IBA Past Entry Test Papers

MBA – 2010

Section: English
Number of Questions: 45   Time allowed: 50 Minutes

Section: Mathematics
Number of Questions: 50   Time allowed: 65 Minutes

Section: Writing Skills
Tasks: 2   Time allowed: 60 Minutes

Negative Marking: Yes

Number of English M.C. Questions: 45   Time Allowed: 50 Minutes

Questions on Page Numbers 1 to 10   Negative Marking: Yes

Vocabulary and Grammar

Q 1-5 Fill in the blanks with suitable words given at the right side of the text

This view of the nature of discovery has, I suspect, deep roots in the nature of scientific community. One of the few historical elements recurrent in the textbooks **Q1)____** which the prospect scientist learns his field is the attribution of particular natural phenomena to the historical personages **Q2)____** first discovered them. As a result of this and other aspects of their training, discovery becomes for many scientists an important goal. To make a discovery is to achieve one of the closest approximations to a property right that the scientific career affords. Professional prestige is **Q3)____** closely associated with these acquisitions. Small wonder, then, that acrimonious disputes about priority and independence in discovery have often marred the normally placid tenor of scientific communication. Even less wonder how many historians of science have seen the individual discovery as an appropriate unit with which to measure scientific progress and have devoted time and skill to determining what man made discovery at what point in time. If the study of discovery has a surprise to offer, it is only that, **Q4)____** the immense energy and ingenuity exceeded upon it, **Q5)____** polemic or painstaking, scholarship has often succeeded in pinpointing the time and place at which a given discovery could properly be said to have been made.

Q1

A) between
B) whom
C) from
D) those

Q2

A) that
B) who
C) which
D) is

Q3

A) suddenly
B) surely
C) rather
D) often

Q4

A) despite
B) in fact
C) therefore
D) however

Q5

A) either
B) sometimes
C) neither
D) although

(Go On To The Next Page)

Q 6-15 Choose the best option (which are given on page 3)

Certain problems in psychological research require the experimenter to **Q6)**_____ his career and scientific interests against the interest of his **Q7)**_____ subjects. When such occasions arise the experimenter's stated objective frequently is to choose the best possible job with the least possible harm to his subjects. The experimenter seldom **Q8)**_____ in more positive terms an indebtedness to the subject for his services, perhaps because the detachment which his functions require prevents appreciation of the subject as an individual.

Yet a debt does exist, even when the subject's reason for volunteering includes course credit or monetary gain. Often a subject participates unwillingly in order to satisfy a course requirement. These requirements are of a **Q9)**_____ merit ethically, and do not alter the experimenter's responsibility to the subject.

Most experimental conditions do not cause the subjects pain or indignity, and are sufficiently interesting or challenging to present no problem of an ethical nature to the experimenter. But where the experimental conditions **Q10)**_____ the subject to loss of dignity, or offer him nothing of value, then the experimenter is obliged to consider the reasons why the subject volunteered and to reward him accordingly.

The subject's public motives for volunteering include having an enjoyable or stimulating experience, acquiring knowledge, doing the experimenter a favor which may someday be **Q11)**_____, and making a contribution to science. These motives can be taken into account rather easily by the experimenter who is willing to spend a few minutes with the subject afterwards to thank him for his participation, answer his questions, reassure him that he did well, and chat with him a bit. Most volunteers also have less **Q12)** _____, but equally **Q13)**_____, motives. A subject may be seeking an opportunity to have contact with, be noticed by, and perhaps confide in a person with psychological training. The dependent attitude of most subjects towards the experimenter is an artifact of the experimental situation as well as an expression of some subject's personal need systems at the time they volunteer.

The dependent, obedient attitude assumed by most subjects in the experimental setting is **Q14)**_____, to that situation. The "game" is defined by the experimenter and he makes the rules. By volunteering, the subject agrees **Q15)**_____ to assume a posture of trust and obedience. While the experimental conditions leave him exposed, the subject has the right to assume that his security and self-esteem will be protected.

3

ENGLISH M.C.Q'S

Q6

A) organize
B) regulate
C) balance
D) develop

Q7

A) current
B) prospective
C) reliable
D) natural

Q8

A) studies
B) concludes
C) perceives
D) considers

Q9

A) questionable
B) logical
C) affordable
D) reasonable

Q10

A) relate
B) deter
C) subject
D) expose

Q11

A) revoked
B) reciprocated
C) assured
D) assumed

Q12

A) substantiate
B) signify
C) manifest
D) argue

Q13

A) pertinent
B) sequential
C) established
D) legitimate

Q14

A) appropriate
B) justified
C) associated
D) concluded

Q15

A) enthusiastically
B) explicitly
C) subtly
D) implicitly

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ALL ANSWERS MUST BE GIVEN ON THE ANSWER SHEET
BY CROSSING THE CORRESPONDING LETTER
ENGLISH M.C.Q'S

Q 16-25 Select the best option

Q16 In August my parents <u>will be married for twenty-five years.</u>

    A) will be married for twenty-five years
    B) shall have been married for twenty-five years
    C) will have been married for twenty-five years
    D) will be married for twenty five years

Q17 The Diary of Anne Frank <u>showed a young girl's courage</u> during two years of hiding.

    A) showed a young girl's courage
    B) shows a young girl's courage
    C) did show a young girls courage
    D) has shown a young girl's courage

Q18 The fact that boxing is known to cause head injuries and brain damage <u>should lead us to inform</u> the public and push for a ban on boxing.

    A) should lead us to inform
    B) could lead us to inform
    C) should of led us to inform
    D) will lead us to inform

Q19 Still, the fact <u>that a planet exists outside our solar system encourages hope that other solar systems exist, and</u> in them, perhaps, a planet that does support life.

    A) that a planet exists outside our solar system encourages hope that other solar systems exist, and
    B) that a Planet exists out side our solar system encourages hope that other solar systems exist and
    C) could be that a planet exists outside our solar system encourages hope that other solar systems exist, and
    D) that a planet exist outside our solar systems encourage hope that other solar systems exist, and

Q20 If he <u>would have read</u> "The White Birds," he might have liked William Butler Yeats's poetry.

    A) would have read
    B) could have read
    C) would of read
    D) had read

(Go On To The Next Page)

ALL ANSWERS MUST BE GIVEN ON THE ANSWER SHEET
BY CROSSING THE CORRESPONDING LETTER
ENGLISH M.C.Q'S

Q21 The circus audience received a well-deserved round of applause for the perfectly timed acrobatic stunt.

A) audience received a well-deserved
B) audience gave a well deserved
C) audience did receive a well deserved
D) audience gave a well-deserved

Q22 Looking directly at me, my Mother said, " These are your options: the choice is yours."

A) Mother said, " These are your options: the
B) Mother said- these are your options, the
C) Mother had said, These are your options; the
D) Mother said, "These are your options; the

Q23 As a result of his method for early music education, Shinichi Suzuki has been known as one of the world's great violin teachers.

A) has been known as one
B) had been known as one
C) is seen as one
D) is being seen as one

Q24 Neither of the Smith brothers expect to be drafted by a major league team this year.

A) expects to be drafted
B) has expected to be drafted
C) is expecting to be drafted
D) was expecting to be drafted

Q25 Last night the weather forecaster announced that this is the most rainy season the area has had in the past decade.

A) this has been the most rainy season the
B) this was the most rainy season the
C) this is noted as the most rainy season the
D) this is the rainiest season the

Q 26-35 Select the best option.

Q26 infamy

A) honor
B) bad reputation
C) words of praise
D) opponent

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ALL ANSWERS MUST BE GIVEN ON THE ANSWER SHEET
BY CROSSING THE CORRESPONDING LETTER
ENGLISH M.C.Q'S

Q27 divestiture

A) greed
B) mercy
C) resemblance
D) unclothe

Q28 contentious

A) perfectly clean
B) objective
C) courageous
D) quarrelsome

Q29 depredation

A) plundering
B) villain
C) insincere
D) self criticism

Q30 impolitic

A) separate
B) improper
C) unwise
D) disagree

Q31 insularity

A) island like
B) harshness
C) accessories
D) ornamented

Q32 corpulence

A) no longer existing
B) obesity
C) omission of words
D) describe

Q33 bigoted

A) intolerant
B) selfish
C) generous
D) ignorant

ALL ANSWERS MUST BE GIVEN ON THE ANSWER SHEET
BY CROSSING THE CORRESPONDING LETTER
ENGLISH M.C.Q'S

Q34 execrate

A) retort
B) boredom
C) something new
D) curse

Q35 annihilate

A) causing plague
B) use of force
C) destroy
D) profitable

For Q36 and Q37 consider the following information:

A scientific study compared two matched groups of college women. The women in both groups were presented with information about the benefits of a healthy diet and regular exercise. The women in one group were paired up with one another and encouraged to work as two-person teams to help each other stick with the recommended healthy regimen of smart eating and regular vigorous exercise. The women in the other group were encouraged to use the same recommended regimen, but they were also advised to work at it individually, rather than with a partner or teammate. After 50 days the physical health and the well-being of all the women in both groups were evaluated. On average the women in the first group (with teammates) showed a 26 point improvement in measures of cardiopulmonary capacity, body strength, body fat reduction, and sense of well-being. On average the women in the other group (encouraged to work as individuals) showed a 17 point improvement on those same measures. Using statistical analyses the researchers determined that the probability that a difference of this size had occurred by chance was less than one in 1000.

Q36 If true, these research findings would tend to support which of the following assertions?

A) A college woman cannot achieve optimal health functioning without a teammate.
B) Universities should require all students living in campus residence halls to participate in a health regime of smart eating and regular vigorous exercise.
C) A healthy diet will cause one to have better mental health and physical strength.
D) This research study was funded by a corporation that makes exercise apparel.

Q37 Consider the claim, "Working with a teammate or partners on a health regimen is better than working individually." Which of the following additional pieces of information would **not** weaken that claim?

A) Most of the women in the group that was encouraged to work individually actually worked with friends and partners who were not part of the study.
B) Most of the pairings and teams created in the first group (with teammates) fell apart after a few days and the women in that group actually worked individually.
C) There was something about the women in the first group (with teammates) that the researchers overlooked, thus invalidating the intended matching of the two groups.
D) Men are more likely to work alone, so any recommendation that men find a teammate or partner to support them in sticking with the regimen will be ignored.

Q38 Three graduate school friends, Anna, Barbara, and Carol, graduated successfully. Being in the same program, the three often worked as a team on group assignments. Anna earned the special recognition of "pass with distinction" when she graduated. Carol and Barbara, although

receiving their degrees, did not earn this special honor. A fourth student in the same graduate program, Deirdre, often said that the graduate program was poorly designed and not difficult at all. Deirdre did not graduate, instead she was advised by the faculty to withdraw from the program because her work was below acceptable standards. Given this information only, it follows that

A) Carol and Barbara deserved to receive "pass with distinction" like Anna.
B) Barbara's work in the program was superior to Carol's.
C) Deirdre's work in the program was below the quality of Carol's work.
D) Anna, being successful, will decide to enroll in another advanced graduate program

Q39 "I've heard many reasons why our nation should reduce its reliance on petroleum vehicle fuels. One is that relying on imported oil makes our economy dependent on the political whims of foreign rulers. Another is that other energy sources, like the possibility of hydrogen based fuels, are less harmful to the environment. And a third is that petroleum is not a renewable resource so when we've used it all up, it will be gone! But I don't think we're likely to use it all up for at least another fifty years. And by then we'll have invented new and better fuels and more fuel-efficient vehicles too. So that argument doesn't worry me. And I don't really believe the stuff about how foreign leaders can force our nation to change its policies simply by decreasing their oil production. Oil companies like Exxon have made record profits precisely in those times when the supply of foreign oil was reduced. I don't see the big oil companies being very interested in policy change when the money is rolling in. And for another, our nation has demonstrated that it is willing to wage war rather than to permit foreign leaders to push us around. So this whole thing about how we have to reduce our reliance on petroleum based gasoline, diesel, and jet fuel is bogus." The speaker's reasoning is best evaluated as

A) It shows the arguments for reducing petroleum vehicle fuels are weak
B) The speaker is very clear about what he believes and why he believes it.
C) The speaker probably owns stock in Exxon or some other oil company.
D) The speaker ignored the environmental argument entirely.

Q40 Using the phone at her desk, Sylvia in Corporate Sales consistently generates a very steady $1500 per hour in gross revenue for her firm. After all of her firm's costs have been subtracted, Sylvia's sales amount to $100 in bottom line (net) profits every 15 minutes. At 10:00 a.m. one day the desk phone Sylvia uses to make her sales calls breaks. Without the phone Sylvia cannot make any sales. Assume that Sylvia's regular schedule is to begin making sales calls at 8:00 a.m. Assume she works the phone for four hours, takes a one hour lunch exactly at noon, and then returns promptly to her desk for four more hours of afternoon sales. Sylvia loves her work and the broken phone is keeping her from it. If necessary she will try to repair the phone herself. Which of the following options would be in the best interest of Sylvia's firm to remedy the broken phone problem?

A) Use Ed's Phone Repair Shop down the street. Ed can replace Sylvia's phone by 10:30 a.m. Ed will charge the firm $500.
B) Assign Sylvia to a different project until her phone can be replaced with one from the firm's current inventory. Replacing the phone is handled by the night shift.
C) Authorize Sylvia to buy a new phone during her lunch hour for $75 knowing she can plug it in and have it working within a few minutes after she gets back to her desk at 1:00 p.m.
D) Ask Sylvia to try to repair her phone herself. She will probably complete the repair by 2:00 p.m.; or maybe later.

ALL ANSWERS MUST BE GIVEN ON THE ANSWER SHEET
BY CROSSING THE CORRESPONDING LETTER
ENGLISH M.C.Q'S

Reading Comprehension

Q 41-45 Carefully read the following passage and answer the accompanying questions

Today, the educational value of appealing to the eye as well as to the ear has been fully recognized, and the lack of suitable materials which has in the past been a handicap to visual education is being made good. The exhibition is one important medium for visual education that has gained greatly in popularity of recent years. Exhibitions may range in subject from the purely practical—such as those sponsored by some authorities for health and housecraft demonstrations—to collections of artistic and historical interest like those circulated by the Victoria and Albert Museum. A natural focus for this particular form of education through the eye is the local museum. Museums and galleries are indeed, playing an increasingly important part in the educational life of their localities; and possibly their greatest contribution can be made in the field of adult education. If they are valuable as a base for the display of material supplied from outside sources, they have a more important function in fostering local distinctions and traditions of all kinds. This they can do by their permanent collections, by special exhibitions shown on their own premises, or by traveling exhibitions circulated to other centers in the locality—for example, to colleges of further education or to community centers. An outstanding value of the exhibition method is that it does not provide instruction only, but by the display of works of craftsmanship and art it gives training in appreciation, a sense of quality and individual character.

Another most important medium for visual education is the cine-film, and at the present time the supply of specially produced educational films is being rapidly increased. The film, like the exhibition, is well adapted for the demonstration of practical activities and skills of all kinds, and to the communication of cultural ideas and values. But it has a further distinctive contribution of particular importance in education. Owing to the exceptionally strong emotional impact of the cinema, films dealing with controversial topics—as, for example, the whole range of modern social questions—can be relied upon to provoke discussion and arouse interest in current problems. There are now a number of sources for educational films. In addition to the well-known commercial film libraries, there is the Central Film Library, where officially sponsored films are available; and the National Film Library run by the British Film Institute, with its large historical collection of films of all kinds and all periods.

Mention should also be made of the humbler filmstrip, which consists of a series of pictures printed on lengths of cine-film and projected like miniature lantern slides. Being cheap and easily handled, they are an ideal means for illustrating informal demonstrations and lectures. These are already obtainable for a wide range of subjects from several commercial producers, and are likely to be supplied in increasing number from public sources. For those who still prefer the ordinary lantern slide, the largest and most accessible public collection is that of the Victoria and Albert Museum.

    Q41 Give the meaning of *natural focus*
        A) artistic landscapes
        B) convenient centers
        C) social gatherings
        D) ordinary surroundings

Q42 Distinguish between "instruction" and "training in appreciation".
- A) "Instruction" refers to the imparting of knowledge, information, facts, while "training in appreciation" denotes teaching a sense of values and an ability to discriminate. Exhibitions provide instruction in that they impart knowledge, convey information, demonstrate facts and activities and skills. They also provide training in appreciation in that they teach the capacity to judge values, to distinguish between what is good and what is bad in art and craft, to appreciate good quality and fine character
- B) "Training in appreciation" refers to the imparting of knowledge, information, facts, while "instruction" denotes teaching a sense of values and an ability to discriminate
- C) "Instruction" refers to the creation of material and documents, while "training in appreciation" overlooking faults and establishing ideas
- D) "Instruction" refers to performance and appreciation, while "training in appreciation" denotes criticism and feedback

Q43 What advantage for educational purposes has the film over the exhibition?
- A) The exhibition is more potent than the film because, it captures and retains the interest in a way that a static picture cannot do
- B) The film is more potent than the exhibition, for its movement and its action endow it with a strong emotional force
- C) The exhibition is more potent than the film because it captures and retains the interest in a way that a static picture cannot do
- D) The film is more potent than the exhibition because it lacks controversy and argument

Q44 Why is the adjective "humbler" applied to the filmstrip?
- A) The filmstrip is humbler than the film because it consists of a series of static pictures whereas the film has continuous movement
- B) The filmstrip in humbler than the film because includes the narrative power and emotional force of the film
- C) The filmstrip is also humbler than the film because it is very expensive and elaborate
- D) The filmstrip is also humbler than the film because consists of movement and emotions

Q45 Explain the difference between "commercial producers" and "public sources" of filmstrip.
- A) "Commercial producers" refers to companies who produce film strips for non-profit, "public sources" refers to private companies who produce film-strips for profit
- B) "Commercial producers" are in the business because they are public bodies and "public sources" do not sponsor or produce films
- C) "Commercial producers" make films for public exhibition free of charge," public sources" make films to charge exorbitant expenses
- D) "Commercial producers" refers to private companies who produce film-strips for profit; "public sources" denotes public bodies who produce films on a non-profit-making basis

(Stop. Do Not Turn This Page. Wait for the invigilator's signal.)

MATHEMATICS M.C.Q's

46. Determine x:

$$\frac{\frac{3}{5} - \frac{2}{7} \times \frac{1}{3}}{\frac{2}{3} \times \frac{3}{5} - \frac{1}{2}} \div -\frac{2}{3} = x$$

A) $x = -\frac{33}{14}$ B) $x = -\frac{22}{21}$ C) $x = \frac{53}{7}$ D) $x = \frac{33}{14}$

47. Point out the flaw in the following arithmetic evolution:

$4 = 5$	(hypothesis)	(1)
$4 - 4.5 = 5 - 4.5$		(2)
$-0.5 = 0.5$		(3)
$(-0.5)^2 = (0.5)^2$		(4)
$0.25 = 0.25$	(hypothesis proves true)	(5)

A) Evolution from statement (1) to statement (2) is flawed.
B) Evolution from statement (2) to statement (3) is flawed.
C) Evolution from statement (3) to statement (4) is flawed.
D) Evolution from statement (4) to statement (5) is flawed.

48. Determine x in the form of a simple fraction.

$$\frac{\frac{x}{y}}{0.33333} = \frac{1}{3y}$$

A) $x = \frac{1}{3}$ B) $x = \frac{1}{9}$ C) $x = \frac{1}{0.33333}$ D) $x = \frac{3}{0.33333}$

49. A certain zoological facility contains 3 amphibious specimens. The ratio of toads to salamanders is one to three, while that of newts to toads is eight to two. How many total specimens are in the facility, provided that there are 57 salamanders?

A) 119 B) 152 C) 76 D) 171

50. A heavy vehicle firm's manufacturing output is 2000 vehicles a year. 25% of these are diggers and battery driven forklifts, while the rest include bulldozers, cranes and diesel forklifts. The ratio of battery driven forklifts to diesel forklifts is 2 to 1. If there are 400 diggers, what percent of the vehicles are bulldozers and cranes?

A) 72.5%. B) 50% C) 14.5% D) 75.0%

51. Raising an amount 4 times by 25% results in 500. What was the original amount when rounded off to the nearest integer.

A) 300 B) 100 C) 256 D) 205

52. 20% *trimmed mean* is the arithmetic mean of any data-set after truncation by 20%. The usual method of truncation is to arrange the data-set in order, and then to remove 10% of the original data-set from both ends. What would be the 20% trimmed mean of the data-set given by $\{5, 2, 9, 4, 90, 0, 5, 3, 4, 5\}$.

A) 3.700 B) 12.70 C) 4.625 D) 5.500

53. A young mother plans to deposit Rs. 5000.00 (in a tax-exempt savings account) begining six months from now, and at the end of each semi-annual period consecutively for 2 years (from now), in order to ensure that she meets the expenses of her baby's early schooling. Interest is earned at the rate of 16% per year compounded semi-annually. What will the total interest be, 2 years from now, immediately after her last payment.

A) Rs. 4333.00 B) Rs. 2530.56 C) Rs. 1232.00 D) Rs. 2500.00

54. What amount should be invested today at 14% interest compounded annually in order to have it grow to Rs. 10000.00 in 2 years?

A) Rs. 8771.93 B) Rs. 7694.67 C) Rs. 7812.50 D) Rs. 7500.00

55. An organization has a car financing scheme in place for its employees, in close cooperation with a bank. The organization will pay for the car but plans to earn 15% simple interest on the price only once at the end of the next two years. The return plan consists of two equal yearly payments; one instantaneous downpayment, and the other as installment at the end of the current year. This will be deposited in the organization's bank account and will earn an interest of 12% per year compounded annually. If the car costs Rs. 600,000.00, what is the periodic amount payable by the employee?

A) 290599.73 B) 345000.00 C) 300000.00 D) 290000.53
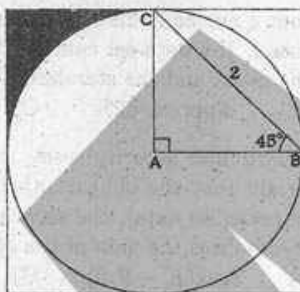
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56. An emperical observation about a normally distributed quantitative data-set is that 68% of it lies within 1 standard deviation of the mean. If a data-set contains 200 numerical observations, what percentage of them would be larger than the mean and the standard deviation added together?

    A)   Approx. 34%   B)   Approx. 32%   C)   Approx. 16%   D)   Approx. 17%

57. A *call option* is drawn on a particular security asset, such that three months from now, the buyer of the call option will have the right (not the obligation) to buy the security for (*the strike price*) Rs. K. If at the end of three months (exercise date), the security has the market value (*the spot price*) Rs. S, determine which expression symbolizes the gain of the option buyer.

    A) $\max(S - K, 0)$ B) $\max(K - S, 0)$ C) $\max(S - K, K)$ D) $\max(K - S, S)$

58. A particular share is half the price of a forex security. This forex security costs four times the price of a particular real estate bond. It is anticipated that by the year 2015, the price of the share will rise by 20% and become Rs. 600.00. Determine the price of the real estate bond.

    A)   Rs. 300.00   B)   Rs. 400.00   C)   Rs. 350.00   D)   Rs. 250.00

59. If:
$$\frac{2}{x-3} = \frac{x-3}{2}$$
x may be:

    A) -5 B) 1 C) ± 2 D) -1

60. Determine the solution (x, y) from the following system of linear equations.
$$2x - 3y = 4$$
$$4x - 6y = 7$$

    A) $x = 2, y = 3$ B) $x = 0, y = 0$ C) $x = 1/2, y = -1$ D)   No solution

61. In a particular Beowulf computing cluster, Node-1 can do a job in 3 hours (in isolation), while Node-12 takes 6 hours to do the same job (same way). Provided that all features of the job can be performed in parallel (i.e., at the same time), how long will the job take to conclude if the two nodes are engaged simultaneously?

    A)   1.5 hours   B)   2.5 hours   C)   2.8 hours   D)   2.0 hours.

62. A passenger train moving over 45 miles an hour -on applications of emergency brakes- continues for 5 minutes before dead stop. Consider two passenger trains heading towards the same crossing from opposite courses due to a drawbar malfunction. Train A is 9 miles from the crossing and heading towards it at 100 mph, while Train B is just 4 miles off and moving at 50 mph. Due to their lengths/speeds, Train A requires 1 minute and Train B requires 2 minutes to clear off from the crossing completely upon approach. A railway personnel senses troubles, and intends to ask one of the train drivers to apply emergency brakes immediately. Is collision possible, if so, can it be averted, and if so, which train should be told to apply brakes?

    A)   Collision will not occur, the trains may continue.
    B)   Collision possible, aversion possible, Train A should be asked to stop.
    C)   Collision possible, aversion possible, Train B should be asked to stop.
    D)   Collision possible, aversion only possible, if both trains are asked to stop

63. Azhar has set up a small photostat business. He purchased a used grayscale machine. The chance that a paper will get stuck in the machine is one in ten. The chance that the machine will not eat paper, but still render a bad copy is three in ten. What is the chance that a particular photocopy will go well?

    A) $\frac{1}{10}$ B) $\frac{1}{5}$ C) $\frac{3}{10}$ D) $\frac{3}{5}$

64. A motorbike retailer wants to conduct a road test on his existing stock of motorbikes consisting of eight Kawasaki, six Yamaha, and six BMW; all with identical engine power. If a motorbike passes the test, it will not be placed back in the testing pool but will end up in the showroom. Two bikes are drawn at random from this stock. What is the probability that the first bike selected will be a Kawasaki and the second a Yamaha?

    A) $\frac{2}{5}$ B) $\frac{12}{95}$ C) $\frac{3}{25}$ D) $\frac{7}{10}$

65. A 5-letter word has to be made from a pool containing 9 distinct letters. A word here implies any combination of letters appearing without repetition. This 5-letter word may be permuted in many ways. If only 3500 of these words make literal sense, find the probability that a given permutation is meaningless.

    A)   0.77   B)   0.23   C)   0.50   D)   0.44

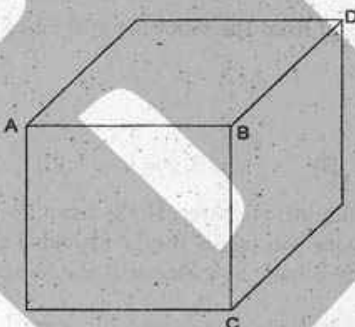66. What is the area of the shaded region in the following figure?

1) $\angle ABC = 45°$.

2) $\overline{BC} = 2$ cm.

A) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.

B) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.

C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

D) EACH statement ALONE is sufficient.

67. What is the volume of the following regular cube?

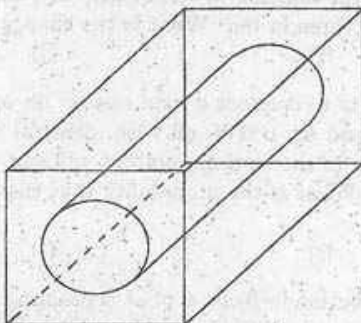
Note: Figure not drawn to scale

1) $\overline{AB} = 4$cm.

2) $\overline{BC} = \overline{BD} = 4$cm.

A) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.

B) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.

C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

D) EACH statement ALONE is sufficient.

68. A pen costs 3 times as much as a pencil and half as much as a fancy marker. Determine the cost of the marker if the cost of the pencil is Rs. 5.00.

A) Rs. 20.00   B) Rs. 30.00   C) Rs. 50.00   D) Rs. 40.00

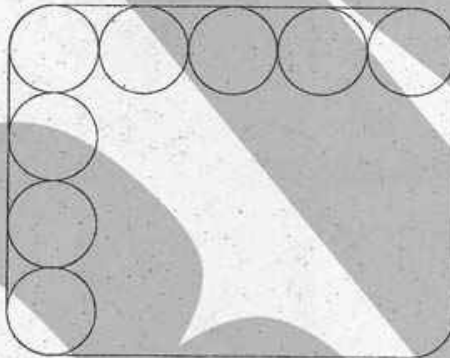69. What is the volume bounded between the cylinder and the rectangular cube?

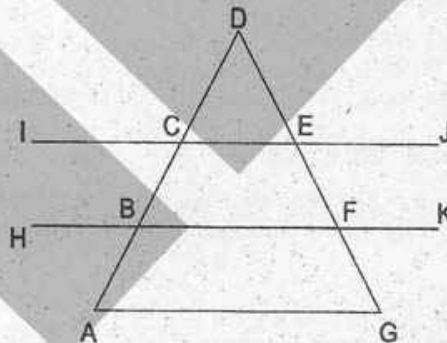Note: Figure not drawn to scale

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1) The diameter of the cylinder is half the breadth of the cube, which is 5 cm.

2) The length of the cyclinder is twice the depth.

A) Statements (1) and (2) TOGETHER are not sufficient.
B) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
C) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
D) EACH statement ALONE is sufficient.

70. What is the total area of the rectangular figure with rounded corners?

1) The length and the breadth of the rectangular figure is 8 and 10 cm respectively.

2) The radius of the small circles is 1 cm.

A) Statements (1) and (2) TOGETHER are not sufficient.
B) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
C) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
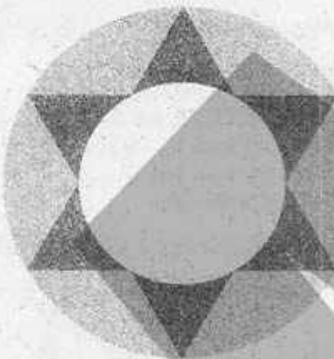D) EACH statement ALONE is sufficient.

71. Is $\angle ICD \cong \angle EFK$?

1) The straight lines are parallel, and the triangle is isosceles.

2) The straight lines are parallel, and the triangle is equilateral.

A) Statements (1) and (2) TOGETHER are not sufficient.
B) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
C) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
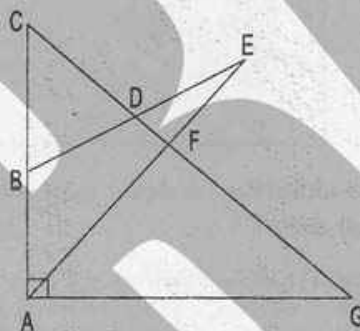D) EACH statement ALONE is sufficient.

72. The diameter of the larger circle is 7cm. This circle is 1.5 times larger than the smaller one. Find the approximate area bounded by the two circles.

A) 10.29π cm^2 B) 15.30π cm^2 C) 9.5π cm^2 D) 28π cm^2
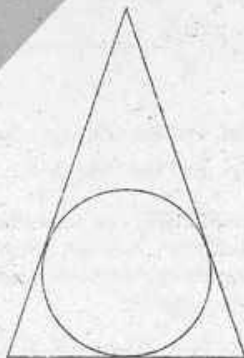
73. What is the measure of the (angle) $\angle AGC$?

Note: Figure not drawn to scale

1) $\angle EFG = 90°$ and $\overline{AB} = \overline{BC}$
2) $\angle EFG = 90°$ and $\overline{AF} = \overline{FC}$.

A)   Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
B)   Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
C)   BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
D)   EACH statement ALONE is sufficient.

74. What is the area of the triangle given below, provided that the circle is half as tall as the triangle, and the base of the triangle is 2.5 times the radius of the circle which is 2.5cms ?

A)   30cm^2 B)   31.25cm^2 C)   10.25cm^2 D)   35.50cm^2

75. What is the probability that 3 winning balls (red in color) will be blind selected in a draw game?

1) The draw bag contains 5 red, 4 blue, and 6 yellow balls.
2) The winning balls have half the chance of getting selected, as the other balls.

ALL ANSWERS MUST BE GIVEN ON THE ANSWER SHEET
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MATHEMATICS M.C.Q's

A) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
B) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
C) BOTH statements TOGETHER are NOT sufficient.
D) Both statements TOGETHER are sufficient, but neither statement alone is sufficient.

76. What is the probability of drawing a 10 on a standard deck of well shuffled playing cards?

A) $\frac{1}{13}$ B) $\frac{1}{26}$ C) $\frac{3}{52}$ D) $\frac{1}{18}$

77. What is the value of:

$$\frac{x^3 y^2 + y(x^2 - 1)}{y(x^3 + (x^2 - 1)}$$

1) $x = 5$.

2) $x > y$.

A) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
B) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
C) BOTH statements TOGETHER are NOT sufficient.
D) Both statements TOGETHER are sufficient, but neither statement alone is sufficient.

78. Is x positive?

1) $x^3 y > 0, y < 0$

2) $x^2 y > 0, y > 0$

A) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
B) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
C) BOTH statements TOGETHER are NOT sufficient.
D) Both statements TOGETHER are sufficient, but neither statement alone is sufficient.

79. Determine the perimeter of a triangle that has the length of all three sides measurable in integers?

1) The triangle has a right-angle.

2) The triangle has a right-angle and the length of the side opposite to it is less than 10 units.

A) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
B) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
C) BOTH statements TOGETHER are NOT sufficient.
D) Both statements TOGETHER are sufficient, but neither statement alone is sufficient.

80. An emergency fill of a particular dam goes at the rate of 40 MGAL (million gallons) an hour. At 15h30 the dam was half filled. What is its total capacity, if the filling started at 13h00, when the dam was already at one sixth of its capacity from previous fills?

A) 100 MGAL   B) 200 MGAL   C) 300 MGAL   D) 400 MGAL

81. The average of three perfect square numbers is 57.67. What are the numbers?

1) Adding the numbers together gives 173.

2) The square roots of the numbers are all less than 12.

A) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
B) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
C) BOTH statements TOGETHER are NOT sufficient.
D) EACH statement ALONE is sufficient.

82. A battery manufacturer claims that the mean life length of its batteries is 5 years, and the standard deviation is 10 months. If a particular battery chosen at random lasted only 37 months, what is the chance that the manufacturer's claim is false, based on this evidence, as well as on the fact that battery lives are normally distributed?

A) 2.5%   B) 97.5%   C) 4%   D) 5%

83. Two-thirds of a is b, and two-thirds of b is c. Moreover, $2(c^2 - 1) = c - 1$. What are the values of a, b, and c?
A) $a = 9/4, b = 3/2, c = 1$
B) $a = 1, b = 2/3, c = 4/9$
C) $a = 2, b = 4/3, c = 8/9$
D) $a = 4/9, b = 8/27, c = 16/81$

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MATHEMATICS M.C.Q's

84. Rs. 10000.00 is invested in a savings bank which earns interest at the rate of 8% per year compounded quarterly. If all interest is left in the bank account what will the account balance be after 6 months?

    A)   Rs. 10200.00   B)   Rs. 10404.00   C)   Rs. 10824.32   D)   Rs. 10612.08

85. A heavy vehicle manufacturer's sale was particularly good this year. The company sold out a lot of vehicles among which were 5000 trucks and 2000 diggers. The percentage increase in the combined sale of tractors and trucks sold this year compared to the last was 25%, when only 6400 were sold. How many tractors did the company sell this year?

    A)   5000   B)   2000   C)   3000   D)   4000

86. A year is classified as a leap year without further tests, if 4 divides it completely and 100 does not. A particular year divisible both by 4 and 100 must also be completely divisible by 400 in order to be classified as a leap year. Is Year A a leap year?

    1) Year A was found to be completely divisible by 4 and 100.

    2) Year A was found to be completely divisible by 400.

    A)   Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
    B)   Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
    C)   BOTH statements TOGETHER are NOT sufficient.
    D)   EACH statement ALONE is sufficient.

87. A young man walking from the Silver Jubilee (SJ) gate of the University of Karachi to the Mathematics department takes strides 3/4 of a meter. His rate of walking is 2 meters every second. A young woman embarked on the same route, takes a stride only half a meter long, but walks twice as quickly as the man. How far is the department of mathematics from the SJ gate of the university?

    1) They reach the department at the same time.

    2) The woman started her walk 10 minutes later than the man.

    A)   Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
    B)   Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
    C)   BOTH statements TOGETHER are NOT sufficient.
    D)   EACH statement ALONE is sufficient.

88. The average temperature in the Netherlands stays at 15°C for 10 months of the year. What is the average temperature for the year over there, if it is known that it is twice as hot in July and August as in the other months?

    A)   17°   B)   17.5°   C)   18°   D)   20°

89. What is the value of the quadratic expression $xy^2 - 2xy + x^2y - xy(x^2 + y^2)$, provided that $x + y = 3$, $x, y > 0$ and x, y are both integers?

    A)   −10   B)   −8   C)   8   D)   7

90. The asking fare for Rickshaw and taxi drivers is on average Rs. 25.00 over the normal fare to cover up for pesky riders who want to bargain furiously over the money. If you hire a taxi/Rickshaw for a ride having a net worth of Rs. 80.00, what is the approximate chance that you would end up paying slightly over Rs. 119.00 or slightly under Rs. 91.00? It is known that the fares are normally distributed and the standard deviation for this distribution is Rs. 7.00. Take it for granted that for such distributions 95% data is saturated within 2 standard deviations of the mean.

    A)   3.5%   B)   0%   C)   5%   D)   4.8%

91. The chance of a financial institution making profit the first year of its inception in Pakistan is 1/5. This chance becomes better by 3 percent each of the next 10 years and then stays constant. What is the chance that a particular bank is not making any profit at all, provided that the bank is 10 years old?

    A)   47%   B)   50%   C)   40%   D)   53%

92. The average salary of professors at a certain university is Rs. 350000.00, while that of researchers is Rs. 200000.00. Each research group consists of a professor and some researchers. The groups are organized as one professor to eight researchers. Half of the groups also have a very capable secretary, with a mean salary of Rs. 100000.00. What is the overall average salary of these three categories of employees provided that there are 15 secretaries?

    A)   216666.67%   B)   210526.31   C)   250000.00   D)   225000.56

93. Prime numbers are positive integers greater than 1, which cannot be broken down into multiplicative factors other than 1 and themselves. What is the value of the prime number?

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1) x is even.

2) x is odd.

A) Statement (1) ALONE is sufficient, but Statement (2) ALONE is not sufficient.
B) Statement (2) ALONE is sufficient, but Statement (1) ALONE is not sufficient.
C) BOTH statements TOGETHER are NOT sufficient.
D) EACH statement ALONE is sufficient.

94. A particular lump sum is invested at 20% per year compounded annually in a tax-free savings bank account. How long will it take the money to double its value?
A) Between 2 and 3 years.
B) Between 3 and 4 years.
C) Between 4 and 5 years.
D) 4 years.

95. Consider two linear equations in x and y. When this system is solved algebraically, it results in many solutions. Which of the following geometrical scenarios describes this algebraic situation most closely?
A) A common point is shared between the lines represented by the equations.
B) There is no common shared points between the lines represented by the equations.
C) The lines may be coincident (completely overlapping).
D) The lines represented by the equations may be parallel.

(Stop. Do not turn over this page- until you are told to do so)

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Writing Skills

I. Present your perspective on the issue below in <u>three paragraphs</u>, using relevant reasons and/or examples to support your views based on your own readings, observations and experience. (40 minutes)

"Originality does not mean thinking something that was never thought before; it means putting old ideas together in new ways."

"It is not the headline-making political events but the seldom-reported social transformations that have the most lasting significance."

"The material progress and well-being of one country are necessarily connected to the material progress and well-being of all other countries."

II. The following appeared in a memorandum from the Director of Human Resources to the executive officers of Company X.

"Last year, we surveyed our employees on improvements needed at Company X by having them rank, in order of importance, the issues presented in a list of possible improvements. *Improved communications between employees and management* was consistently ranked as the issue of highest importance by the employees who responded to the survey. As you know, we have since instituted regular communications sessions conducted by high-level management, which the employees can attend on a voluntary basis. Therefore, it is likely that most employees at Company X now feel that the improvement most needed at the company has been made."

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. For example, you may need to consider what questionable assumptions underlie the thinking and what alternative explanations or counterexamples might weaken the conclusion. You can also discuss what sort of evidence would strengthen or refute the argument, what changes in the argument would make it more logically sound, and what, if anything, would help you better evaluate its conclusion. (20 minutes)

OR

1. Have you experienced, a moment of epiphany, as if your eyes were opened to something you were previously blind to? Describe this moment and your percepts about it.

2. Have you ever met with "triumph and disaster"? Ho did you meet those two imposters? Can you tell that you have faced them in a worthy manner?

3. Evaluate a significant experience, risk you have taken, or ethical dilemma that you have faced and its impact on you