INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH

(I. G. I. D. R.)

Written Examination for Admission to M.Sc./M.Phil./Ph.D. Programme to be held on 29.04.2012

SAMPLE QUESTIONS

Test I

Test of Comprehension, Reasoning and Analytical Ability

This test is designed to examine the candidate's verbal ability, analytical reasoning and quantitative skills.

I. Of the 197 million square miles making up the surface of the globe, 71 percent is covered by the interconnecting bodies of marine water; the Pacific Ocean alone covers half the Earth and averages nearly 14, 000 feet in depth. The *continents* - Eurasia, Africa, North America, South America, Australia and Antarctica - are the portions of the *continental masses* rising above sea level. The submerged borders of the continental masses are the *continental shelves,* beyond which lie the deep-sea basins.

The oceans attain their greatest depths not in their central parts, but in certain elongated furrows, or long narrow troughs, called *deeps*. The profound troughs have a peripheral arrangement, notably around the borders of the Pacific and Indian oceans. The position of the deeps near the continental masses suggest that the deeps, like the highest mountains, are of recent origin, since otherwise they would have been filled with waste from the lands. This suggestion is strengthened by the fact that the deeps are frequently the sites of the world-shaking earthquakes. For example, the "tidal wave" that in April, 1946, caused widespread destruction along Pacific coasts resulted from a strong earthquake on the floor of the Aleutian Deep.

1. Which of the following would be the most appropriate title for the passage?

Ans. : (1)

(1) Features of the Earth's Surface
(2) Marine Topography
(3) The Causes of Earthquakes
(4) Primary Geologic Considerations
(5) How to prevent Erosion.

2. According to the passage, the peripheral furrows or *deeps* are found —

Ans. : (3)

(1) only in the Pacific and Indian oceans
(2) near earthquakes
(3) near the shore
(4) in the centre of the ocean
(5) to be 14,000 feet in depth in the Pacific.

3. From this passage, it can be inferred that earthquakes —

Ans. : (2)

(1) occur only in the peripheral furrows
(2) occur more frequently in newly formed land or sea formations.
(3) are a prime cause of soil erosion
(4) will ultimately "make mountains level"
(5) are caused by the weight of the water

II. **Fill in the blanks with the pair of words that best fits the meaning of the sentence.**

Though he claimed the business was ....., his irritability ..... that claim.

Ans. : (1)

(1) sound .... belied
(2) expanding .... supported
(3) downsizing .... vindicated
(4) static .... contradicted
(5) booming .... affirmed

III. **Select the pair that best expresses the relationship similar to the one in the original pair.**

MODERATOR : DEBATE ::

Ans. : (5)

(1) legislator : election (2) chef : banquet
(3) auditor : lecture (4) conspirator : plot
(5) umpire : game

IV. The letters A, B, C, D, E, F and G, not necessarily in that order, stand for seven consecutive integers from 1 to 10.

D is 3 less than A. B is the middle term.
F is as much less than B as C is greater than D.
G is greater than F.

1. The fifth integer is—
(1) A (2) C (3) D (4) E (5) F

Ans. : (2)

2. A is as much greater than F as which integer is less than G ?
(1) A (2) B (3) C (4) D (5) E

Ans. : (4)

3. If A = 7, the sum of E and G is —
(1) 8 (2) 10 (3) 12 (4) 14 (5) 16

Ans. : (2)

V. If Elaine is on the steering committee, then she is on the central committee. This statement can be logically deduced from which of the following statements?
(1) All members of the central committee are on the steering committee.
(2) Elaine is on either the central committee or the steering committee.
(3) Everyone who is on the steering committee is also on the central committee.
(4) Some members of the central committee are on the steering committee.
(5) Elaine is on the steering committee.

Ans. : (3)

VI (1) A causes B or C, but not both , (2) F occurs only if B occurs, (3) D occurs if B or C occurs, (4) E occurs only if C occurs, (5) J occurs only if E or F

occurs, (6) D causes G or H or both, (7) H occurs if E occurs, (8) G occurs if F occurs.

1. If A occurs, which may occur ?
   I. F and G II. E and H III. D
   (1) I only (2) II only (3) III only
   (4) I & II or II & III, but not both (5) I, II, and III

Ans. : (4)

2. If J occurs, which must have occurred ?
   (1) E (2) Both E and F (3) Either B or C
   (4) G (5) Both B and C

Ans. : (3)

Test II

Test of Mathematics

This test is designed to examine the candidate's mathematical abilities. The sample questions given below are suggestive.

Q.1. For each set A,
(1) $\{A\} \subset 2^A$ (2) $\{A\} \not\subset 2^A$ (3) $A \notin 2^A$
(4) $A \not\subset 2^A$ (5) None of these

Q.2. $\int xe^x dx$ is

(1) $\frac{x^2}{2}e^x + xe^x$ (2) $e^x(x+1)$
(3) $e^x(x-1)$ (4) $\log x(x-1)$
(5) None of these

Q.3. $\lim_{x \to 0} \frac{e^x - 1}{x}$ is

(1) Not defined (2) 1 (3) –1
(4) 0 (5) None of these

Q.4. The slope of $f(x) = 5\sqrt{x} - \frac{\log x}{3}$ is

(1) $\frac{5}{\sqrt{x}} - \frac{1}{3x}$ (2) $\frac{5}{2}x^{\frac{3}{2}} - \frac{e^x}{3}$

(3) $\frac{5}{2\sqrt{x}} - \frac{1}{3x}$ (4) $10\,x^{\frac{3}{2}}$

(5) None of these

Q.5. Given $f(x) = 2x^3 - 3x^2 - 36x - 10$, the function attains
(1) minimum at $x = 4$ (2) maximum at $x = 3$
(3) minimum at $x = -2$ (4) maximum at $x = 6$
(5) None of these

Q.6. If $\frac{5x + 2}{(1 + 3x)(1 + 2x)} = \frac{A}{1 + 3x} + \frac{B}{1 + 2x}$
then
(1) A = 1, B = –1 (2) A = –1, B = 1
(3) A = 2, B = 0 (4) $A \frac{1}{3x}$ B = 1
(5) None of these

Q.7. $x + \frac{1}{2}x^2 + \frac{1}{3}x^3 + \ldots\ldots$ is

(1) $\log(1-x)$ (2) $\log \frac{1}{1-x}$
(3) $(1-x)^{-1/2} - 1$ (4) $e^x - 1$
(5) None of these

Q.8. The values of K for which the system of equations
$x + y = 4$
$Kx + 2y + 3z = 1$
$2x + y + Kz = 5$

does not have any solution, are
(1) 1, 3 (2) –3, –1 (3) 3, –1 (4) 1, –3 (5) None of these

Q.9. $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1+a & 1 \\ 1 & 1 & 1+b \end{vmatrix} =$

(1) 0 (2) (1 + a)(1 + b) (3) ab
(4) 1 (5) None of these

Q.10. When the mean of a binomial distribution is 12 and the s.d. is 3, the probability of success, p is

(1) $\frac{3}{4}$ (2) $\frac{1}{4}$ (3) $\frac{1}{2}$
(4) $\frac{1}{8}$ (5) None of these

Q.11. The mean wage and s.d. of 150 men were Rs.60 and Rs.4 per week respectively and that of another 200 men were Rs. 90 and Rs.3 per week. The s.d. of the work force of 350 men considered as one group is

(1) 9 (2) $\frac{32}{7}$ (3) 15.5
(4) 21.1 (5) None of these

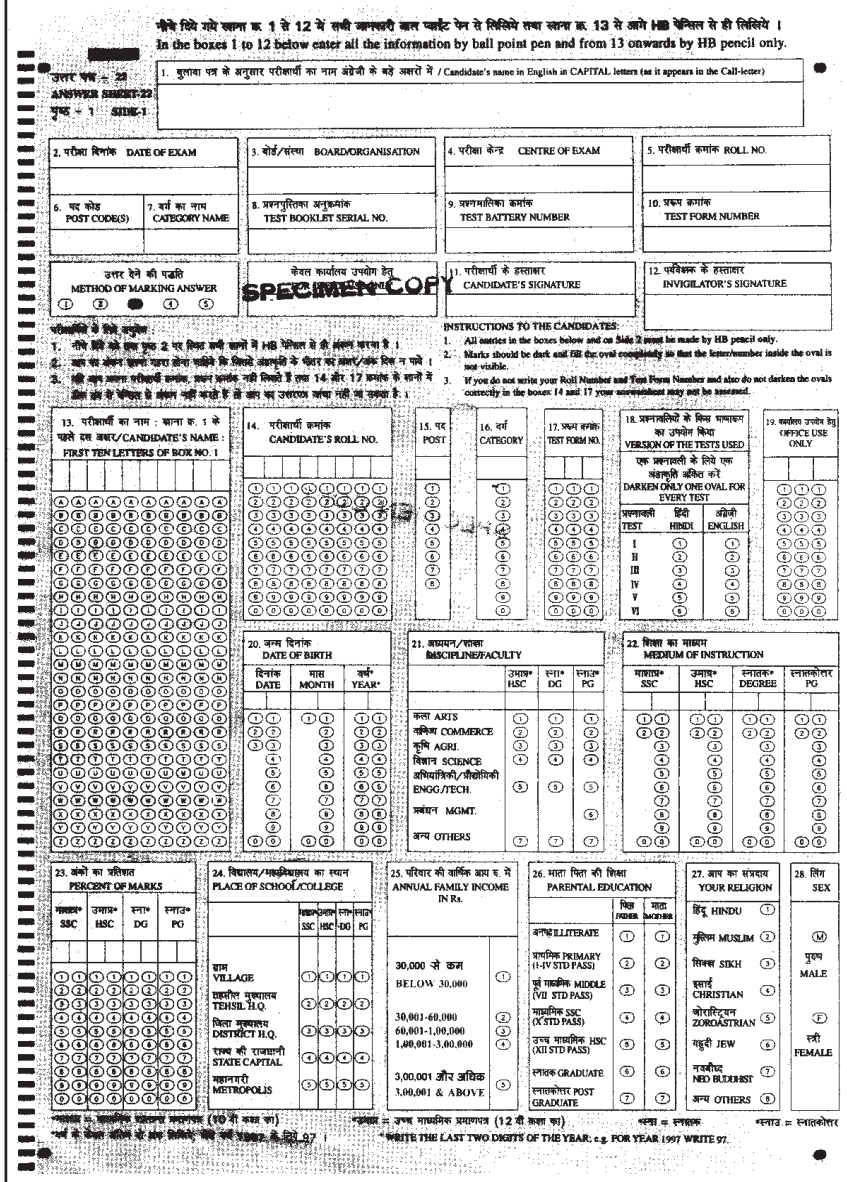
Q.12. A candidate is selected for interview for three posts. For the first post there are 3 candidates, for the second there are 4 candidates and for the third there are 2. The chance of him getting at least one post is

(1) 0.75 (2) $\frac{1}{24}$ (3) $\frac{1}{8}$
(4) 0.25 (5) None of these

ANSWERS

1. (1), 2.(3), 3. (2), 4. (3) 5. (5), 6. (4),
7. (2), 8 (3), 9. (3), 10. (2), 11. (3), 12. (1)

S A M P L E Q U E S T I O N S



IMPORTANT NOTE

Bring two HB Pencils, a ball pen and an eraser on the day of examination.

Bring your call letter with your recent photograph affixed on it. Without these documents you are not permitted to appear in the examination.

Use of calculator is NOT allowed.

Before appearing ensure that you fulfil the eligibility criteria in all respects.

S A M P L E Q U E S T I O N S