

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

Mathematics M.C.Q's

No. of Questions: 45 (from 1 to 45)

Time: 80 Minutes

Questions on page number 1 to 9

Negative Markings: **No**

---

Q1 A line has parametric equations  $x = 1 - 2t$  and  $y = 4 + t$ , where  $t$  is a parameter. The slope of the line is

- A)  $-2$
- B)  $-0.5$
- C)  $0.5$
- D)  $\frac{4+t}{1-2t}$

---

Q2 Find  $\lim_{x \rightarrow 2} \frac{2x^2 - 3x - 2}{x - 2}$

- A) 0
- B) 1
- C) 3
- D) 5

---

Q3 If  $x - \alpha$  is a factor of  $\alpha x^2 - 3x + \alpha$ , then  $\alpha =$

I. 0      II.  $\sqrt{2}$       III.  $-\sqrt{2}$

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

---

Q4 Find the remainder when  $2x^3 - x^2 - x + 5$  is divided by  $x + 3$ .

- A) 47
- B) 55
- C)  $-55$
- D)  $-47$

---

Q5 The equation of the perpendicular bisector of the segment joining  $L(10, 0)$  to  $M(0, -10)$  is

- A)  $y = -x + 10$
- B)  $y = -x$
- C)  $y = 2x$
- D) None of these

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

Q6 The function  $f(x) = \frac{1}{(x+5)}$  which is defined for all  $x < -5$ , is

- A) a periodic function
  - B) an increasing function
  - C) a decreasing function
  - D) a function which attains positive values only
- 

Q7 Which of the following is a factors of the polynomial  $2x^2 - x - 1$ ?

- I.  $x - 1$                   II.  $2x + 1$                   III.  $x + 0.5$

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

Q8 How many integers are in the solution set of  $|5x - 1| < 25$ ?

- A) 13
  - B) 12
  - C) 11
  - D) 10
- 

Q9 For what value(s) of  $h$  the determinant of the matrix  $M = \begin{bmatrix} 5 & -h \\ h & h - 10 \end{bmatrix}$  is zero?

- I.  $5$                           II.  $-5$                           III.  $-10$

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

Q10 The operation  $\diamond$  is defined by  $x \diamond y = \frac{x - y}{x + y}$  for all those  $x$  and  $y$  such that  $x + y \neq 0$ . If  $x \diamond 3 = 3 \diamond x$ , then

$x =$

- I.  $3$                           II.  $-3$                           III.  $0$

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

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

Q11 If  $x = 4 + 5i$ , where  $i = \sqrt{-1}$ , then  $\frac{1}{x^2+1} =$

- A)  $5 - 4i$
  - B)  $26 + 5i$
  - C)  $\frac{1-5i}{208}$
  - D)  $\frac{-1-5i}{208}$
- 

Q12 In the  $xy$  – plane, what is the area of a triangle whose vertices are  $(\sqrt{10}, 0)$ ,  $(\sqrt{40}, 0)$ , and  $(\sqrt{10}, 6)$ ?

- A) 10
  - B)  $6\sqrt{10}$
  - C)  $3\sqrt{10}$
  - D) 5
- 

Q13 For some real number  $u$ , the first three terms of an arithmetic sequence are  $2u - 3$ ,  $3u + 2$ , and  $5u - 1$ . What is the sum of first six terms of the sequence?

- A) 273
  - B) 195
  - C) 130
  - D) 78
- 

Q14 A point of intersection of two parabolas  $y^2 = 9 - x$  and  $x^2 = y - 3$  is given by

- I.  $(0, 3)$       II.  $(0, -3)$       III.  $(9, 0)$

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

Q15 If  $x$  and  $y$  are positive integers with  $xy = 144$ , then  $\frac{x}{y}$  cannot be

- A)  $\frac{1}{36}$
- B)  $\frac{9}{16}$
- C)  $\frac{1}{2}$
- D)  $\frac{16}{9}$

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

Q16 The line  $L$  passes through the points  $(10, 20)$  and  $(20, 10)$ . Which of the following is the equation of a line perpendicular to  $L$ ?

- I.  $x + y = 1$                       II.  $x - y = 1$                       III.  $y - x = 1$

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

Q17 What is the range of the function defined by  $f(x) = \frac{1}{|x-2|} - 3$ ?

- A) All real numbers  
 B) All real numbers except 2  
 C) All real numbers greater than or equal to  $-3$   
 D) All real numbers greater than  $-3$
- 

Q18 The domain of  $f(x) = \frac{x^2-9}{\sqrt{x+3}}$  is the set of all real numbers  $x$  such that

- A)  $x \geq -3$   
 B)  $x > -3$   
 C)  $x \neq 3$   
 D)  $x \neq -3$
- 

Q19 The diameter  $AB$  of a circle is 25 cm. An isosceles triangle is drawn with  $AB$  as the base and the third vertex is on the circle. What is the perimeter of the triangle?

- A)  $5(5 + \sqrt{2})$  cm  
 B)  $5(5 - \sqrt{2})$  cm  
 C)  $25(1 + \sqrt{2})$  cm  
 D)  $25(1 - \sqrt{2})$  cm
- 

Q20 Find third term of a geometric progression whose fourth term is  $\frac{1}{54}$  and sixth term is  $\frac{1}{486}$ .

- I.  $\frac{1}{18}$                       II.  $-\frac{1}{18}$                       III.  $\frac{1}{6}$

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

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

Q21 If  $x$  and  $y$  are two consecutive prime integers such that  $20 < x < y < 40$ , what is the lowest possible value of  $x - y$ ?

- A)  $-2$   
 B)  $-6$   
 C)  $-8$   
 D)  $-14$

Q22 Let  $m$  be a positive integer. When  $m + 3$  is divided by 5, the remainder is 4. What is the remainder when  $2m + 6$  is divided by 5?

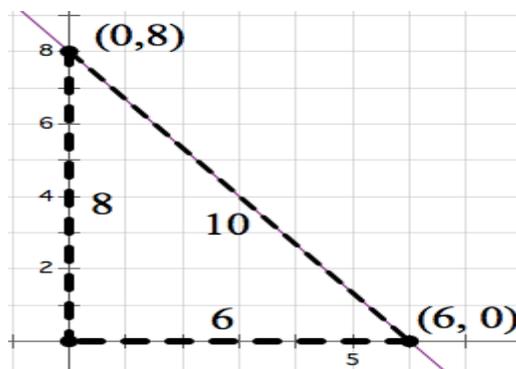
- A) 1  
 B) 2  
 C) 3  
 D) 4

Q23 If  $\sin x = \frac{1}{5}$ , what is  $(\sin x) * (\cos x) * (\cot x)$ ? (Here  $*$  is the usual multiplication operator.)

- A)  $\frac{4}{5}$   
 B)  $\frac{24}{25}$   
 C)  $\frac{1}{25}$   
 D) None of these

Q24 If the triangle shown in the adjacent graph (not drawn to scale) is rotated around the  $y$ -axis, what is the volume of the generated solid?

- A)  $74 \pi$   
 B)  $96 \pi$   
 C)  $128 \pi$   
 D)  $160 \pi$



Q25 If  $3^{(3x-2)} = 27^{(2-3x)}$ , then  $x =$

- A)  $\frac{1}{3}$   
 B)  $\frac{2}{3}$   
 C)  $\frac{4}{3}$   
 D) None of these

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

Q26 What is the shortest distance between the lines  $y = x + 5$  and  $x = y + 5$ ?

- A)  $5\sqrt{2}$
  - B)  $10\sqrt{2}$
  - C) 5
  - D) None of these
- 

Q27 A cube has a surface area of  $24 \text{ cm}^2$ . What is the volume of the cube?

- A)  $8 \text{ cm}^3$
  - B)  $16 \text{ cm}^3$
  - C)  $32 \text{ cm}^3$
  - D)  $64 \text{ cm}^3$
- 

Q28 If quadratic equation  $x^2 + \delta x + \lambda = 0$  has only one root which is 2, then the quadratic equation  $x^2 + \lambda x - \delta = 0$

- A) has also one root only which is 2
  - B) has also one root only which is  $-2$
  - C) has two roots
  - D) None of these
- 

Q29 An integer  $i$  between 200 and 300, inclusive, is to be chosen at random. What is the probability that  $i$  is a multiple of 4 as well as a multiple of 6?

- A)  $\frac{17}{101}$
  - B)  $\frac{26}{101}$
  - C)  $\frac{34}{101}$
  - D)  $\frac{43}{101}$
- 

Q30 Three coins are flipped together. Find the probability of getting at most 2 heads.

- A)  $\frac{1}{4}$
- B)  $\frac{3}{4}$
- C)  $\frac{7}{8}$
- D) None of these

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

Q31 A number  $n$  is increased by 25. If the cube root of that result equals  $-3$ , what is the value of  $n$ ?

- A) 52
  - B) 2
  - C)  $-52$
  - D) None of these
- 

Q32  $\sin^3 \theta + \sin \theta - \cos^2 \theta \sin \theta =$

- A)  $\sin \theta \cos^2 \theta$
  - B)  $2 \cos^3 \theta$
  - C)  $2 \sin^3 \theta$
  - D)  $\sin 2\theta$
- 

Q33 A rectangular solid with length  $l$ , width  $w$ , and height  $h$  has a volume of 35. What is the volume of a rectangular solid with length  $2l$ , width  $\frac{w}{3}$  and height  $\frac{6h}{5}$ ?

- A) 7
  - B) 14
  - C) 21
  - D) 28
- 

Q34 Tickets for a show cost R 900 or R 700. If 500 tickets were sold for a total of R 425200, how many tickets were sold for 700?

- A) 438
  - B) 62
  - C) 250
  - D) None of these
- 

Q35 The sum of the two roots of a quadratic equation is 10 and their product is  $-20$ . Which of the following could be the equation?

- A)  $x^2 - 20x + 10 = 0$
- B)  $2x^2 + 20x - 40 = 0$
- C)  $x^2 + 10x + 20 = 0$
- D)  $x^2 - 10x - 20 = 0$

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET****BY CROSSING THE CORRESPONDING LETTER**

Q36 There are four values of  $x$  in the interval  $[0, 3\pi]$  where the function  $f(x) = \cos(\beta x)$  attains its maximum value. What is the value of  $\beta$ ?

- A) 2
  - B) 3
  - C) 4
  - D) None of these
- 

Q37 If  $f(x) = \frac{1}{x+1}$  (domain is all real values except  $-1$ ) and if  $f^{-1}$  is the inverse function of  $f$ , what is  $f^{-1}(9)$ ?

- A)  $\frac{1}{9}$
  - B)  $\frac{-8}{9}$
  - C)  $\frac{10}{9}$
  - D) None of these
- 

Q38 What is the period of the function  $f(x) = \cos\left(\frac{8x + \pi}{6}\right)$ ?

- A)  $\frac{3\pi}{2}$
  - B)  $\frac{8\pi}{3}$
  - C)  $\frac{\pi}{3}$
  - D) None of these
- 

Q39 Vectors  $\underline{a}$  and  $\underline{b}$  are given by  $\underline{a} = (1, 5)$  and  $\underline{b} = (-5, 4)$ . What is the length of vector  $\underline{c}$  given by  $\underline{c} = \underline{b} - 3\underline{a}$ ?

- A)  $\sqrt{41}$
  - B)  $\sqrt{185}$
  - C)  $\sqrt{26}$
  - D) None of these
- 

Q40 If points A, B, and C lie on a circle and if the center of the circle lies on segment AC, then  $\triangle ABC$  must be?

- A) isosceles
- B) acute
- C) obtuse
- D) right

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

Q41 The point  $(5, \frac{\pi}{6})$  in polar coordinates is how far from the y-axis?

- A)  $\frac{5\sqrt{3}}{2}$
  - B)  $\frac{5}{2}$
  - C)  $\frac{5}{\sqrt{2}}$
  - D) None of these
- 

Q42 What are the coordinates of the vertex of the parabola defined by the equation  $y = -x^2 + 6x - 10$ ?

- A) (3, -1)
  - B) (-1, 3)
  - C) (3, 1)
  - D) (1, 3)
- 

Q43 What is the minimum value of  $f(x) = 4x^2 + 8x - 5$ ?

- A) -1
  - B) -9
  - C) 8
  - D) 0
- 

Q44 What is the smallest distance between the point  $(-2, 2)$  and a point on the circumference of the circle given by  $(x + 3)^2 + (y - 5)^2 = 26$ ?

- A)  $\sqrt{10} - \sqrt{26}$
  - B)  $\sqrt{26} - \sqrt{10}$
  - C)  $\sqrt{26}$
  - D)  $\sqrt{10}$
- 

Q45, For  $i = \sqrt{-1}$ , and  $p$  is any prime integer, the value of  $i^p$  cannot be

- A)  $i$
- B)  $-i$
- C) 1
- D) -1

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

**English M.C.Q's**

No. of Questions: 45 (from 46 to 90)  
 Questions on page number 10 to 20

Time: 50 Minutes  
 Negative Markings: **No**

For questions **46-52**, read the text below and then decide which answer (**A, B, C** or **D**) best fits each blank.

To make money and please its shareholders, Facebook is dependent on the ads tucked away in your News Feed. Facebook's success lives and dies on its ability to bring you, the Facebook user, **46)** \_\_\_\_\_ tailored perfectly to your interests – it needs you to keep coming back and keep looking at its ads. For the advertisers that Facebook must satisfy **47)** \_\_\_\_\_ turn a profit, your time spent on the platform is worth a lot. Measuring your engaged time shows not just that **48)** \_\_\_\_\_ there, but also paying attention. And by figuring out more precisely what **49)** \_\_\_\_\_ your attention, Facebook is presumably hoping it can show you ads closer to the very things you pay attention to, too.

**50)** \_\_\_\_\_, it's hard not to think that the shift to measuring your scrolling and stopping isn't also a little bit creepy. Facebook is watching to see how you spend your time – to figure out what you want **51)** \_\_\_\_\_ you don't say so with a click, "like," or comment. Sure, you knew Facebook was tracking your comments, but you **52)** \_\_\_\_\_ to write them. The clock is ticking for all of us.

Greenberg J. (June 16, 2015). *Forget the click? Online, time may be more meaningful*. Retrieved from <http://www.wired.com/2015/06/forget-click-online-time-may-meaningful/>

46

- A an experience engaging consistently
- B a consistently engaging experience
- C an engaging consistently experience
- D a consistent experience engaging

47

- A to
- B by
- C with
- D from

48

- A you
- B your
- C you're
- D youre

49

- A capture
- B captures
- C captured
- D had captured

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

50

- A Overall
- B Therefore
- C Furthermore
- D Nonetheless

51

- A so that
- B even if
- C in case
- D provided that

52

- A choose
- B chose
- C chosen
- D choosing

For questions **53-63**, read the text below and then choose the best replacement (**A**, **B**, or **C**) for the underlined part in each sentence. If the underlined part is correct as it is, choose **D**.

**The Economist Explains**

**What Countries Want from Their Diasporas**

**June 25, 2015**

Not so long ago, countries mostly ignored their diasporas. But, rather like alumni relations offices, diaspora ministries and departments **53)** are now popping up around the world. **54)** In 2009, Ireland struggled, it convened an expat conference aimed at convincing the well-to-do Irish diaspora to help the country get back on its feet.

What do countries want from their expats?

First, soft power. **55)** Government believes its citizens living abroad can improve the country's reputation, increasing tourism, consumption of exports and more. They can also **56)** lobby their lived-in countries to pursue their interests. **57)** Mexican-Americans, for example: strongly oppose tightening immigration controls in America. But this doesn't always **58)** work, in some cases emigrants left their home countries in the first place because they were unhappy there.

Second, diasporas can benefit their home countries financially. Most obviously, emigrants send remittances to their families back home. **59)** \$70bn was received a year by India, and they make up half of Tajikistan's GDP. This money flows steadily, even through recessions. And remittances are particularly useful because they are a form of foreign exchange and **60)** can so help improve the credit rating of a country. They are vulnerable to exchange-rate fluctuations though: when the rouble dropped in 2014, remittances sent to surrounding countries were hit hard in dollar terms. Now countries want their diasporas to do more. **61)** Countries like Israel; which claim all Jews as its diaspora; sell infrastructure bonds overseas, hoping expats will invest in the home country. They also count on business tips that could help create more jobs at home.

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET****BY CROSSING THE CORRESPONDING LETTER**

Finally, countries want their diasporas to help them develop. **62)** By bringing back skills, culture and new ideas acquired abroad, they can lead the way in modernisation. In China, professors living abroad are offered **63)** vastly higher salary than their local counterparts to convince them to return. Unfortunately, expats are much more likely to return to home countries that are rich and developed, meaning the countries that need this assistance most don't get it – one study found that scientists are five times more likely to return to Taiwan than to China. The answer to this may be further incentives, such as those already being rolled out – these include visa support, voting rights and tax breaks.

Last year, the American branch of India's BJP sent volunteers to help campaign in the country's election. When the party's candidate, Narendra Modi, won, the group promptly sent him a list of demands. If countries want to harness the potential benefits of their diaspora, this kind of quid pro quo may become increasingly common.

53

- A will now pop up
- B is now popping up
- C are popping up now
- D No correction needed

54

- A When Ireland was struggling in 2009,
- B Even though Ireland was struggling in 2009,
- C Ireland have been struggling in 2009,
- D No correction needed

55

- A Governments believe their citizens living abroad
- B Governments believe their abroad-living citizens
- C Governments believed that their citizens living abroad
- D No correction needed

56

- A lobby the country they live
- B lobby the country they live in
- C lobby the countries they live in
- D No correction needed

57

- A Mexican Americans, for example,
- B Mexican-Americans, for example,
- C Mexican Americans for example
- D No correction needed

58

- A work; in some cases,
- B work, in some cases,
- C works; in some cases
- D No correction needed

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

59

- A India receive \$70bn a year,
- B \$70bn a year was received by India,
- C India receives \$70bn a year,
- D No correction needed

60

- A so can helped improve country credit rating
- B so can help improve a country's credit rating
- C so can help improve a country credit rating
- D No correction needed

61

- A Countries like Israel, which claims all Jews as its diaspora,
- B A country like Israel, that claims as its diaspora all Jews
- C Countries like Israel which claims as its diaspora all Jews
- D No correction needed

62

- A By bringing back skill, culture and new idea acquired abroad
- B To bring back skill culture, and new idea abroad acquired
- C To bring back skills, culture and ideas newly acquired abroad,
- D No correction needed

63

- A vastly higher salaries then their local counterparts
- B vast high salary than their local counterpart
- C vastly higher salaries than their local counterparts
- D No correction needed

For questions **64-74**, read the text below and then decide which word (**A**, **B**, **C** or **D**) best fits each blank.

**FCC Just Slammed AT&T With a \$100 Million Fine**

**Jeff John Roberts**

**Fortune**

**June 17, 2015**

The Federal Communications Commission announced on Wednesday it will impose a whopping \$100 million fine on AT&T to punish the phone carrier for severely slowing down the data speeds of customers who have "unlimited data plans."

According to the FCC, it received thousands of **64**) \_\_\_\_\_ over AT&T's slow mobile internet, and that the carrier failed to notify subscribers it was providing slower-than-advertised speeds.

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

“The Enforcement Bureau’s investigation **65)** \_\_\_\_\_ that millions of AT&T customers were affected. The customers who were subject to speed reductions were slowed for an average of 12 days per billing cycle, significantly **66)** \_\_\_\_\_ their ability to use common data applications such as GPS mapping or streaming video,” said the FCC in a news release.

AT&T said in a statement that it will fight the fine and that it “vigorously **67)** \_\_\_\_\_ the FCC’s assertions.”

The FCC investigation relates to “unlimited” data plans that AT&T first began to offer in 2007, and has since **68)** \_\_\_\_\_. Customers who signed up for the plan, however, complained that AT&T began **69)** \_\_\_\_\_ a cap in 2011, and then severely slowing down speeds when they exceeded that cap. Many also expressed frustration about being locked into long-term “unlimited” contracts **70)** \_\_\_\_\_ the caps, and being forced to pay termination fees if they wanted to change plans.

“Unlimited means unlimited,” said FCC Enforcement Bureau Chief Travis LeBlanc. “As today’s action **71)** \_\_\_\_\_, the Commission is committed to holding accountable those broadband providers who fail to be fully transparent about data limits.”

The FCC’s announcement comes after another agency, the Federal Trade Commission, already **72)** \_\_\_\_\_ a lawsuit against the phone giant over the same issue. That lawsuit **73)** \_\_\_\_\_ refunds for consumers, and is going forward after a judge in April ruled that the FTC had jurisdiction to sue phone carrier.

The other big phone carriers – Verizon, Sprint and T-Mobile – have also engaged in throttling, but have done so less systemically, and **74)** \_\_\_\_\_ ease network congestion.

64

- A complaints
- B accusations
- C charges
- D criticisms

65

- A confessed
- B revealed
- C uttered
- D imparted

66

- A terminating
- B stopping
- C clogging
- D impeding

67

- A feuds
- B quarrels
- C disputes
- D discords

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

68

- A closed
- B finished
- C discontinued
- D surrendered

69

- A imposing
- B appointing
- C inflicting
- D establishing

70

- A unless
- B despite
- C nevertheless
- D though

71

- A determines
- B demonstrates
- C maintains
- D falsifies

72

- A booked
- B dropped
- C filed
- D recorded

73

- A yearns
- B chases
- C pursues
- D seeks

74

- A in order to
- B in spite of
- C in favor of
- D for the sake of

For questions **75-77**, read the text below and answer the questions that follow.

Sending a robot into space to gather information is a viable option, but should only be regarded as that – an option. Even the most technologically advanced robots cannot and should not replace manned missions to

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

outer space. Certainly it is cheaper and less dangerous to launch a computer probe that can gather reams of data, but often the information obtained by a machine only serves to produce more questions than it answers. Therefore, the space program should allow manned missions to follow up on those initial information-gathering robotic ventures.

While manned missions are more costly than are unmanned missions, they are also more successful. Robots and astronauts use much of the same equipment in space, but a human is more capable of calibrating those instruments correctly and placing them in appropriate and useful positions. A computer is often neither as sensitive nor as accurate as a human in managing the same terrain or environmental circumstances. Robots are also not as equipped as humans to solve problems as they arise, and robots often collect data that is not helpful or even desired. A human, on the other hand, can make instant decisions about what to explore further and what to ignore.

75 The passage supplies information to answer which of the following questions?

- A What type of information can safely be ignored when exploring outer space?
- B How much information can a computer probe gather in outer space?
- C What is the next level in space exploration?
- D Are unmanned space missions more economical than manned space missions?

76 According to the passage, all of the following are advantages of humans over robots EXCEPT

- A humans can more accurately manage the data collected
- B humans can apply critical thinking skills to new situations
- C humans can only caliber instruments designed by robots
- D humans are more sensitive to environmental changes

77 The second paragraph establishes the argument by

- A using compare and contrast strategy
- B exposing the logical fallacies of the opposing viewpoint
- C presenting analogies
- D None of the above

For questions **78-80**, read the text below and answer the questions that follow.

Nine times as many Americans died in the farmlands near Antietam Creek in the fall of 1862 than died on the beaches of Normandy on D-Day, the so-called longest day of World War II. The bloodiest single day of war in the nation's history came when General Robert E. Lee's Confederate Army undertook its first engagement on northern soil. According to the Antietam National Battlefield park service, when the fighting had subsided, more than 23,000 soldiers lay dead or wounded, more than all of the dead or wounded Americans in the Revolutionary War, War of 1812, Mexican War, and Spanish-American War combined.

Just a week after his army's victory in the Second Battle of Bull Run, Lee resolved to advance the front into Northern territory. The vast farm fields of western Maryland were ready for harvest, and Lee saw in them an opportunity to nourish his soldiers, replenish his supplies, and turn the residents of the undecided border state to his cause.

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET****BY CROSSING THE CORRESPONDING LETTER**

- 78 Which of the following most logically completes the first paragraph?
- A How then did this terrible battle come about?
  - B The Confederacy was famous for the tactical genius of its generals.
  - C Clearly the battle strategy on both sides was ineffective.
  - D Despite these casualties, the war dragged on for another three years.
- 79 Which of the following statements about Maryland can be inferred from the passage?
- A Numerous farmers in Maryland had freed their slaves before the commencement of the Civil War.
  - B While Maryland was not a Confederate state, some residents were sympathetic to the Southern cause.
  - C General Lee intended to pillage the farms of Maryland in order to feed his troops.
  - D Many Southern fighters were originally from Maryland.
- 80 In the last sentence of the first paragraph, the author is most likely suggesting that
- A the Antietam National Battlefield park service is an unreliable source of information
  - B the Battle at Antietam was the most significant battle of the American Civil War
  - C General Lee was overly encouraged by his success in the Second Battle of Bull Run
  - D the troops at Antietam suffered catastrophic losses compared to other battles in that century

For questions **81-90**, read the text below and answer the questions that follow.

A great place to start with book retention is with understanding some key ways our brain stores information. Here are three specific elements to consider: Impression, Association, and Repetition.

Let's say you read Dale Carnegie's *How to Win Friends and Influence People*, one of our favorites here at Buffer. You loved the information and want to remember as much as possible. Here's how:

**Impression** – Be impressed with the text. Stop and picture a scene in your mind, even adding elements like greatness, shock, or a cameo from yourself to make the impression stronger. If Dale Carnegie is explaining his distaste for criticism, picture yourself receiving the Nobel Prize for Peace and then spiking the Nobel Prize onto the dais. (Another trick with impression is to read an important passage out loud. For some of us, our sensitivity to information can be greater with sounds rather than visuals.)

**Association** – Link the text to something you already know. This technique is used to great effect with memorization and the construction of memory palaces. In the case of Carnegie's book, if there is a particular principle you wish to retain, think back to a time when you were part of a specific example involving the principle. Prior knowledge is a great way to build association.

**Repetition** – The more you repeat, the more you remember. This can occur by literally re-reading a certain passage or in highlighting it or writing it down then returning to it again later.

Practicing these three elements of remembering will help you get better and better. The more you work at it, the more you'll remember.

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

**Focus on the four levels of reading**

Mortimer Adler's book, *How to Read a Book*, identifies four levels of reading:

1. Elementary
2. Inspectional
3. Analytical
4. Syntopical

Each step builds upon the previous step. Elementary reading is what you are taught in school. Inspectional reading can take two forms: 1) a quick, leisurely read or 2) skimming the book's preface, table of contents, index, and inside jacket.

Where the real work (and the real retention begins) is with analytical reading and syntopical reading.

With analytical reading, you read a book thoroughly. More so than that even, you read a book according to four rules, which should help you with the context and understanding of the book.

1. Classify the book according to subject matter.
2. State what the whole book is about. Be as brief as possible.
3. List the major parts in order and relation. Outline these parts as you have outlined the whole.
4. Define the problem or problems the author is trying to solve.

The final level of reading is syntopical, which requires that you read books on the same subject and challenge yourself to compare and contrast as you go.

As you advance through these levels, you will find yourself incorporating the brain techniques of impression, association, and repetition along the way. Getting into detail with a book (as in the analytical and syntopical level) will help cement impressions of the book in your mind, develop associations to other books you've read and ideas you've learned, and enforce repetition in the thoughtful, studied nature of the different reading levels.

**Keep the book close (or at least your notes on the book.)**

One of the most common threads in my research into remembering more of the books you read is this: Take good notes.

Scribble in the margins as you go.

Bookmark your favorite passages.

Write a review when you've finished.

Use your Kindle Highlights extensively.

And when you've done these things, return to your notes periodically to review and refresh. Shane Parrish of Farnam Street is a serial note taker, and he finds himself constantly returning to the books he reads: "After I finish a book, I let it age for a week or two and then pick it up again. I look at my notes and the sections I've marked as important. I write them down. Or let it age for another week or two."

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

Even Professor Pierre Bayard, the author of *How to Talk About Books You Haven't Read*, identifies the importance of note-taking and review: "Once forgetfulness has set in, he can use these notes to rediscover his opinion of the author and his work at the time of his original reading. We can assume that another function of the notes is to assure him that he has indeed read the works in which they were inscribed, like blazes on a trail that are intended to show the way during future periods of amnesia."

I've tried this method for myself, and it has completely changed the way I perceive the books I read. I look at books as investments in a future of learning rather than a fleeting moment of insight, soon to be forgotten. I store all the reviews and notes from my books on my personal blog so I can search through them when I need to remember something I've read. (Kindle has a rather helpful feature online, too, where it shows you a daily, random highlight from your archive of highlights. It's a great way to relive what you've read in the past.)

It's not important which method you have for note-taking and review so long as you have one. Let it be as simple as possible to complete so that you can make sure you follow through.

Lee, K. (June 18, 2015). *Buffer*.

81 The word 'cameo' in paragraph 3, line 2 means:

- A a small appearance
- B an anecdote
- C a witty saying
- D a short piece of description

82 The word 'distaste' in paragraph 3, line 3 can be replaced with:

- A aversion
- B unwillingness
- C approval
- D torment

83 Real retention begins

- A at any level of reading
- B at the last two levels of reading
- C from the first level of reading
- D at the last level of reading

84 At which level of reading will you apply a problem-solving approach?

- A Elementary
- B Inspectional
- C Analytical
- D Syntopical

(go on to the next page)

**ALL ANSWERS MUST BE GIVEN ON THE COMPUTERIZED ANSWER SHEET**  
**BY CROSSING THE CORRESPONDING LETTER**

85 Sorting a book on the basis of its topic will be considered as which level of reading?

- A Elementary
- B Inspectional
- C Analytical
- D Syntopical

86 A person who identifies similarities and differences between different literary works can be said to be at which level of reading?

- A Elementary
- B Inspectional
- C Analytical
- D Syntopical

87 The word 'fleeting' in the second last paragraph, line 2 means:

- A lasting only a short time
- B past recollection
- C to command a group of people
- D significant and permanent

88 The word 'archive' in the second last paragraph, line 5 means:

- A to succeed in reaching a particular goal
- B a collection of records
- C an index of books consulted
- D a list of chapters in a book

89 The author mentions which of the following benefits of note-taking?

- A It can help you score a better grade in exam.
- B It can sharpen your memory.
- C It can help you remember your opinions at the time of first reading.
- D None of the above.

90 Select the most appropriate title for the given text.

- A How to Remember What You Read
- B Best Ways to Read a Text
- C All About Reading
- D Reading: The most important skill