

IBA Past Entry Test Papers

BBA – 2010

Section: English

Number of Questions: 45 Time allowed: 55 Minutes

Section: Mathematics

Number of Questions: 50 Time allowed: 75 Minutes

Section: Writing Skills

Tasks: 2 Time allowed: 40 Minutes

Negative Marking: Yes

ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED www.sheir.org
 BY CROSSING THE CORRESPONDING LETTER
 PART I - ENGLISH M.C.Q'S

No. of Questions: 45

Time Allowed: 55 Minutes

Questions on Page Nos: 1 To 7

Negative Marking: Yes

Q 1-15 Fill in the blanks with suitable word given at the end of the text.

Many critics of our Public Schools maintain that __Q1__ stress is placed __Q2__ achievements in athletics than in the academic sphere, and, in particular complain against games being compulsory. They maintain that it is tyranny to compel boys with no athletic bent __Q3__ hours of misery on a cricket or football field. These __Q4__ left to themselves, when they should occupy their times more usefully and enjoyably on some profitable and creative hobby. The drawback to this argument lies in the facile assumption that every non-athlete has a profitable hobby. This is not true; even if __Q5__, model engineering or stamp collection is no substitute for being out in the fresh air, exercising the muscles and __Q6__ contact with other human beings. I would compel all boys to play games, but I would protect them fiercely from the __Q7__ that it was their duty to be good at games.

One should guard, too, against the youthful idolizing of athletes which tends to upset a boy's sense of values, and may do actual harm to the objects of this hero worship. The schoolboy athlete does suffer enormously __Q8__ being adorned at an early age with a false halo of artificial light. From the Preparatory School to the University his career is a triumphal procession. Then he becomes a legend for the future, one of the greatest product of his school which is proud to call him her son, although she may have taught him nothing except to play football which he __Q9__ already do. Not until he hangs his boots up and goes into the open market of the world does he realize his true value or lack of it. __Q10__ for everyone if this tinsel pageantry was stripped from games at an early stage. The community must be taught to __Q11__ on the essential triviality of talents which are merely physical, __Q12__ we are willing that our ideals should be those of the jungle. The almost muscle bound weight lifter may __Q13__ a pattern of manhood in __Q14__ with a weedy classis scholar, but he would cut a poor figure, after all beside a gorilla. It is for other __Q15__ physical values that really matter to education.

Q1

- A) further more
- B) many more
- C) far more
- D) more over

Q2

- A) upon
- B) not on
- C) although
- D) rather on

Q3

- A) to spent
- B) to spend
- C) was spent
- D) was spend

Q4

- A) shall be
- B) should have
- C) should be
- D) shall have

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PART 1 - ENGLISH M.C.Q'S

Q5

- A) it were
- B) it was
- C) it will
- D) it shall

Q6

- A) had
- B) will
- C) then
- D) having

Q7

- A) quote
- B) fiction
- C) logic
- D) heresy

Q8

- A) through
- B) whenever
- C) sometimes
- D) always

Q9

- A) since
- B) would
- C) could
- D) because

Q10

- A) it would be well
- B) it would be better
- C) it will be well
- D) it will be better

Q11

- A) put emphasis
- B) get emphasis
- C) lay emphasis
- D) lie emphasis

Q12

- A) rather
- B) subsequently
- C) further
- D) unless

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PART I - ENGLISH M.C.Q'S

Q13

- A) seem
- B) saw
- C) seeming
- D) seen

Q14

- A) similar
- B) contrast
- C) match
- D) compare

Q15

- A) such
- B) than
- C) then
- D) kind

Q 16-24 Choose the best option

Q16 Not again! This is the third time that I my keys since I home this morning.

- A) am losing / was leaving
- B) had lost / left
- C) lose / had left
- D) have lost / left

Q17 He of retiring until after he enough to afford a life abroad after retirement.

- A) hasn't thought / will save
- B) isn't thinking / has been saving
- C) won't think / is saving
- D) doesn't think / has saved

Q18 For a year now, Mr. Harris charity balls to collect money for the homeless.

- A) had been organizing
- B) was organizing
- C) has been organizing
- D) organized

Q19 By the time it mid-summer, I at this firm for about ten years.

- A) is / will have worked
- B) was / could have worked
- C) has been / will be working
- D) would be / had worked

Q20 When Bilal called me I that we fishing soon.

- A) remembered / had gone
- B) was remembering / would be going
- C) remembered / would go
- D) had remembered / will go

PART I - ENGLISH M.C.Q'S

Q21 Scientists hard to find a new and effective treatment which most scary diseases.

- A) have been struggling / will cure
- B) struggled / had been curing
- C) will struggle / have cured
- D) are struggling / are being cured

Q22 In two years, many of our school friends, and then we no hardship in keeping our international business going.

- A) graduated / had had
- B) are graduating / have had
- C) have graduated / will have
- D) will graduate / will have

Q23 The girls a game called 'bomb' for almost ten minutes when the teacher suddenly the classroom.

- A) have played / will enter
- B) were playing / entered
- C) are playing / comes
- D) had been playing / entered

Q24 It is five months since we over this company.

- A) have taken
- B) had taken
- C) will take
- D) are taking

Q 25-34 Select the best option

Q25 Many experts emphasize that the positive effects of declining inflation will expectations.

- A) overcome
- B) surpass
- C) undermine
- D) rectify

Q26 He has recently drawing to make himself relaxed.

- A) adopted
- B) relinquished
- C) adjusted
- D) benefited

Q27 The rise in the prices her to sell her share for a nice profit.

- A) achieved
- B) annoyed
- C) meditated
- D) facilitated

Q28 The police finally arrested the criminal.

- A) famous
- B) renowned
- C) respectable
- D) notorious

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- Q29 Visibility depends upon the concentration of water or dust particles in the air.
 A) rapidly C) chiefly
 B) obstinately D) instantly
- Q30 This magazine is designed to help satellite equipment buyers make more purchasing decisions and keep ahead of new developments.
 A) representative C) obscure
 B) informed D) foreseen
- Q31 The latest figures concerning the company's sales are certainly very
 A) determined C) disturbing
 B) intensive D) emphatic
- Q32 Sponsorship is being increasingly allowed in schools provided it is regarded as being with educational curricula.
 A) predictable C) considerate
 B) decisive D) compatible
- Q33 I am not that the proposal actually will lead to an improvement in the situation.
 A) deterred C) impressed
 B) refrained D) convinced
- Q34 In a child, curiosity normally suggests intelligence and is welcomed; but an adult is best avoided.
 A) inquisitive C) indulgent
 B) impartial D) indecisive

Reading Comprehension

Choose the best answer for each passage

Political freedom is possible only where justice is in the seat of authority, where all the orders and degree work in harmony with the organic laws which man neither made nor can alter – where the unwise are directed by the wise, and those who are trusted with power use it for the common good.

A country so governed is a free country, be the form of constitution what it may. A country not so governed is in bondage, be its suffrage never so universal. Where justice is supreme, no subject is forbidden anything which he has right to do or desire; and therefore it is that political changes, revolutions, reforms, transfers of power from one order to another, from kings to aristocracies, from aristocracies to people are in themselves no necessary indications of political or moral advance. They mean merely that those in authority are no longer fit to be trusted with elusive power.

- Q35 What is the author's conception of a free country?
 A) one whose government is dependent on constitutional form of the government
 B) one where the government is in the hands of the majority
 C) one where the government is inspired by what is right for the good of its inhabitants
 D) one where the manner of the government rather than the motives that matter

Warm blooded animals have elaborate physiological controls to maintain constant body temperature (in humans, 37° C). Why then during sickness should temperature rise, apparently increasing stress on the infected organism? It has long been known that the level of serum iron in animals falls during infection. Garibaldi first suggested a relationship between fever and iron. He found that microbial synthesis of

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siderophores -- substances that bind iron -- in bacteria of the genus *Salmonella* declined at environmental temperatures above 37° C and stopped at 40.3° C. Thus, fever would make it more difficult for an infecting bacterium to acquire iron and thus to multiply. Cold-blooded animals were used to test this hypothesis because their body temperature can be controlled in the laboratory. Kluger reported that of iguanas infected with potentially lethal bacterium *A. hydrophilia*, more survived at temperatures of 42°C than at 37°C, even though healthy animals prefer the lower temperature. When animals at 42°C were injected with an iron solution, however, mortality rates increased significantly. Research to determine whether similar phenomena occur in warm-blooded animals is sorely needed.

Q36 The passage is primarily concerned with attempts to determine

- A) the role of siderophores in the synthesis of serum iron
- B) new treatments for infections that are caused by *A. hydrophilia*
- C) the function of fever in warm-blooded animals
- D) the mechanisms that ensure constant body temperature

Q37 According to the passage, Garibaldi determined which of the following?

- A) That serum iron is produced through microbial synthesis
- B) That microbial synthesis of siderophores in warm-blooded animals is more efficient at higher temperatures
- C) That only iron bound to other substances can be used by bacteria
- D) That there is a relationship between the synthesis of siderophores in bacteria of the genus *Salmonella* and environmental temperature

Research suggests that there are creatures that do not know what light means at the bottom of the sea. They don't have either eyes or ears; they can only feel. There is no day or night for them. There are no winters, no summers, no sun, no moon, and no stars. It is as if a child spent his life in darkness in bed, with nothing to see or hear. How different our own life is! Sight shows us the ground beneath our feet and the heavens above us - the sun, the moon, and the stars, the shooting stars, lightning, and the sunset. It shows us days and nights. We are able to hear voices, the sound of the sea, and music. We feel, we taste, and we smell. How fortunate we are!

Q38 Judging from the passage, we can say that this story is mainly about

- A) life of sea creatures at the bottom of the sea
- B) how changes in the seasons are perceived by the deep-sea creatures
- C) how wonderful our lives were and will be
- D) the superiority of human beings over some creatures in terms of senses

Q39 We discover that the sea creatures in the story

- A) have the same senses that we do
- B) have no sense of hearing as well as sight
- C) hear the sounds of the ocean
- D) live in darkness because no light reaches to the bottom

Q40 In the passage a child in darkness is likened to

- A) someone who lives where there are no seasons
- B) an animal without the sense of touch
- C) a sea creature with no seeing or hearing ability
- D) a deaf child unaffected by the environment

PART I - ENGLISH M.C.Q'S

Official records state that the Pueblo Indians lived in New Mexico and Arizona. The word "Pueblo" comes from the Spanish word "pueblo," meaning town or village. The Spaniards found these Indians living in apartment houses, some of them on the side of a cliff in order that they could be reached only by ladders. Whenever they were attacked by Apaches, the Pueblos would pull up the ladders. They grew corn, which they watered with water flowing down in ditches. They wove cloth, made wonderful baskets, and created jars and pots out of clay proving how skilful they were at hand-craft.

Q41 From the passage we understand that the Pueblo Indians were afraid of

- A) cliff dwelling
- B) Apache Indians
- C) apartment houses
- D) water flowing down in ditches

Q42 Why the Spaniards called these Indians "Pueblos" is because they

- A) were close to the Apaches
- B) lived together in a town or village
- C) farmed and brought down water in ditches
- D) pulled up their ladders when attacked

Q43 The Pueblo Indians lived on the side of a cliff

- A) although they had apartment houses
- B) to observe the stars in the sky for rain season
- C) so that they could provide themselves with shelters
- D) and, the didn't have a lake, a stream, or a pond

Once the leaders of the rebellion were executed or dispersed, the British Government admitted its previous errors - tacitly, of course - and sought to rectify old wrongs. King George III, who had complained that he would go mad if his American colonies were lost, regained his spirits and proved surprisingly forgiving. No more than a third of the colonists had supported the insurrection, in any event, and six years of bloodshed and hardship that followed were quickly forgotten in the era of good feeling after the war. The colonies were placed under a unified government for the first time, and a new capital was established across the East River from Manhattan, in the fertile fields of Brooklyn.

Q44 The passage states that the British government

- A) was punished by the leaders of the rebellion
- B) in a way, apologized for its former mistakes after the rebellion was over
- C) agreed to release the rebels from the prison
- D) was supported by the majority of the colonies

Q45 It's clear from the passage that

- A) King George was put in a mental hospital when the American colonies rebelled
- B) one third of the colonists were killed in the attempted rebellion
- C) after the revolt, the king was not as angry as people had expected
- D) the rebels were successful in their attempt to gain power

PART II: MATHEMATICS M.C.Q's

Number of Math M.C. Questions: 50

Questions on Page Numbers 8 to 14

Time Allowed: 75 minutes

Negative Marking: Yes

46. A man buys a machine under the deal, that he pays 10% of the machine's price as downpayment, and repays the rest of the cost plus 13% simple interest (on the price of the machine) within 1 year. The amount of disbursements is immaterial, only the net payable matters. If the entire payment is not made by one year of the purchase, the net payable increases due to a fixed increase of the interest rate, which rises as 3% per year (following the first year). If the man managed to pay off the entire payable (including the down payment) amounting to \$10,500 only by the third year, what was the initial cost of the machine?
- A) \$9,051.72 B) \$8,000.00 C) \$8,823.52 D) \$9,292.03

47. If $x = 25$ and $y = -2$, what is $\frac{\sqrt[3]{x^3 y^3}}{\sqrt{x}}$?
- A) 125 B) 625 C) -125 D) -625

48. 12 computers take 28 hours (CPU time) working together to solve the 8-dimensional Black-Scholes equation -iteratively- for pricing an option dependent on a basket of 8 underlying assets. The number of computers is inversely proportional to the CPU time consumed. These simulations have to be repeated. If 4 similar computers are added to the job (from the beginning), how much reduction, if any, (in CPU time, reported in minutes) is expected?
- A) 420 mins. B) 560 mins. C) 1,269 mins. D) No boost.

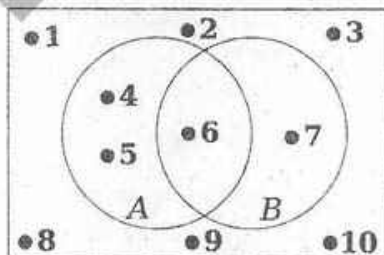
49. A Racing Homer pigeon released at a spot far from its loft will promptly home back in, averaging an amazing flight speed of 50 miles an hour. Once well-fed, these birds can fly continuously for 14 hours without break. What time (in hours) will 10 such pigeons take to return to their loft when released 600 miles away in ideal weather conditions for this sport?
- A) 10 hours B) 12 hours C) 6 hours D) 5 hours

50. If $x - y = 4$, what is the value of $\frac{(x-y)(x^4-y^4)}{x^3+xy^2+x^2y+y^3}$?
- A) 20. B) 18 C) 16 D) Can't be found.

51. What is the sum of the production (in metric tons) of cotton yarn and sugarcane, if the following table is provided?

Item	Production (metric tons)	Fraction of total produce
Wheat	10,000	1/16
Cotton yarn		1/8
Sugarcane		1/5

- A) 203.125 B) 52,000 C) 5,200 D) 40,000
52. Consider the following Venn diagram which describes the sample space and the events A and B. If $P(1) = P(2) = P(3) = P(4) = P(5) = 1/20$ and $P(6) = P(7) = P(8) = P(9) = P(10) = 3/20$, what is the value of $P(A)$ and $P(B)$?



- A) $P(A) = 3/10$ and $P(B) = 1/5$.
 B) $P(A) = 15/22$ and $P(B) = 13/22$.
 C) $P(A) = 3/11$ and $P(B) = 13/55$.
 D) $P(A) = 1/4$ and $P(B) = 3/10$.
53. For the algebraic inequality $|x^2 - x - 6| < 0$, which of the following is true?
- A) The solution is $\{x < -2\} \cup \{x > 3\}$
 B) The solution is $\{x < 3\} \cap \{x > -2\}$
 C) The only possible solution is $x = 3$.
 D) There is no solution to this inequality.

PART II: MATHEMATICS M.C.Q's

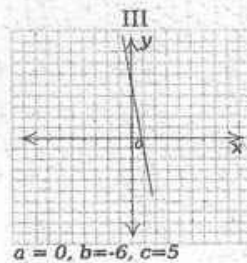
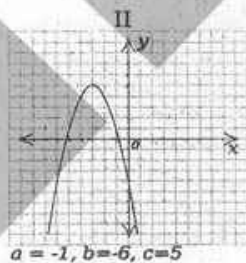
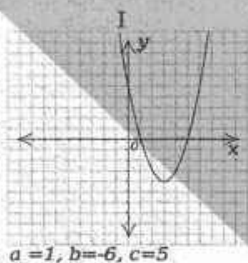
54. If $g(x, y) = |x - 3y|$, find $g(3, -2)$.
 A) 3 B) 9 C) 11 D) 7
55. In a right angled triangle if the length of the hypotenuse is an integer unit, what possible choices between 5 and 12 units, are there for the perpendicular and the base?
 A) 5 units and 6 units.
 B) 6 units and 8 units.
 C) 3 units and 4 units.
 D) Impossible to determine.
56. Consider the figure given below.



Note: Figure not drawn to scale

The base of the white triangle is b , and its height is h . The base of the white triangle is one half of the base of the parallelogram. What is the ratio of the area of the triangle to the area of the grey shaded region, in the parallelogram?

- A) $\frac{1}{4}$ B) $\frac{4}{1}$ C) $\frac{bh}{2}$ D) $\frac{1}{3}$
57. The Alexandarine parakeet until 1970s used to roam the skies of Karachi freely in large groups, but is now en-route to be listed as an endangered specie due to the destruction of its habitat and poaching. The population of these parrots in 1970 was 1,000,000. Over a period of 40 years the population has declined linearly and is now estimated to be just 50,000 birds. How long will it take to wipe off the local Alexandarine breed, taken for granted that no anti-poaching measures are taken by the local wildlife authorities, so that the damage continues at its linear rate?
 A) Between 1 and 2 years.
 B) Between 2 and 3 years.
 C) Between 3 and 4 years.
 D) Between 5 and 6 years.
58. In a Cartesian coordinate plane, if we shift the origin 3 units eastwards and 2 units southwards, what would be the location of the original point $(-3, 4)$ according to the shifted coordinate system?
 A) $(-6, 2)$ B) $(-6, 6)$ C) $(0, 2)$ D) $(0, 6)$
59. The function $f(x) = ax^2 + bx + c$ is graphed below for different values of a , b , and c . Identify which graphs are correct.



- A) I only.
 B) II only.
 C) II and III only.
 D) I and III only.
60. If we break a positive integer (greater than 1) into its smallest possible factors, the following statement should be true.
 A) All factors should be even.
 B) Some factors should be even, some odd, none prime.
 C) Some factors should be prime numbers, others should be non-prime odd numbers.
 D) All factors should be prime numbers.
61. If $\sqrt[3]{8xy} - 18 = 4x - 8y$, what is the value of $(x + 4)$ in terms of y ?
 A) $\frac{2}{2y-7}$ B) $\frac{1}{y-2}$ C) 0 D) $\frac{1}{y-4}$
62. The inequality:

$$(x - 8)(x + 3) \leq -10$$

PART II: MATHEMATICS M.C.Q's

has the solution:

- A) $-2 \leq x \leq 7$
 B) $\{x \leq -2\} \cup \{x \geq 7\}$
 C) $-13 \leq x \leq -2$
 D) $\{x \leq -13\} \cup \{x \geq -2\}$

63. Pick the ordered pair which gives the solution to the following system of linear equations.

$$10x - 3y = 4$$

$$13x + y = 1$$

- A) (2, 3) B) $(\frac{5}{23}, -\frac{14}{23})$ C) $(\frac{7}{23}, -\frac{22}{69})$ D) $(\frac{1}{7}, -\frac{6}{7})$

64. Let $h(x) = \frac{f(x)}{g(x)}$, where $f(x) = |x| - 3$ and $g(x) = x + 1$. The variable x may assume any integer value. At what value of x does the function $h(x)$ attain its smallest absolute value?

- A) $x = 3$ B) $x = -1$ C) $x = 2$ D) $x = 4$.

65. Expected value of a random variable is the arithmetic mean of its possible values with respect to their frequency of occurrence. It is defined as the sum of the products of all possible values of the variable and their relative frequencies of occurrence. With respect to this definition what is the expected value of X from the following table?

X	0	1	2	3
Rel. freq.	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{8}$

- A) 0 B) 1 C) 1.5 D) 2.5.

66. Zahid is out at a shopping mall. He purchases 3 items, soap, shoe polish and honey. Their net worths are respectively, Rs. 30, Rs. 35, and Rs. 300. He also has to pay the VAT (value-added tax) on soap and shoe polish, which is 19% of their net worths. What is the total amount payable at the counter, rounded upwards to the nearest rupee?

- A) Rs. 378 B) Rs. 365 C) Rs. 435 D) Rs. 360

67. What is the perimeter of the quadrilateral bounded by the four corners, (5, 3), (5, -5), (-3, -1), and (-3, 3)?

- A) $6\sqrt{5}$ B) $\sqrt{100}$ C) 24 D) $20 + 4\sqrt{5}$

68. A circle has its center at the origin (in a Cartesian coordinate plane) and has a diameter of 6 units. What is the length of the arc in the first quadrant?

- A) 9.42 units B) 18.84 units C) 4.71 units D) 3.14 units

69. A Fibonacci sequence of numbers has the first two numbers equal to 1, and each successive number is obtained by adding the last two numbers together. The following six numbers are derived from such a Fibonacci sequence by adding each number of the Fibonacci sequence to a number from another (unknown) sequence. What is the seventh number?

3 4 7 10 16 21 ...

- A) 29 B) 30 C) 31 D) 33

70. A homogeneous equation of degree two, viz, $ax^2 + 2hxy + by^2 = 0$, represents:

- A) A circle in the Cartesian coordinate plane.
 B) A parabola in the Cartesian coordinate plane.
 C) A pair of straight lines passing through the origin.
 D) A straight line passing through the intersection of two straight lines.

71. Assume that a commodity's net worth two years ago was Rs. 50. At that time the government imposed sales tax on that product at 5% of its net worth. In the successive year the manufacturer raised the net price of the commodity by 10% to take care of budgetary inflation. In the meanwhile, the government also imposed (another tax) 19% VAT (value-added tax) on the net worth of the product. What is the total retail price of the product now, rounded upwards to the nearest rupee?

- A) Rs. 69 B) Rs. 68 C) Rs. 63 D) Rs. 60

72. Let A and B be two probabilistic events with non-zero probabilities, i.e., $P(A) \neq 0$ and $P(B) \neq 0$. Events (A and B) are defined as being mutually exclusive if $A \cap B = \{\}$ (an empty set), in which case $P(A \cap B) = 0$. The probability of occurrence of the Event A , given that Event B definitely occurs is given by $P(A|B) = \frac{P(A \cap B)}{P(B)}$. Events (A and B) are defined as being independent if $P(A|B) = P(A)$. For such events as A and B , which of the following must be true?

- I) Independent events (such as A and B) will necessarily not be mutually exclusive.
 II) Dependent events (such as A and B) will necessarily be mutually exclusive.
 III) Mutually exclusive events will necessarily be dependent.

- A) I only.
 B) II and III only.
 C) III only.
 D) I and III only.

73. Prime numbers are numbers greater than 1 with the property that they are only fully divisible either by 1 or else by themselves. Which of the following statements are true about prime numbers?

- I) The product of two consecutive prime numbers may be odd.
 II) The product of two consecutive prime numbers may be even.
 III) The product of two consecutive prime numbers must be prime.

- A) I only.
 B) II only.
 C) I and II only.
 D) I and III only.

74. Suppose that a *word* means any permutation of a given number of alphabets, whether they have literal meaning or are meaningless. In such a case, how many distinct permutations are possible from a pool of 8 distinct alphabets for forming a 5-lettered word, so that none of the letters are repeated within any word?

- A) 32,768 B) 6,720 C) 56 D) 60

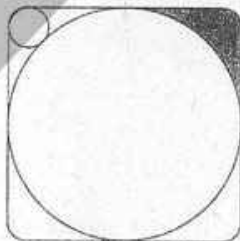
75. An integer greater than 100 has its unit digit twice that of its tens digit. The hundreds digit is 25 percent of the tens digit. If the sum of all the digits is 13, what is the value of the integer?

- A) 436 B) 184 C) 148 D) 724

76. Consider the function $f(x) = \frac{1}{x-1}$, where $x \in \mathbb{Z} \setminus \{1\}$ (the set of all integers different from one). What is the range of this function?

- A) $\mathbb{R} \setminus \{-\infty, 0, \infty\}$ (all real numbers different from zero, negative and positive infinity)
 B) $\mathbb{Q} \setminus \{0\}$ (the set of all rational numbers different from zero).
 C) The set containing all rational numbers of the form $\frac{p}{q}$, $\exists p = 1 \ \& \ q \in \mathbb{Z} \setminus \{0\}$.
 D) \mathbb{R} (the set of all real numbers).

77. Consider the figure shown below. The radius of the larger circle is 6 times the radius of the smaller circle. If the length of the straight horizontal line (near the base of the figure) is 24 units, find the area of the grey shaded region.



- A) $35(1 - \pi)$ B) $35(4 - \pi)$ C) $140(4 - \pi)$ D) $140(1 - \pi)$

78. How many distinct ways exist to draw a sample of two balls without replacement from a bag containing 10 red and 4 blue balls?

- A) 91 B) 20 C) 40 D) 210

79. Which of the following statements are true.

- I) Every rhombus is a square.
 II) Every square is a rhombus.
 III) Every rhombus is a parallelogram.

IV). Every parallelogram is a rhombus.

- A) II only.
 B) II and III only.
 C) I and III only.
 D) IV only.

80. What would be the value of Rs. 100,050 after three years, invested today at a simple interest of 18% per year?

- A) Rs. 300,050 B) Rs. 154,077 C) Rs. 146,000 D) Rs. 210,000

81. Which of the following statements are correct about the geometry of triangles?

- I) Every equilateral triangle is also an isosceles triangle.
 II) A right angled triangle must be isosceles.
 III) A right angled triangle may be isosceles.





- A) I only.
 B) II only.
 C) II and III only.
 D) I and III only.

82. Which of the following statements are correct about quadratic inequalities, such as $ax^2 + bx + c \leq 0$, where $a, b, c \in \mathbb{R}$?

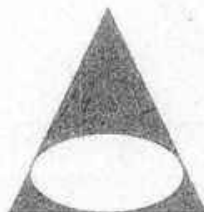
- I) Their complete solution must consist of isolated line(s).
 II) Their complete solution may consist of isolated line(s).
 III) Their complete solution must consist of plane regions.

- A) I only.
 B) II only.
 C) III only.
 D) I and II only.

83. Consider the algebraic quadratic inequality given by, $x^2 - 5x - 6 \leq 0$. Which of the following graph represents its solution most closely?

- A)  The region shaded grey without the vertical lines
 B)  The region shaded grey along with the vertical lines
 C)  The region shaded grey along with the vertical lines
 D)  The region shaded grey without the vertical lines

84. Consider the figure shown below. The width of the ellipse is 6 cm, is equal to the height of the triangle and is $\frac{3}{4}$ th of its base. The height of the ellipse is one half of its width. What is the area of the grey shaded region?



Note: Figure not drawn to scale

- A) $24 - 18\pi$ B) $48 - 18\pi$ C) $24 - \frac{3\pi}{2}$ D) $24 - \frac{9\pi}{2}$

85. How long will it take for the initial principal amount of Rs. 100 to become at least its double if it is invested today where it earns a compound interest at the rate of 50% every six months? *Compound interest implies that the amount of interest, after each (compounding) time period, is added to the principal amount and*

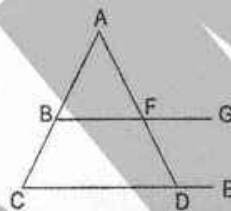
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PART II: MATHEMATICS M.C.Q's

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qualifies for interest during the next period?

- A) Between 6 months and 1 year.
- B) At least 1 year.
- C) Between 1 year and 18 months.
- D) At least 2 years.

86. Regarding the figure shown below, which of the following statements are true? (BG and CE are parallel lines)

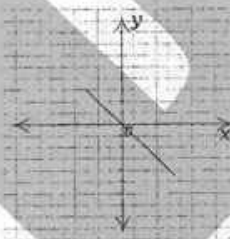


Note: Figure not drawn to scale

- I) $\angle AFG \cong \angle FDE$.
- II) $\angle ABF \cong \angle AFB$.
- III) $\angle DFG + \angle FDE = 180^\circ$.

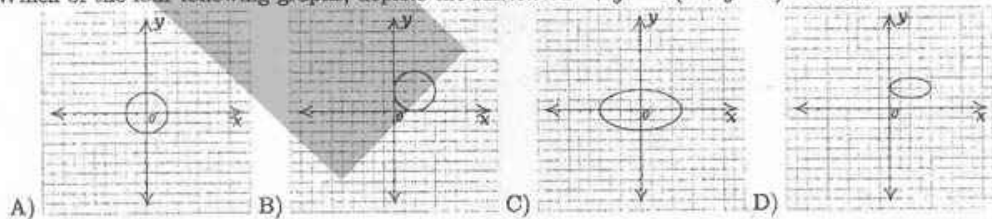
- A) I only.
- B) I and II only.
- C) II and III only.
- D) I and III only.

87. Which of the following functions is plotted in the graph shown below?



- A) $f(x) = -x$
- B) $f(x) = x$
- C) $f(x) = -x^2$
- D) $f(x) = x^2$

88. Which of the four following graphs, depicts the function $x^2 + y^2 - 4(x + y - 1) = 0$ best?



89. There are two sizes of apples, large and small. They have to be packed in two sizes of boxes, large and small. Each of these kind, cannot hold only one kind of apples without letting empty spaces remain. The large boxes can be accurately filled by placing 10 large and 15 small apples, or 20 large apples. The small boxes can be completely filled by placing 10 large and 5 small apples only. How many large and small boxes are required to pack 500 large and 200 small apples so that no empty spaces remain, and a minimum possible number of small boxes are required?

- A) 31 large and 1 small box.
- B) 32 large and 1 small box.
- C) 19 large and 1 small box.
- D) 29 large and 4 small boxes.

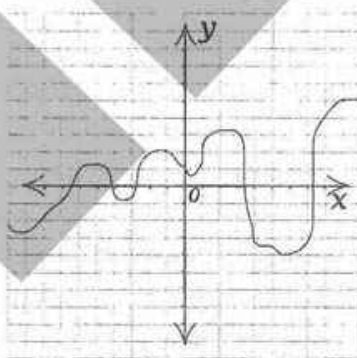
90. A curve is given in the Cartesian coordinate plane as $x^2 + y^2 = 9$. What are the coordinates of the points at which this curve meets the coordinate axes?

- A) (0,0)
- B) (0,0) and (0,9).
- C) $(\pm 3, 0)$ and $(0, \pm 3)$.
- D) It is a small circle which doesn't meet the coordinate axes.

(go on to the next page)

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91. $\log_{10} 1000 = ?$
 A) 3 B) 4 C) 3.4 D) 4.3
92. Which of the following are correct with respect to $|x|$?
- I) $|x| = -x$ if $x \leq 0$
 II) $|x| = x$ if $x \geq 0$
 III) $|x| = -x$ if $x < 0$
- A) I and II only.
 B) II and III only.
 C) I and III only.
 D) All three are correct.
93. In a commercial egg-production unit, the ratio of layer-hens to eggs produced per day is 5 : 3. Such a livestock is only commercially viable if each shed in the unit is maintained at its full capacity of layer-hens. Assuming that each such shed in a unit can house only 500 layer-hens, how many layer-hens must a unit have in order to ensure a cost-effective production of at least 1,000 eggs each day?
- A) 1,667 B) 1,500 C) 2,000 D) 500
94. Solutions of algebraic inequalities are often represented as plane regions in the Cartesian coordinate system. Assume that a quadratic inequality results in the solution $\{x \leq -1\} \cap \{x \leq 5\}$. In such a situation, which of the following will fail to satisfy the inequality?
- I) 0.
 II) -1.
 III) 5.
- A) I only.
 B) II and III only.
 C) I and III only.
 D) III only.
95. Consider the graph of $f(x)$ shown below. In what intervals for x does the function attain its smallest and largest minimum values?



- A) Smallest: $5 \leq x \leq 6$; Largest: $0 \leq x \leq 1$
 B) Smallest: $-9 \leq x \leq -10$; Largest: $x \geq 9$
 C) Smallest: $-9 \leq x \leq -10$; Largest: $5 \leq x \leq 6$
 D) Smallest: $5 \leq x \leq 6$; Largest: $x \geq 9$

Congratulations ! You've finished math MCQs.

Please cross (x) Option E in the answer sheet corresponding to all unanswered MCQs.

ESSAY-I

(Suggested time 20 minutes)
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Present your perspective on the issue below in three paragraphs, using relevant reasons and/or examples to support your views based on your own readings, observations and experience.

Given the chance to study the BBA degree, how do you think you could contribute to any field of your life?

ESSAY-II

(Suggested time 20 minutes)

The following appeared in a research paper written for an introductory economics course:

“For the past century, an increase in the number of residential building permits issued per month in a particular region has been a reliable indicator of coming improvements to that region’s economy. If the monthly number of residential building permits issued rises consistently for a few months, the local unemployment rate almost always falls and economic production increases. This well-established connection reveals an effective method by which a regional government can end a local economic downturn: relax regulations governing all construction so that many more building permits can be issued.”

Discuss how well reasoned you find this argument. In your discussion be sure to analyze the line of reasoning and the use of evidence in the argument.