

**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 1 to 45)

Time: 45 Minutes

Questions on Page Numbers: 1 To 7

Negative markings: **Yes****For Questions 1-16, select the best option.**

The youngster who reads 1 \_\_\_\_\_, though 2 \_\_\_\_\_, does not necessarily gain in wisdom over the teenager who is more selective in his reading choices. A young man who has read the life story of every 3 \_\_\_\_\_ athlete of the twentieth century, or a coed who has 4 \_\_\_\_\_ herself in every social-protest novel she can get her hands on, may very well be learning all there is to know in a very limited area. But books are 5 \_\_\_\_\_ with so many wonders that it is often discouraging to see bright young people limit their own experiences.

The worlds of science-fiction 6 \_\_\_\_\_ with wonders. Yet modern 7 \_\_\_\_\_ progresses so rapidly that what maybe today's wild dream may be next year's kitchen appliance. A British scientist has 8 \_\_\_\_\_ that within ten years every suburban 9 \_\_\_\_\_ will have her own robot servant. One task this domesticated 10 \_\_\_\_\_ will not have to contend with will be scouring the oven because even today the newest ranges can be "programmed" to reduce their own baked-on grime to easily disposed of ashes.

Speaking of inventions and discoveries, I just learned that an eminent scientist in Ohio has developed a 11 \_\_\_\_\_ that contains all the nutritive value of three complete meals. In addition to providing us with the vitamins and minerals we need daily, this pill also gives a feeling of fullness. According to its sponsors, the pill will nourish and satisfy. I hate to 12 \_\_\_\_\_ such a 13 \_\_\_\_\_ achievement, but to me it seems like a most objectionable discovery. Rather than a scientific triumph, I'd be inclined to label it as an egregious blunder, a scientific disaster, a laboratory 14 \_\_\_\_\_. Is there anyone in his right mind who thinks that a pill can replace the pleasures of devouring hot corn bread, 15 \_\_\_\_\_ on a thick steak, biting into crisp French fries, or attacking a chocolate sundae? I'm afraid that this is one pill I'll have to 16 \_\_\_\_\_ from chewing.

1.
  - A. avidly
  - B. sparingly
  - C. voraciously
  - D. generously
2.
  - A. accidentally
  - B. indiscriminately
  - C. methodically
  - D. cautiously
3.
  - A. apathetic
  - B. mediocre
  - C. eminent
  - D. indifferent
4.
  - A. lived up
  - B. steeped
  - C. saturate
  - D. carried
5.
  - A. flawed
  - B. full
  - C. deficient
  - D. replete

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6.  
A. abound  
B. proliferate  
C. diminished  
D. declining
7.  
A. growth  
B. technology  
C. knowledge  
D. know-how
8.  
A. predicted  
B. revealed  
C. prognosticated  
D. found out
9.  
A. matron  
B. Service industry  
C. household  
D. worker
10.  
A. device  
B. android  
C. machine  
D. automaton
11.  
A. pill  
B. syrup  
C. medicine  
D. prescription
12.  
A. to belittle  
B. disparage  
C. disparaging  
D. belittle
13.  
A. gallant  
B. epic  
C. laudable  
D. valiant
14.  
A. facade  
B. fiasco  
C. sensation  
D. triumph
15.  
A. gnaw  
B. munching  
C. masticating  
D. crunch

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16.  
A. eschew  
B. steer clear of  
C. shun  
D. chip in

**For Questions 17- 23, select the best option.**

17. I saw an interesting advert in the newspaper and decided to \_\_\_\_\_ the job.  
A. look for  
B. get  
C. apply for  
D. grab
18. The company missed his wealth of experience when he chose \_\_\_\_\_ an early retirement.  
A. to take  
B. for  
C. taking  
D. preferred
19. The whole union \_\_\_\_\_ strike in sympathy with the sacked workers.  
A. called on a  
B. decided for  
C. wanted  
D. went on
20. Extra skills training could \_\_\_\_\_ your job prospects.  
A. improve  
B. enhance  
C. increase  
D. liven up
21. She felt that she wasn't \_\_\_\_\_ her full potential in her current job.  
A. using  
B. managing  
C. getting  
D. utilizing
22. The company had no choice but to \_\_\_\_\_ her contract when she missed several important deadlines.  
A. terminate  
B. end  
C. renew  
D. revisit
23. The failure of the business left him \_\_\_\_\_ financial ruin.  
A. with a  
B. in a  
C. bear a  
D. for a

**For Questions 24-31, select the best option.**

24. A late fee will be applied to your account \_\_\_\_\_ payment is not received by March 31.  
A. and  
B. whether  
C. but  
D. if

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25. The award is given to an individual who has made \_\_\_\_\_ contributions to the community through volunteer work.
- A. detailed
  - B. significant
  - C. secure
  - D. updated
26. Last year, Andrea Choi \_\_\_\_\_ the Choi Economic Research Center at Upton University .
- A. to establish
  - B. established
  - C. was established
  - D. establishing
27. Ms. Ikeda and Mr. Arroyo are the final candidates under \_\_\_\_\_ for the position of director of
- A. development
  - B. consideration
  - C. elimination
  - D. recognition
28. Of the two animated films released today, \_\_\_\_\_ is certain to be popular with children, while the other will appeal more to adults.
- A. neither
  - B. it
  - C. one
  - D. another
29. As you know, the past year was a great success for us. To reward you for your excellent performance, the Board of Directors has approved a bonus for all employees. This bonus will be \_\_\_\_\_ in your next paycheck.
- A. involved
  - B. joined
  - C. composed
  - D. included
30. \_\_\_\_\_, we are now calculating wage increases for the upcoming year. Each employee's performance
- A. Instead
  - B. In addition
  - C. Beforehand
  - D. Otherwise
31. You will be examined carefully as we determine the appropriate increase. All full-time employees are eligible for this increase. Your supervisor \_\_\_\_\_ you of the amount of your increase during the first week of January.
- A. informed
  - B. to inform
  - C. will inform
  - D. was informing

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For Questions 32- 37, select the best option.

## LECTURE TRANSCRIPT

Today I'd like to introduce you to a novel that some critics consider the finest detective novel ever written. It was also the first. We're talking about *The Moonstone* by Wilkie Collins. Now, there are other detective stories that preceded *The Moonstone* historically—Um, notably the work of Poe . . . Edgar Allan Poe's stories, such as "The Murders in the Rue Morgue" and . . . "The Purloined Letter." Now these were short stories that featured a detective . . . uh, probably the first to do that. But *The Moonstone*, which follows them by about twenty years—it was published in 1868—this is the first full-length detective novel ever written.

Now, in *The Moonstone*—if you read it as . . . uh, come to it as a contemporary reader—what's interesting is that most of the features you find in almost any detective novel are in fact already present. Uh, its hard at this juncture to read this novel and realize that no one had ever done that before, because it all seems so strikingly familiar. It's, it's really a wonderful novel and I recommend it, even just as a fun book to read, if you've never read it. Um, so in *The Moonstone*, as I said, Collins did much to establish the conventions of the detective genre. I'm not gonna go into the plot at length, but, you know, the basic set-up is . . . there's this diamond of great . . . of great value, a country house, the diamond mysteriously disappears in the middle of the night, uh, the local police are brought in, in an attempt to solve the crime, and they mess it up completely, and then the true hero of the book arrives. That's Sergeant Cuff.

Now, Cuff, this extraordinarily important character . . . well, let me try to give you a sense of who Sergeant Cuff is, by first describing the regular police. And this is the dynamic that you're going to see throughout the history of the detective novel, where you have the regular cops—who are well-meaning, but officious and bumblingly inept—and they are countered by a figure who's eccentric, analytical, brilliant, and . . . and able to solve the crime. So, first the regular police get called in to solve the mystery—Um, in this case, detective, uh, Superintendent Seegrave. When Superintendent Seegrave comes in, he orders his minions around, they bumble, and they actually make a mess of the investigation, which you'll see repeated—um, you'll see this pattern repeated, particularly in the Sherlock Holmes stories of a few years later where, uh, Inspector Lestrade, this well-meaning idiot, is always countered, uh, by Sherlock Holmes, who's a genius.

So, now Cuff arrives. Cuff is the man who's coming to solve the mystery, and again he has a lot of the characteristics that future detectives throughout the history of this genre will have. He's eccentric. He has a hobby that he's obsessive about—in this . . . in his case, it's the love of roses. He's a fanatic about the breeding of roses; and here think of Nero Wolfe and his orchids, Sherlock Holmes and his violin, a lot of those later classic detective heroes have this kind of outside interest that they . . . they go to as a kind of antidote to the evil and misery they encounter in their daily lives. At one point, Cuff says he likes his roses because they offer solace, uh, an escape, from the world of crime he typically operates in. Now, these detective heroes . . . they have this characteristic of being smart, incredibly smart, but of not appearing to be smart. And most importantly, from a kind of existential point of view, these detectives see things that other people do not see. And that's why the detective is such an important figure, I think, in our modern imagination. In the case of *The Moonstone*—I don't want to say too much here and spoil it for you—but the clue that's key to . . . the solving of the crime is a smeared bit of paint in a doorway. Of course, the regular police have missed this paint smear or made some sort of unwarranted assumption about it. Cuff sees this smear of paint—this paint, the place where the paint is smeared—and realizes that from this one smear of paint you can actually deduce the whole situation . . . the whole world. And that's what the hero in a detective novel like this . . . brings to it that the other characters don't—it's this ability to, uh, see meaning where others see no meaning and to bring order . . . to where it seems there is no order.

32. What is the lecture mainly about?

- A. A comparison of two types of detective novels
- B. Ways in which detective novels have changed over time
- C. *The Moonstone* as a model for later detective novels
- D. Flaws that can be found in the plot of *The Moonstone*

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33. In what way is *The Moonstone* different from earlier works featuring a detective?
- A. In its unusual ending
  - B. In its unique characters
  - C. In its focus on a serious crime
  - D. In its greater length
34. According to the professor, what do roses in *The Moonstone* represent?
- A. A key clue that leads to the solving of the mystery
  - B. A relief and comfort to the detective
  - C. Romance between the main characters
  - D. Brilliant ideas that occur to the detective
35. Why does the professor mention a smeared bit of paint in a doorway in *The Moonstone*?
- A. To describe a mistake that Sergeant Cuff has made
  - B. To show how realistically the author describes the crime scene
  - C. To exemplify a pattern repeated in many other detective stories
  - D. To illustrate the superior techniques used by the police
36. What can be inferred about the professor when he says this: “Uh, it’s hard at this juncture to read this novel and realize that no one had ever done that before, because it all seems so strikingly familiar.”
- A. He is impressed by the novel’s originality.
  - B. He is concerned that students may find the novel difficult to read.
  - C. He is bored by the novel’s descriptions of ordinary events.
  - D. He is eager to write a book about a less familiar subject.
37. What does the professor imply when he says this: “. . . well, let me try to give you a sense of who Sergeant Cuff is, by first describing the regular police.”
- A. Sergeant Cuff is unlike other characters in *The Moonstone*.
  - B. The author’s description of Sergeant Cuff is very realistic.
  - C. Sergeant Cuff learned to solve crimes by observing the regular police.
  - D. Differences between Sergeant Cuff and Sherlock Holmes are hard to describe.

**For Questions 38-41, select the best option.**

In our small town, Papa's soda shop was the most popular place for high school students to meet. Unlike his brother, our military-minded, sullen principal, Papa was always relaxed, kind, interested, always ready to add extra whipped cream and cherries to our sodas. He was tolerant of the noisy, boisterous students who came to his shop after school. Everyone I knew in town, except our principal, loved Papa.

38. The passage implies reasons for
- A. Papa's generosity.
  - B. ordering whipped cream and cherries on sodas.
  - C. the high volume of noise.
  - D. the popularity of the soda shop.
39. In the passage, the writer
- A. contrasts the personality of the two men.
  - B. suggests that Papa was hypocritical.
  - C. explains why two brothers were different.
  - D. implies why people like sodas.
40. The writer's observations are apparently not based on
- A. first hand experience.
  - B. reports from neighborhood friends.
  - C. gossip.
  - D. scholarly research.

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41. If the writer's principal and Papa simultaneously spotted a hundred dollar bill lying on the sidewalk, what would be the most logical result?
- A. They would fight each other for it.
  - B. Papa would let the principal keep it.
  - C. Neither one would want it.
  - D. The principal would take and give twenty of the one hundred to Papa.

**For questions 42 through 45, your task is to compare various statements in the light of the questions posed and select the best option.**

42. In which of the following does the speaker express a feeling of nostalgia?
- A. It makes me happy that I have lived a long, prosperous life: I need not worry about having anything to prove.
  - B. Who needs to worry about what might have been?
  - C. I often think of my childhood friends; we were very happy.
  - D. I'll never be able to predict the bad times, because I never have.
43. Which of the following statements gives direct evidence about the speaker's feelings concerning marriage to Paul?
- A. Paul is certainly a handsome man.
  - B. I don't think Paul is as interested in starting a family as I am.
  - C. If Paul were the last man on earth, I might think of marrying him.
  - D. Paul is more mechanically inclined than I am.
44. Which of the following expresses a defeatist attitude?
- A. I could have owned that store; old Mr. Grundy always treated me as a son.
  - B. All I thought about was playing football, when I was fourteen.
  - C. I only know how to clean house.
  - D. Nobody will ever be my friend because I am so stupid.
45. Which of the following sentences states Mr. Bishop's strangest characteristics as chairman of the board?
- A. Mr. Bishop's leadership has created no great problems for the club.
  - B. The club's funds have increased 12 percent during the past year.
  - C. The club's meetings are run efficiently and effectively.
  - D. Mr. Bishop knows how to win the trust of his fellow members.

**STOP**

**Don't turn to the next page until instructed by the invigilator**

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Mathematics M.C.Q's

No. of Questions: 45 (from 46 to 50)

Time: 80 Minutes

Questions are starting from page number 8

Negative markings: **Yes**

Q46 What is the difference between the largest and smallest number in the set  $\left\{\frac{2}{3}, \frac{3}{5}, \frac{4}{7}, \frac{5}{8}\right\}$ ?

- A)  $\frac{1}{24}$   
 B)  $\frac{1}{40}$   
 C)  $\frac{2}{21}$   
 D) None of these

Q47 A line has parametric equations  $x = 2 - t$  and  $y = 3 + 2t$ , where  $t$  is the parameter. The slope of the line is

- A)  $-1$   
 B)  $-2$   
 C)  $\frac{1}{2}$   
 D)  $\frac{3+2t}{2-t}$

Q48 Find the remainder when  $x^3 + x^2 + x + 6$  is divided by  $x - 2$ .

- A) 10  
 B) 15  
 C) 20  
 D) None of these

Q49 For which of the following values of  $x$ ,  $x^4 < x^3$  is a true statement?

- A) 1  
 B)  $-1$   
 C) 2  
 D) 0.5

Q50 Which of the following is one of the factors of the polynomial  $3x^2 + x - 2$ ?

- A) Only  $3x - 2$   
 B) Only  $x - 1$   
 C) Only  $x + 1$   
 D) Both A) and C)

Q51 The operation  $\phi$  is defined by  $x \phi y = x^2 - y$ . If  $x \phi 3 = 15$ , then  $x =$

- I  $3\sqrt{2}$   
 II  $-3\sqrt{2}$

- A) I only  
 B) II only  
 C) I and II only  
 D) None of these

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Q52 If  $i = \sqrt{-1}$  and if  $x = 5 - 4i$ , then  $\frac{1}{x^2 - 1} =$

- A)  $5 - 3i$   
 B)  $4 + i$   
 C)  $\frac{1+5i}{208}$   
 D)  $\frac{1-5i}{208}$

Q53 For some real number  $t$ , the first three terms of an arithmetic sequence are  $3t - 4$ ,  $2t + 3$ , and  $6t - 2$ . What is the numerical value of the fourth term?

- A) 7.8  
 B) 12.4  
 C) 17.0  
 D) None of these

Q54 Two dice are tossed. What is the probability that the sum of the two dice is a prime number?

- A)  $\frac{11}{36}$   
 B)  $\frac{35}{36}$   
 C)  $\frac{15}{36}$   
 D)  $\frac{9}{36}$

Q55 Which of the following is the equation of a line perpendicular to the line whose equation is  $7x + 9y = 63$ ?

- A)  $9y + 7x = 10$   
 B)  $9x + 7y = 11$   
 C)  $9y - 7x = 12$   
 D)  $7y - 9x = 13$

Q56 The range of  $y = f(x) = \frac{1+|x|}{100}$  is the set of all real numbers  $y$  such that

- A)  $y > 1$   
 B)  $y \geq 1$   
 C)  $y \geq 0.01$   
 D)  $y \geq 0$

Q57 The domain of  $f(x) = \frac{3\sqrt{x+4}}{x^2-16}$  is the set of all real numbers  $x$  such that

- A)  $x \geq -4, x \neq 4$   
 B)  $x > -4, x \neq 4$   
 C)  $x \neq \pm 4$   
 D) None of these

Q58 The x-coordinate of y-intercept of a line containing the points  $(6, 10)$  and  $(6, -10)$  is

- A) 6  
 B) 10  
 C) -10  
 D) None of these

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Q59 The diameter  $AB$  of a circle is 9 cm. A triangle is drawn with  $AB$  as the base and the third vertex is on the circle. One side of the triangle is 7 cm. What is the length of the third side?

- A)  $4\sqrt{3}$  cm
- B)  $4\sqrt{2}$  cm
- C)  $2\sqrt{7}$  cm
- D)  $4\sqrt{11}$  cm

Q60 If a circle of radius  $r$  touches both axes, then for the centre  $(h, k)$ , which one of these may not be possible

- A)  $h = k$
- B)  $h = -k$
- C)  $r = |h|$
- D)  $r = k$

Q61 How many integers are in the solution set of  $|1 - 7x| < 20$ ?

- A) Two
- B) Three
- C) Four
- D) Five

Q62 If  $x, y$  and  $z$  are three consecutive prime integers such that  $10 < x < y < z < 20$ , what is the highest possible value of  $z - y$ ?

- A) 2
- B) 4
- C) 6
- D) 8

Q63 When the positive integer  $m$  is divided by 5, the remainder is 3. What is the remainder when  $4m$  is divided by 5?

- A) 2
- B) 3
- C) 4
- D) 5

Q64 If  $f(x) = \frac{1}{x^3 - x^2 - x}$  for what value of  $x$  is  $f(x)$  defined?

- A) 0
- B)  $\frac{1+\sqrt{5}}{2}$
- C) 2
- D)  $\frac{1-\sqrt{5}}{2}$

Q65 If  $f(x) = x^3 + 4x^2 + 2$ , for how many real numbers  $h$  does  $f(h) = 5$ ?

- A) One
- B) Two
- C) Three
- D) Four

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Q66 For what values of  $k$  the polynomial  $4x^3 + 3x^2 + 2x + k$  is divisible by  $x - 2$ ?

- A)  $-32$
- B)  $-44$
- C)  $-48$
- D) None of these

Q67 If  $2^{(1-2x)} = \frac{1}{128}$ , then  $x =$

- A)  $4.5$
- B)  $4$
- C)  $-3$
- D) None of these

Q68 Let  $d$  and  $e$  denote the solutions of  $2x^2 - 7x + 5 = 0$ . What is a possible value of  $(d + 1)(e - 0.5)$ ?

- A)  $2$
- B)  $3$
- C)  $4$
- D)  $5$

Q69 There are 7 orange disks and 5 green disks in bag X and there are 5 orange disks and 15 green disks in bag Y. If one disk is selected at random from each bag, what is the probability that both disks selected are green?

- A)  $\frac{5}{16}$
- B)  $\frac{7}{16}$
- C)  $\frac{7}{48}$
- D)  $\frac{5}{48}$

Q70 A number  $n$  is decreased by 16. If the cube root of that result equals  $-0.125$ , what is the value of  $n$ ?

- A)  $16.5$
- B)  $15.5$
- C)  $-16.5$
- D) None of these

Q71  $\cos^3 \theta + \cos \theta - \sin^2 \theta \cos \theta =$

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

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Q72 If  $x - 1$ ,  $x - 3$  and  $x + 1$  are all factors of a polynomial  $P(x)$  of degree 3, which of the following must also be a factor of  $P(x)$ ?

- I)  $x^2 + 1$   
 II)  $x^2 - 1$   
 III)  $x^2 - 4x + 3$

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

Q73 Tickets for a show cost R 500 or R 800. If 100 tickets were sold for a total of R 65000, how many tickets were sold for 800?

- A) 40  
 B) 50  
 C) 60  
 D) None of these

Q74 Find the sum  $\sum_{K=1}^{100}(3 + K)$

- A) 300  
 B) 5050  
 C) 5300  
 D) 5350

Q75 What is the period of the function  $f(x) = 3\sin 2(2x + \frac{\pi}{4})$ ?

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

Q76 The sum of the two roots of a quadratic equation is 2 and their product is 10. Which of the following could be the equation?

- A)  $h^2 + 2h + 10 = 0$   
 B)  $h^2 - 2h + 10 = 0$   
 C)  $h^2 + 7h + 10 = 0$   
 D)  $h^2 - 7h + 10 = 0$

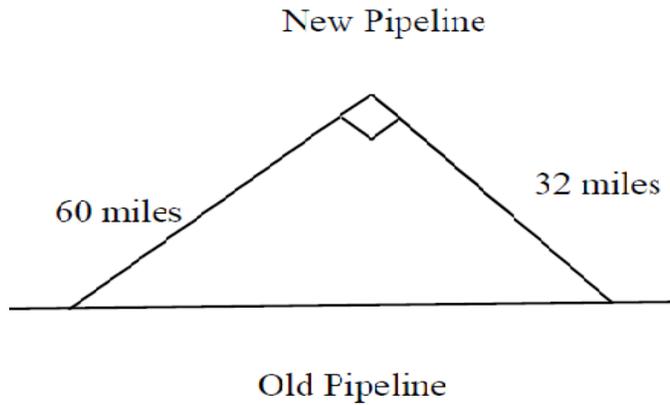
Q77 A certain triangle has two angles that have the same measure. If the lengths of two of the sides of the triangle are 70 and 90, what is the *largest* possible value for the perimeter of the triangle?

- A) 160  
 B) 230  
 C) 250  
 D) None of these

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Q78 A new pipeline is being constructed to re-route its oil flow around the exterior of a national wildlife preserve. The plan showing the old pipeline and the new route is shown on the right side. About how many extra miles will the oil flow once the new route is established?



- A) 24 miles
- B) 68 miles
- C) 92 miles
- D) 160 miles

Q79 Vectors  $\underline{u}$  and  $\underline{v}$  are given by  $\underline{u} = (2, 0)$  and  $\underline{v} = (-3, 1)$ . What is the length of vector  $\underline{w}$  given by  $\underline{w} = -\underline{u} - 2\underline{v}$ ?

- A) 10
- B) 6
- C)  $\sqrt{26}$
- D)  $2\sqrt{5}$

Q80 What is the smallest distance between the point  $(-2, -2)$  and a point on the circumference of the circle given by  $(x - 1)^2 + (y - 2)^2 = 4$ ?

- A) 3
- B) 4
- C) 5
- D) 6

Q81 The point  $(0, -2, 5)$  lies on the

- A) z axis
- B) x axis
- C) xy plane
- D) yz plane

Q82 In the  $xy$  – coordinate plane, the distance between point  $B(8, x)$  and point  $A(-8, -x)$  is 100. What is one possible value of  $x$ ?

- A)  $3\sqrt{69}$
- B)  $8\sqrt{39}$
- C)  $11\sqrt{13}$
- D) None of these

Q83 Each person at a party shook hands with everyone else exactly once. There were 4950 handshakes. How many people were at the party?

- A) 98
- B) 99
- C) 100
- D) 101

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

Q84 The sum of the sixth and fourteenth term of an arithmetic progression is 40. What is the sum of the first 19 terms of the arithmetic progression?

- A) 360
- B) 380
- C) 400
- D) 420

Q85 What is the maximum value of  $f(x) = -x^2 - 2x - 1$ ?

- A) 2
- B) -2
- C) 0
- D) 1

Q86  $\lim_{x \rightarrow \infty} \frac{40x^2 + 60}{-5x^2 + x + 90} =$

- A) 40
- B) -5
- C) -8
- D) 60

Q87  $f(x) = -7x^{333} - 9x^{1024} + 1$ ;  $f(-1) = ?$

- A) -15
- B) -1
- C) 3
- D) None of these

Q88 Which of the following is equivalent to  $6x^2 + 5x - 6$ ?

- A)  $(2x - 3)(3x + 2)$
- B)  $(2x - 3)(3x - 2)$
- C)  $(2x + 3)(3x - 4)$
- D)  $(3x - 2)(2x + 3)$

Q89 Find the perimeter of the square in which a circle of area  $144\pi$  is inscribed.

- A) 12
- B) 24
- C) 48
- D) 96

Q90 The number of terms in the finite geometric progression 3, 6, 12, 24, ..., 12288 is

- A) 11
- B) 12
- C) 13
- D) 14