

PGDBA-2016

Duration: Three Hours

Maximum Marks: 150

Read the following instructions carefully.

1. Do not open the seal of the Question Booklet until you are asked to do so by the invigilator.
2. Take out the **Optical Response Sheet (ORS)** from this Question Booklet **without breaking the seal** and read the instructions printed on the ORS carefully.
3. On the right half of the **ORS**, using **ONLY a black in ballpoint pen**, (i) darken the appropriate bubble under each digit of your registration number and (ii) write your registration number, your name, the name of the examination centre and put your signature at the specified location.
4. This Question Booklet contains total **20** pages including blank pages for rough work. After you are permitted to open the seal, please check all pages and report discrepancies, if any, to the invigilator.
5. There are a total of **50** questions carrying 150 marks. All these questions are of objective type. Each question has only **one** correct answer. Questions must be answered on the left hand side of the **ORS** by darkening the appropriate bubble (marked A, B, C, D) using **ONLY a black ink ballpoint pen** against the question number. **For each question darken the bubble for the correct answer.** More than one answer bubble against a question will be treated as an incorrect response.
6. Since bubbles darkened by the black ink ballpoint pen **cannot** be erased, candidates should darken the bubbles in the ORS **very carefully**.
7. Each correct answer to a question will result in **three (3) marks**, unattempted question will result in **zero mark** and wrong answer to a question will result in **minus one (-1) mark**.
8. Questions **Q.1 – Q.15** belong to **Verbal Ability** section, Questions **Q.16 – Q.20** belong to **Logical Reasoning** section, Questions **Q.21 – Q.25** belong to **Data Interpretation and Data Visualization** section and Questions **Q.26 – Q.50** belong to **Quantitative Aptitude** section.
9. Calculator is allowed whereas charts, graph sheets or tables are **NOT** allowed in the examination hall.
10. Rough work can be done on the question paper itself. Blank pages are also provided at the end of the question paper for rough work.
11. Before start of the examination, write your name and registration number in the space provided below using a black ink ballpoint pen.

Name						
Registration Number						

Q.1 – Q.15: VERBAL ABILITY

Instructions for Questions 1 and 2: In each of the questions a word has been used in sentences in four different ways. Choose the option corresponding to the sentence in which the usage of the word is incorrect or inappropriate.

Q.1 Loose

- (A) The dog got loose and ran out of the yard.
- (B) She carefully worked on the sandal loose and slipped into the back seat.
- (C) She did not want to loose that game because it would be the last one she would play that season.
- (D) The line was silent for a few moments and then Mary let loose with a heavy sigh.

Q.2 Advise

- (A) If only Mom were here to advise her!
- (B) I would like to seek your advise on this matter.
- (C) I advise you, as a father would, to cease all communication with that person.
- (D) “I included the whiskey, though I advise you to stop drinking soon”, he said with brotherly firmness.

Q.3 Arrange the sentences in the most logical order to form a coherent paragraph. From the given options choose the most appropriate option.

- i. The last thing airline pilots need is an additional hazard caused by Unmanned Aerial Vehicles (UAVs) weighing as much or more than Canadian goose.
- ii. In 2009 a collision with a flock of migratory Canadian geese caused a US Airways flight to suffer complete loss of power after take-off from LaGuardia airport, New York.
- iii. The bird strike could have easily ended in disaster but for the skill of the pilot, Captain Chesley Sullenberger, who famously brought the stricken Airbus A320 down for a splash landing in the Hudson River without a loss of life.
- iv. One of the most feared birds encountered by aircrafts is the common Canadian goose, weighing anything up to 6 kg.

(A) iv, ii, iii, i

(B) i, ii, iii, iv

(C) i, iii, iv, ii

(D) iv, ii, I, iii

Q.4 Arrange the sentences in the most logical order to form a coherent paragraph. From the given options choose the most appropriate option.

- i. Collecting antiquities was also popular with the aristocracy during the Renaissance, and became even more so when young upper-class European men started to do the Grand Tour in the late 17th century.
- ii. In ancient Rome the elite sought out Greek bronzes, sculptures and vases; some cunning merchants tried to make new ones look older and boost their price.
- iii. Antique furniture went mainstream in Europe in the second half of the 19th century, as the bourgeoisie found themselves with more disposable income and developed a desire to invest in their homes.
- iv. The desire to live in the presence of history has ebbed and flowed.

(A) iv, ii, i, iii

(B) i, iv, ii, iii

(C) iv, iii, ii, i

(D) iii, i, ii, iv

Q.5 Consider the following phrases:

- i. dominated by such brutal forces
- ii. there certainly may be times when one's culture, society and tradition are so reified
- iii. when debate and conversation are so dried up or simply made impossible that the social critic
- iv. becomes the social exile

To form a complete sentence, the correct order of the phrases above is:

(A) ii, i, iii, iv

(B) ii, iv, i, iii

(C) ii, iii, i, iv

(D) iii, ii, i, iv

Instructions for Questions 6 to 9: Read the passage and answer the questions that follow:

Constructivist, constructivism, interpretivist, and interpretivism are terms that routinely appear in the lexicon of social science methodologists and philosophers. Yet, their particular meanings are shaped by the intent of their users. As general descriptors for a loosely coupled family of methodological and philosophical persuasions, these terms are best regarded as sensitizing concepts. They steer the interested reader in the general direction of where instances of a particular kind of inquiry can be found. However, they 'merely suggest directions along which to look' rather than 'provide descriptions of what to see.'

Proponents of these persuasions share the goal of understanding the complex world of lived experience from the point of view of those who live it. This goal is variously spoken of as an abiding concern for the life world, for the emic point of view, for understanding meaning, for grasping the actor's definition of a situation, for *Verstehen*. The world of lived reality and situation-specific

meanings that constitute the general object of investigation is thought to be constructed by social actors. That, particular actors, in particular places, at particular times, fashion meaning out of events and phenomena through prolonged, complex process of social interaction involving history, language and action.

The constructivist or interpretivist believes that to understand this world of meaning one must interpret it. The inquirer must elucidate the process of meaning construction and clarify what and how meanings are embodied in the language and actions of social actors. To prepare an interpretation is itself to construct a reading of these meanings; it is to offer the reader the inquirer's construction of the constructions of the actors one studies.

Although they share this general framework for human inquiry, constructivist and interpretivist persuasions are unique in the manner in which each answers these questions: What is the purpose and aim of human inquiry (as distinct from inquiry into the physical world)? How can we know about the world of human action?

Q.6 The terms constructivism and interpretivism refer to:

- (A) paradigms of inquiry
- (B) methods of analysis
- (C) schools of thought
- (D) sensitizing concepts

Q.7 According to the author, a constructivist or an interpretivist is

- (A) likely to be biased.
- (B) likely to be rooted in her/his context.
- (C) likely to be objective.
- (D) likely to be actors.

Q.8 According to the author, constructivists and interpretivists are

- (A) explorers and discoverers.
- (B) diagnosers and predictors.
- (C) analysers and decision makers.
- (D) actors and proponents.

Q.9 According to the passage, the term *Verstehen* refers to

- (A) complex processes of social interaction involving history, language, and action.
- (B) understanding the complex world of living experience.
- (C) creating meaning out of events and phenomena.
- (D) grasping the actor's definition of a situation.

Instructions for Questions 10 to 15: Read the passage and answer the questions that follow:

Reverence is a dirty word at the Almeida Theatre in Islington, North London. Rupert Goold, the artistic director, and Robert Icke, his associate, are resolved to take dusty, distant cultural artefacts of drama and shake them hard, so that they will entertain modern audiences, especially those with no previous knowledge of the plays. Mr Icke holds that to save the classics from withering, a director must be willing even to reinterpret the original author's intentions.

This summer Messrs Goold and Icke have directed freshly translated versions of the oldest of all "dusty theatrical artefacts": the ancient Greek tragedies of Aeschylus and Euripides. These versions ruthlessly rewrite texts and alter plots. In Euripides's "Medea", the last of the season of three plays, which opened on 1st October directed by Mr Goold, Medea murders her two children as revenge on her unfaithful husband. Not at the Almeida: in this version, her sons die- or perhaps do not- by eating sleeping pills.

Mr Icke's version of "Oresteia" by Aeschylus is described as "a new adaptation", but classics scholars insist that it is much more than that. The masked male chorus which propels all Greek tragedy, so memorable in Sir Peter Hall's production at the National Theatre in 1981, is jettisoned. Mr Icke's "Oresteia" starts with 46 pages of text (out of 113 in all) that are dramatization of the long choral ode in Aeschylus's "Agamemnon". It deals with his decision to sacrifice his daughter Iphigenia to ensure his ships a fair wind for Troy. Mr Icke believes that, without this prelude, it is hard to appreciate fully the ensuing, awe-inspiring family tragedy in which his wife Klytemnestra kills Agamemnon to avenge their daughter's death, and then is murdered in turn by their son, Orestes. The extra material makes for a long evening, but it speeds by. Only the "Bakkhai", the second of the Almeida's three plays, conforms to the traditional Greek unities of time and place and, as in ancient Greece, has all the speaking roles played by three actors, backed by a chorus (though of Bacchic ladies rather than masked men).

The Greek season defines the Almeida's style of work. Mr Goold has unearthed a rich new seam of modern theatre by reviving and generally energising work by authors such as Luigi Pirandello and Bret Easton Ellis. His delightful version of "The Merchant of Venice" set in Las Vegas, was played largely for laughs, with the verse adapting easily to a singsong southern American accent. Even his failures, such as a "King Lear" and Puccini at the English National Opera, had moments that linger in the memory.

Actors like working there. Since small theatres like the Almeida cannot pay well, actors choose the work over the money. In this Greek season, the two most memorable performances are by Lia Williams as Klytemnestra and Kate Fleetwood, who is Mr Goold's wife, as Medea. Each exhibits an emotional range that holds the action together. The rage, temper and insult of the dialogue between Medea and her husband Jason, here conducted on their mobile phones, reveal a direct linguistic link from ancient Greece to contemporary soap opera.

Whatever quibbles there might be about the editing, cutting and rewriting of the texts, surely the significant question about this ambitious project is whether the audience is gripped by the performances. Enthusiastic word-of-mouth suggests the answer is yes.

Q.10 In this passage, the word “reverence” can be interpreted as

- (A) a gesture indicative of deep respect; a bow or curtsey.
- (B) honour in recognition of qualities of holiness, excellence, wisdom.
- (C) regard with great awe and devotion.
- (D) something that is considered hallowed or exalted to the extent that no reinterpretation is allowed.

Q.11 The Almeida Theatre is unique because

- (A) of its location in Islington.
- (B) it concentrates on reinterpreting ancient Greek Theatre.
- (C) it completely reinterprets old classics to lend them a modern feel.
- (D) it employs only family members of the Directors as actors.

Q.12 The author does not agree that Mr Icke’s version of Oresteia by Aeschylus is a “a new adaptation” because

- (A) the masked male chorus is jettisoned.
- (B) Medea’s sons die of eating sleeping pills.
- (C) over 40% of the play is about sacrifice of Iphigenia.
- (D) it recasts the play by providing a backdrop to better appreciate the reasons behind the deaths of Agamemnon by Klytemnestra.

Q.13 The author uses the term “artefact” in the text to mean

- (A) an object made by human being, typically one of cultural or historical interest.
- (B) something observed in a scientific investigation or experiment that is not naturally present but occurs as a result of the preparative or investigative procedure.
- (C) a creative literary text that is of historical and cultural interest.
- (D) any feature that is not naturally present but is a product of an extrinsic agent.

Q.14 A suitable title for this passage could be

- (A) Modernisation of Greek Theatre
- (B) Almeida Theatre through the Ages
- (C) Almeida Theatre: of Actors and Audiences
- (D) The Unique World of Almeida Theatre.

Q.15 Some attempts to engage modern audiences by M/s Goold and Icke, as discussed in the passage include

- (A) the use of sleeping pills to eliminate Almeida's sons.
- (B) the dramatization of the long choral ode in Aeschylus's Agamemnon in Oresteia.
- (C) the dramatization of conversations over mobile phones between Almeida and Jason.
- (D) the use of masked ladies for the chorus for Greek Plays.

Q.16 – Q.20: LOGICAL REASONING

Instructions for Questions 16 to 20: Read the paragraph and answer the questions that follow:

Q.16 Every passenger is either in the first class or in the tourist class of a cruise. Each passenger is in the tourist class if and only if he is wealthy. Some passengers are wealthy. Not all passengers are wealthy. From the above statements which of the following statements can be certainly drawn.

- (A) All passengers are in first class.
- (B) All passengers are wealthy.
- (C) No passenger is wealthy.
- (D) Some passengers are in tourist class.

Q.17 Let F_1 and F_2 be sentences as stated below:

F_1 : If the president does not want to take responsibility and the rioters are not tired of rioting, then riots will spread.

F_2 : If the president does not have the appropriate authority or if he does not want to take the responsibility, then neither order will be restored nor will the riots stop spreading unless the rioters become tired of rioting and the local authorities begin to take conciliatory actions.

Then which of the following statements is true?

- (A) F_2 is a logical consequence of F_1 .
- (B) F_1 is a logical consequence of F_2 .
- (C) Both F_1 and F_2 are logical consequences of each other.
- (D) Neither F_1 nor F_2 are logical consequences of each other.

Q.18 If Amisha works hard, then either Santosh or Ravi will enjoy themselves. If Santosh enjoys himself, then Amisha will not work hard. If Devika enjoys herself, the Ravi will not enjoy himself. Therefore, if Amisha works hard then which of the following statements follow?

- (A) Ravi will not enjoy himself.
- (B) Santosh will enjoy himself.
- (C) Devika will enjoy herself.
- (D) Devika will not enjoy herself.

Q.19 If Praveen is Maninder's next door neighbour, then Praveen's annual income is more than ₹ 1 million. If Praveen's annual income is more than ₹ 1 million, then Earth is square. Earth is not square. If Madhukar is Maninder's next door neighbour, then Madhukar flies from the hostel to the class. If Madhukar goes by cycle from the hostel to the class, he does not fly from the hostel to the class. Madhukar goes by cycle from the hostel to the class. If Praveen is not Maninder's next door neighbour, then either Madhukar or Deepayan is Maninder's next door neighbour. Which of the following statements follow?

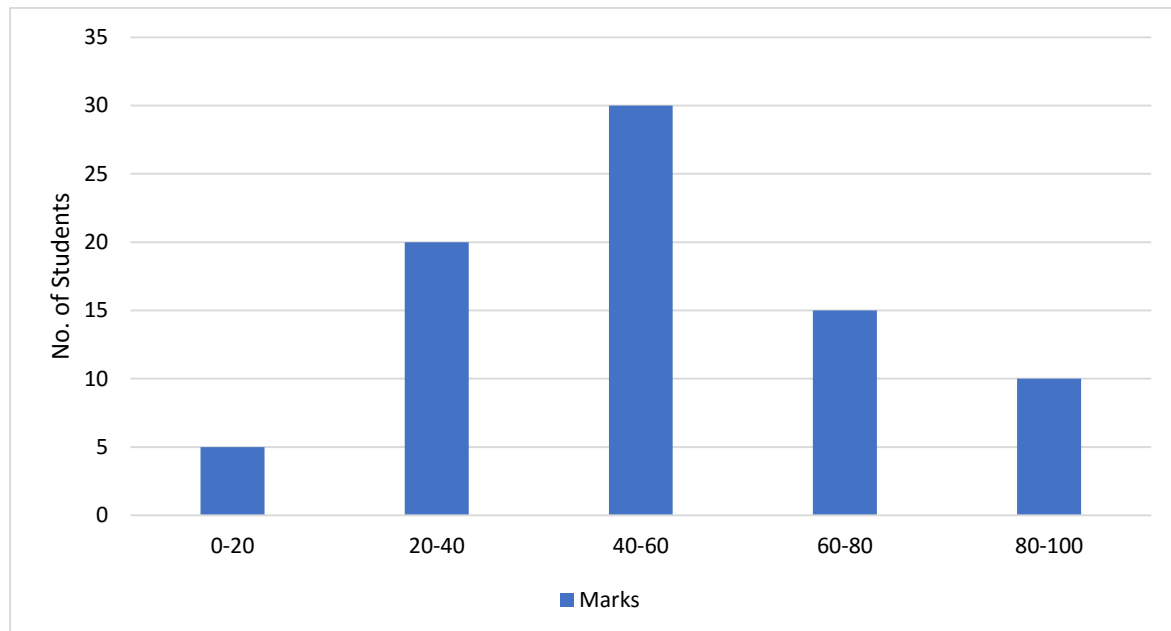
- (A) Praveen is Maninder's next door neighbour.
- (B) Madhukar is Maninder's next door neighbour.
- (C) Deepayan is Maninder's next door neighbour.
- (D) Praveen's annual income is more than ₹ 1 million.

Q.20 If Shashank goes to the meeting, then a complete report will be made; but if Shashank does not go to the meeting, then a special election will be required. If a complete report is made, then an investigation will be launched. If an investigation is launched, then some members will have to face disciplinary action. But if no investigation is launched, then the organisation will disintegrate very rapidly. If a special election is not required, then which of the following statements follow?

- (A) An investigation will not be launched.
- (B) A complete report will not be made.
- (C) The organisation will disintegrate very rapidly.
- (D) Some members will face disciplinary action.

Q.16 – Q.20: DATA INTERPRETATION AND DATA VISUALIZATION

The following histogram represents the frequency distribution of marks of 80 students in a class. Here the class interval $a-b$ includes all marks greater than or equal to a and less than b except for the interval 80-100, where both the end points are included.



Q.21 The number of students scoring less than 60 marks is

- (A) 40 (B) 45 (C) 50 (D) 55

Q.22 The number of students scoring less than 80 marks but not less than 40 marks is

- (A) 45 (B) 40 (C) 35 (D) 30

Q.23 The arithmetic mean of the marks is

- (A) 50.25 (B) 50.75 (C) 51.25 (D) 53.75

Q.24 The number of students scoring at least 50 marks is

- (A) less than 20%
(B) between 20% and 30%
(C) between 30% and 70%
(D) between 70% and 80%

Q.25 The number of students scoring less than 30 marks is

- (A) less than 5%
(B) between 5% and 35%
(C) between 35% and 40%
(D) between 40% and 45%

Q.26 – Q.50: QUANTITATIVE APTITUDE

Q.26 With eleven distinct consonants and five distinct vowels, how many distinct six letter words can be formed if middle two positions are occupied by vowels (may be repeated) and first two and last two positions are occupied by consonants (all distinct)?

- (A) 168000 (B) 178000 (C) 188000 (D) 198000

Q.27 A positive integer is called a palindrome if it reads the same forward and backwards. The number of eight-digit palindromes divisible by 5 is

- (A) 1000 (B) 2000 (C) 4000 (D) 10000

Q.28 The product of the real solutions x of the equation $x^2 + 4|x| - 4 = 0$ is

- (A) 4 (B) -4
(C) $-4(\sqrt{2} - 1)^2$ (D) $4(\sqrt{2} - 1)^2$

Q.29 If the coefficient of x^{12} in the expansion $(x^3 + 1)^m$ is 210, then the coefficient of x^{15} ?

- (A) 252 (B) 272 (C) 282 (D) 292

Q.30 Consider an arithmetic progression of positive terms with the first term as α . Let S_n denote the sum of the first n terms of this arithmetic progression and let $\frac{S_m}{S_n} = \frac{m^2}{n^2}$ for $m \neq n$. Then the 50th term is

- (A) 50α (B) 99α (C) 100α (D) 250α

Q.31 The first term of a series is unity. Every even term is thrice the term preceding it and every odd term is seven times the term preceding it. The sum of the first hundred terms is

- (A) $\frac{1}{5}(21^{50} - 1)$ (B) $\frac{1}{12}(21^{50} - 1)$
(C) $\frac{1}{5}(21^{100} - 1)$ (D) $\frac{1}{20}(21^{100} - 1)$

Q.32 The sum of all solutions of the equation $4 \sin^2 x - 4 \cos^2 x = 1$ in the interval $[0, 2\pi]$ is

- (A) $\frac{\pi}{3}$ (B) $\frac{5\pi}{3}$ (C) π (D) 2π

Q.33 Let QRS be a triangular park in xy -plane with side $RS = 375$ meters and $\angle QRS = 90^\circ$. A pole PQ vertical to the xy -plane is fixed at Q with height $PQ = h$. If $\tan PRQ = \frac{17}{25}$ and $\tan PSQ = \frac{8}{25}$, then the value of h (in meters) is

- (A) 200 (B) 164 (C) 136 (D) 125

Q.34 The system of linear equations

$$\begin{aligned}x + y + kz &= 1 \\x + ky + z &= 1 \\kx + y + z &= 1\end{aligned}$$

has

- (A) a unique solution for only one value of k
 (B) a unique solution for infinitely many choices of k
 (C) no solution for any value of k
 (D) infinitely many solutions for any value of k

Q.35 The least value of $4^{\sin x} + 4^{\cos x}$ for $x \in \mathbb{R}$, is

- (A) $\frac{1}{2\sqrt{2}}$ (B) $2^{1-\sqrt{2}}$ (C) 2 (D) 4

Q.36 The value of

$$\sum_{n=0}^{\infty} \frac{n_{C_0} + n_{C_1} + \cdots + n_{C_n}}{n_{P_n}}$$

is

- (A) $2e - 1$ (B) $e^2 - 1$ (C) $e^2 + 1$ (D) e^2

Q.37 Suppose

$$f(x) = \begin{vmatrix} \cos x & x & 1 \\ 2 \sin x & x^2 & 2x \\ \tan x & x & 2 \end{vmatrix}, x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right).$$

Then $\lim_{x \rightarrow 0} \frac{f(x)}{x^2}$

- (A) is equal to 2 (B) is equal to -2
 (C) is equal to 0 (D) does not exist

Q.38 Let $P = \begin{bmatrix} 2 & \alpha & 3 \\ -\alpha & 2 & 0 \\ 3 & -2 & \alpha \end{bmatrix}$, where α is a real number such that $\det(P) = \text{cofactor of second diagonal element of } P$. Then $\det(\text{adj}(P^{-1}))$ equals

- (A) 49 (B) $\frac{1}{49}$ (C) $-\frac{1}{7}$ (D) -7

Q.39 Let

$$f(x) = \lim_{n \rightarrow \infty} \frac{x}{n} \left(\frac{1}{1+e^{-\frac{x}{n}}} + \frac{1}{1+e^{-\frac{2x}{n}}} + \cdots + \frac{1}{1+e^{-x}} \right), x > 0.$$

Then $\lim_{x \rightarrow 0} \left(\frac{2f(x)-x}{x^2} \right)$ is

- (A) 0 (B) $\frac{1}{8}$ (C) $\frac{1}{4}$ (D) $\frac{1}{2}$

Q.40 The curve $y = \frac{3}{2}\sqrt{x}$, $x \geq 0$; the x -axis, the lines $x - 1 = 0$ and $x - 4 = 0$ form a closed region \mathfrak{R} in the first quadrant. A straight line $y = mx$ divides the region \mathfrak{R} into two parts of equal area. Then the value of m is

- (A) $\frac{1}{3}$ (B) $\frac{2}{5}$ (C) $\frac{6}{17}$ (D) $\frac{7}{15}$

Q.41 If $[a]$ denotes the greatest integer less than or equal to a for $a \in \mathbb{R}$, then the value of the integral

$$\int_0^{1.7} [x^2] dx$$

is equal to

- (A) $2.4 + \sqrt{2}$ (B) $2.4 - \sqrt{2}$ (C) $2.4 + \frac{1}{\sqrt{2}}$ (D) $2.4 - \frac{1}{\sqrt{2}}$

Q.42 Which of the following functions is differentiable at $x = 0$?

- (A) $e^{-|x|} - |x|$ (B) $e^{|x|} + |x|$
 (C) $|x| - e^{|x|}$ (D) $|x| - e^{-|x|}$

Q.43 Let the function f be given by

$$f(x) = \begin{cases} x + x^2 \sin\left(\frac{\pi}{x}\right), & x \neq 0 \\ 0, & x = 0 \end{cases}$$

Then $(f'(1) - f'(0))$ is

- (A) 0 (B) 1 (C) π (D) $-\pi$

Q.44 Let the function f be given by

$$f(x) = \begin{cases} -(x-1)^4, & x \leq 2 \\ (x-3)^3, & x > 2 \end{cases}$$

Then local extrema of f exist at

- (A) $x=1$ and $x=3$ (B) $x=1$ and $x=2$
(C) $x=2$ and $x=3$ (D) $x=1, x=2$ and $x=3$

Q.45 The points in the xy -plane, which satisfy the equation

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

lie on

- (A) a straight line (B) a circle
(C) a parabola (D) an ellipse

Q.46 Two pairs of straight lines $x^2 - 7x + 6 = 0$ and $y^2 - 14y + 40 = 0$ intersect to form a rectangle. Let the diagonals of the rectangle intersect at the point W . A circle with centre W and with tangents as lines $y^2 - 14y + 40 = 0$ intersects lines $x^2 - 7x + 6 = 0$ at points P, Q, R, S . The area of the rectangle $PQRS$ is

- (A) $11\sqrt{5}$ (B) $5\sqrt{11}$ (C) $7\sqrt{11}$ (D) $3\sqrt{5}$

Q.47 Normals to the parabola $y^2 = 4x$ are drawn at two points P and Q on it. These normals intersect the parabola at the point $R(9, -6)$. Then PQ equals

- (A) $\sqrt{13}$ (B) $\sqrt{15}$ (C) $\sqrt{17}$ (D) $\sqrt{21}$

Q.48 If $f: \mathbb{R} \rightarrow \mathbb{R}$ be a continuous function satisfying $f(x) + f(3 - x) = 4$, then

$$\int_0^3 f(x) dx$$

is equal to

- (A) 3 (B) 4 (C) 6 (D) 8

Q.49 Let $PQRS$ be acyclic quadrilateral. Let O be the centre of the circumcircle of the quadrilateral. Then which of the following statements is NOT true?

- (A) $\angle PRQ = \angle POQ$
(B) $\angle POQ = 2\angle PSQ$
(C) $\angle OPS = \angle OSP$
(D) $\angle PRQ = \angle PSQ$

Q.50 Let P and Q be two distinct nonempty sets. Then $(P \cup Q)^c \cup (P^c \cap Q)$ equals

- (A) P^c (B) Q^c (C) $P^c \cup Q^c$ (D) \emptyset

END OF THE QUESTION PAPER