 2016
    1. due
    2. deadline (correct)
    3. process
    4. requirement
    5. completion
14. The new chair was very \_\_\_\_\_\_\_\_\_\_\_\_, and he didn’t want to get out of it. From 2016
    1. disturbing
    2. disturbed
    3. comforting
    4. convenient
    5. comfortable (Correct
15. The problem was that the plants didn’t get enough water. The solution was to build a(n) \_\_\_\_\_\_\_\_\_\_\_ system to bring water to the plants. From 2016
    1. irrigation (correct)
    2. river
    3. instigation
    4. hydroelectric
    5. maintenance

**Reading Comprehension (Total 15 points, Questions worth 3 points each)**

(Text from From Partha Dasgupta’s Economics: A Very Short Introduction)

In contrast to poor countries, agricultural output is a small fraction of national income in the rich world. The share of agriculture in GDP is about 25% in the poor world; less than 5% in rich countries. Less than 10% of the population in rich countries live in rural areas. In contrast, more than 70% of people in poor countries live in villages; which gives rise to the thought that people in poor countries mostly work in economies that draw their production inputs directly from Nature – they are ‘biomass-based’ economies. Ecology is of direct concern to the world’s poor, in a way it isn’t to the world’s rich.

Recently, the United Nations Development Programme (UNDP) has sought to extend the basis on which the standard of living is measured. It has done so by constructing a numerical index that combines GDP per capita, life expectancy at birth, and literacy. UNDP has christened it the Human Development Index (HDI). Again, leaving aside a few exceptions, HDI has been found to be low in poor countries, high in rich countries.

From Partha Dasgupta’s Economics: A Very Short Introduction

1. What is usually low in poor countries and high in rich countries?
   1. Biomass-based economic activity
   2. The Human Development Index
   3. Percentage of agriculture in GDP
   4. Illiteracy and infant mortality
2. What is not part of the Human Development Index (HDI)?
   1. Literacy rate
   2. GDP per capita
   3. Percentage of population living in rural areas
   4. Life expectancy at birth
3. What type of country’s economy is usually more dependent on nature?
   1. Poor
   2. Those with higher literacy
   3. Rich
   4. Those that have a high HDI

(Text from Technical Communication: Situations and Strategies by Mike Markel)

**Personal and Professional Growth**

People want to develop and grow on the job and in their personal lives. In an obvious way, this means that they want to learn new skills and assume new duties. This desire is also reflected in efforts to improve how the organization treats its employees and customers, relates to the community, and coexists with the environment. Your argument will be more persuasive if you can show how the recommended action will help your organization become an industry leader, reduce environmental pollution, or help needy people in your city. We want to be associated with—and contribute to—organizations that are good at what they do and that help us become better people.

1. According to the paragraph, what do people what that causes them to learn new skills and assume new responsibilities?
   1. To do things in an obvious way
   2. To grow and develop at work and outside of work
   3. To reduce environmental pollution
   4. To reflect the way the organization treats the community
2. According to the paragraph, people want to be associated with companies that do things well and?
   1. Make big profits
   2. Reflect the way the organization treats the community
   3. Help them become better people
   4. Be more persuasive

**Essay (13 Points)**

Explain why you are interested in agribusiness and how it relates to your plans for your future.