

Deerwalk Aptitude Test (DAT)

Instruction

All questions are compulsory.

There are three major sections in this paper - English, Mathematics, Science and IQ.

The marks wise distribution of each of the section is as follows:

Section	Subject	Marks	Time [Suggested]
A	English	20	25 Minutes
B	Science (Physics)	25	25 Minutes
C	Mathematics	25	25 Minutes
D	IQ	10	15 Minutes

You are advised to spend the suggested time.

Please darken the most appropriate answer in the provided answer sheet.

Section A – English

This passage is adapted from Hillary Clinton's remarks to the U.N. Fourth World Conference on Women Plenary Session in 1995 in Beijing, China.

There are some who question the reason for this conference. Let them listen to the voices of women in their homes, neighborhoods, and workplaces. There are some who wonder whether the lives of women and girls matter to economic and political progress around the globe. Let them look at the women gathered here and at Huairou- the homemakers and nurses, the teachers and lawyers, the policymakers and women who run their own businesses. It is conferences like this that compel governments and peoples everywhere to listen, look, and face the world's most pressing problems. Wasn't it after the all-after the women's conference in Nairobi ten years ago that the world focused for the first time on the crisis of domestic Violence? The great challenge of this conference is to give voice to women everywhere whose experiences go unnoticed, whose words go unheard. Women comprise- more than half the world's population, 70 percent of the world's poor, and two-thirds of those who are not taught to read and write. We are the

primary caretakers for most of the world's children and elderly. Yet much of the work we do is not valued-not by economists, not by historians, not by popular culture, not by government leaders.

Those of us who have the opportunity to be here have the responsibility to speak for those who could not. As an American, I want to speak for those women in my own country, women who are raising children on the minimum wage, women who can't afford health care or child care, women whose lives are threatened by violence, including violence in their own homes.

Speaking to you today, I speak for them, just as each of us speaks for women around the world who are denied the chance to go to school, or see a doctor, or own property, or have a say about the direction of their lives, simply because they are women. The truth is that most women around the world work both inside and outside the home, usually by necessity.

We need to understand there is no one
50 formula for how women should lead their
lives. That is why we must respect the
choices that each woman makes for herself
and her family. Every woman deserves the
55 chance to realize her own God-given
potential. But we must recognize that
women will never gain full dignity until
their human rights are respected and
protected.

Tragically, women are most often the ones
60 whose human rights are violated. Even now,
in the late twentieth-century, the rape of
women continues to be used as an
instrument of armed conflict. Women and
65 children make up a large majority of the
world's refugees. And when women are
excluded from the political process, they
become even more vulnerable to abuse. I
believe that now, on the eve of a new
70 millennium, it is time to break the silence. It
is time for us to say for the world to hear
that it is no longer acceptable to discuss

underpaid, not schooled, subjected to
95 violence in and outside their homes – the
potential of the human family to create a
peaceful, prosperous world will not be
realized.

women's rights as separate from human
rights.

If there is one message that echoes forth
75 from this conference, let it be that human
rights are women's rights and women's
rights are human rights once and for all. Let
us not forget that among those rights are the
right to speak freely—and the right to be
80 heard.

Women must enjoy the rights to participate
fully in the social and political lives of their
countries, if we want freedom and
democracy to thrive and endure. It is
85 indefensible that many women in
nongovernmental organizations who wished
to participate in this conference have not
been able to attend-or have been prohibited
from fully taking part.

90 As long as discrimination and inequities
remain so commonplace everywhere in the
world, as long as girls and women are
valued less, fed less, fed last, overworked,

1. The position that Clinton takes in her speech can best be described as that of
 - a. a critic countering a series of arguments
 - b. a scholar analyzing social phenomena
 - c. an advocate seeking a particular outcome
 - d. a mediator seeking a fair compromise

2. As used in line 27, "valued" most nearly means
 - a. Increased
 - b. Considered
 - c. Bought
 - d. Insured

3. In lines 15-16, what is the most likely reason that Clinton mentions the prior "women's conference in Nairobi"?
 - a. To provide an example of a previous, failed attempt to solve the problem of domestic violence
 - b. To disagree with those who question the reason for the current conference
 - c. To contend that a great number of women and their experiences have gone unnoticed
 - d. To offer evidence for the claim that conferences compel people to address problems

4. Which choice provides the best evidence for the answer to the previous question?
 - a. Lines 1-2 ("There are...conference")
 - b. Lines 11-14 ("It is...problems")
 - c. Lines 25-26 ("We are...elderly")
 - d. Lines 33-37 ("Women...threatened")

5. In lines 39-45, Clinton draws a distinction between
 - a. those who work at schools and hospitals
 - b. people who can and cannot speak out
 - c. employed and unemployed women
 - d. women who can and cannot vote

6. Based on the information in the passage, women face each of the following challenges EXCEPT
 - a. lack of access to health care
 - b. violence in their homes
 - c. limited financial resources
 - d. widespread unemployment

7. As used in line 40, "speak" most nearly means
 - a. talk aloud
 - b. scold
 - c. advocate
 - d. gossip

8. The principal rhetorical effect of the phrase in lines 73-75 ("let it be that...once and for all") is to
- argue against attempts to understand women's rights as distinct from other rights
 - show that many women who should be at the conference are unable to attend
 - emphasize the special nature of women's rights as they relate to human rights at large
 - suggest that the need to focus on the specific problems of women is now past
9. Which choice provides the best evidence for the answer to the previous question?
- Lines 55-57 ("But we...protected")
 - Lines 68-71 ("It is...rights")
 - Lines 75-76 ("Let us...heard")
 - Lines 81-86 ("It is...part")
10. Based on the information presented in Clinton's speech, it can be inferred that some of those who have important positions of authority in the world
- are actively working against the prosperity of women.
 - do not consider the labor done by women to be of serious import.
 - are ready to ensure that men and women have equal legal rights.
 - have made it unacceptable to discuss women's rights.

Sentence Completion:

11. Today Wegener's theory is ____; however, he died an outsider treated with ____ by the scientific establishment.
- unsupported – approval
 - dismissed – contempt
 - accepted – approbation
 - unchallenged – disdain
12. The revolution in art has not lost its steam; it ____ on as fiercely as ever.
- Trudges
 - Meanders
 - Edges
 - Rages
13. Each occupation has its own ____; bankers, lawyers and computer professionals, for example, all use among themselves language which outsiders have difficulty following.
- Merits
 - Disadvantages
 - Rewards
 - Jargon
14. ____ by nature, Jones spoke very little even to his own family members.
- Garrulous
 - Equivocal
 - Taciturn
 - Arrogant

15. Biological clocks are of such ____ adaptive value to living organisms, that we would expect most organisms to ____ them.
- a. clear – avoid
 - b. meager – evolve
 - c. significant – eschew
 - d. obvious – possess

Word Analogies:

16. MEDICINE : ILLNESS :
- a. LAW : ANARCHY
 - b. HUNGER : THIRST
 - c. ETIQUETTE : DISCIPLINE
 - d. LOVE : TREASON
17. PALTRY : SIGNIFICANCE :
- a. BANAL : ORIGINALITY
 - b. AUSTERE : LANDSCAPE
 - c. OPULENT : WEALTH
 - d. OBLIQUE : FAMILIARITY
18. EXTORT : OBTAIN ::
- a. PILFER : STEAL
 - b. PLAGIARIZE : BORROW
 - c. EXPLODE : IGNITE
 - d. PURIFY : STRAIN
19. MAVEN : EXPERTISE ::
- a. MONARCH : WISDOM
 - b. SUPPLICANT : HUMILITY
 - c. NEOPHYTE : HONESTY
 - d. KLUTZ : GRACE
20. EQUANIMITY : HARRIED ::
- a. CELEBRITY : INFAMOUS
 - b. ERUDITION : URBANE
 - c. MODERATION : DISSOLUTE
 - d. DISTINCTION : SINGULAR

Section B– Mathematics

1. If $A = \{x : x^2 - 4x + 3 = 0, x \in N\}$, $B = \{x : -2 \leq x - 3 \leq 0, x \in N\}$ and $C = \{3,4\}$, then $(A \cap B) \times (B \cap C)$ is ;
 - a. $\{(3,1),(3,3)\}$
 - b. $\{(1,3),(3,3)\}$
 - c. $\{\}$
 - d. $\{3\}$

2. If $P = [-4,1)$, $Q = [-3,2]$ and $A = (0,3)$ then the value of $P - (A \cap Q)$ is ;
 - a. $[0,2]$
 - b. $[-4,2)$
 - c. $[-4,0]$
 - d. $[-4,0)$

3. Find the range of the function $y = \frac{|x+100|}{x+100}$;
 - a. $R - \{-100\}$
 - b. $(-1,1)$
 - c. $\{-1,1\}$
 - d. $R - \{100\}$

4. Which one of the following is the base of the exponential function if it passes through $(3,64)$;
 - a. 8
 - b. 4
 - c. 2
 - d. 0

5. If $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, then $I^{500} = ?$
 - a. $\begin{bmatrix} 500 & 0 \\ 0 & 500 \end{bmatrix}$
 - b. $500A$
 - c. $100I$
 - d. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

6. The polar coordinates of the point $x = -1$ and $y = -1$ are ;
 - a. $r = \sqrt{2}, \theta = 45^\circ$
 - b. $r = 2, \theta = 45^\circ$
 - c. $r = \sqrt{2}, \theta = 225^\circ$
 - d. $r = \sqrt{2}, \theta = 135^\circ$

7. Which one of the following is the quadratic equation, one of whose root is $1-i$;
 - a. $x^2 + 2x - 2 = 0$
 - b. $x^2 - 2x + 1 = 0$
 - c. $x^2 - 2x + 1 = 0$
 - d. $x^2 - 2x + 2 = 0$

8. Which one of the following is true for, $\tan^{-1}\left(\frac{1}{3}\right) + \sin^{-1}\left(\frac{1}{\sqrt{5}}\right)$;
- $\frac{\pi}{4}$
 - $\frac{\pi}{2}$
 - $\frac{3\pi}{4}$
 - $\frac{5\pi}{4}$
9. What is the general solution of, $\tan \beta + \tan 3\beta = 2 \tan 2\beta$;
- $2n\pi \pm \frac{\pi}{4}$
 - $n\pi + \frac{\pi}{4}$
 - $n\pi$
 - $n\pi - \frac{\pi}{4}$
10. If $(a + b + c)(a + b - c) = 3ab$ where a, b, c are three sides of triangle, then what is the measure of an angle C?
- 30°
 - 45°
 - 75°
 - 60°
11. Which of the following is true distance between parallel lines $y = 2x + 4$ & $6x - 3y = 5$;
- $\frac{17}{3\sqrt{5}}$
 - $\frac{7}{3\sqrt{5}}$
 - $\frac{7}{\sqrt{5}}$
 - $\frac{17}{\sqrt{5}}$
12. The circumcenter of the triangle having vertices A(3,-2), B(4,-3) and C(-6,5) is ;
- (-39,-33)
 - (33,39)
 - (-33,-39)
 - (39,33)
13. For what value of p the line $4x - 3y + p = 0$ is a tangent to the circle $x^2 + y^2 - 8x + 12y + 3 = 0$;
- 32 or -18
 - 3 or -1
 - 6 or 0
 - 1 or -69
14. If focus (2,0) and vertex is at (1,2) then equation of parabola is;
- $y^2 - 8x + 4y + 12 = 0$
 - $y^2 - 8x - 4y + 12 = 0$
 - $y^2 - 8x - 4y - 12 = 0$
 - $y^2 + 8x + 4y + 12 = 0$

15. What is the direction cosines of vector $\vec{A} = 2\vec{i} + 4\vec{j} - 5\vec{k}$?

- a. $(\frac{2}{\sqrt{45}}, \frac{4}{\sqrt{45}}, \frac{-5}{\sqrt{45}})$
- b. $(\frac{4}{\sqrt{45}}, 0, \frac{-4}{\sqrt{45}})$
- c. $(\frac{3}{\sqrt{45}}, \frac{2}{\sqrt{45}}, \frac{5}{\sqrt{45}})$
- d. $(\frac{1}{\sqrt{45}}, \frac{2}{\sqrt{45}}, \frac{5}{\sqrt{45}})$

16. If the difference of mode and median of a data is 24, then the difference of median and mean is;

- a. 36
- b. 24
- c. 12
- d. 8

17. Two unbiased dice are thrown. The probability that neither a doublet nor a total of 10 will appear is ;

- a. $\frac{7}{9}$
- b. $\frac{5}{7}$
- c. $\frac{3}{5}$
- d. $\frac{2}{7}$

18. If $f(x) = x^{100} + x^{99} + x^{98} + \dots + x^2 + x + 1$ then what is the correct answer for $f'(1)$?

- a. 5051
- b. 5050
- c. 50051
- d. 10100

19. For what value of w the function $f(x) = \begin{cases} \frac{1-\cos 4x}{x^2}, & \text{if } x < 0 \\ w, & \text{if } x = 0 \\ \frac{\sqrt{x}}{\sqrt{16+\sqrt{x}-4}}, & \text{if } x > 0 \end{cases}$ is continuous at $x = 0$;

- a. 6
- b. 8
- c. 4
- d. none of these

20. If $y = e^{3x+7}$, then the value of $\frac{dy}{dx}$ at $x = 0$ is;

- a. e^0
- b. 0
- c. -1
- d. $3e^7$

21. What is $\int_0^2 \frac{dx}{x^2+4}$ equal to?

- a. $\frac{\pi}{2}$
- b. $\frac{\pi}{4}$
- c. $\frac{\pi}{8}$
- d. None of these

22. If the pair of equations $2x + 3y = 5$ and $10x + 15y = 2a$ has infinitely many solutions then $a = ?$

- a. $\frac{-5}{2}$
- b. $\frac{25}{2}$
- c. $\frac{-25}{2}$
- d. $\frac{5}{2}$

23. In the given LP problem

$$\begin{aligned} \text{Max } Z &= 9x + 7y \\ \text{Subject to; } x + 2y &\leq 7 \\ -x + y &\geq -4 \\ x, y &\geq 0. \end{aligned}$$

What does x and y mean?

- a. Slack variable
- b. Surplus variable
- c. Decision variable
- d. non-basic variable

24. With initial approximation of $x_1 = x_2 = x_3 = 0$, what is the next value of x_1 in the set of simultaneous equations?

$$27x_1 + 6x_2 - x_3 = 81; 6x_1 + 15x_2 + 2x_3 = 75; x_1 + x_2 + 50x_3 = 110$$

- a. 4
- b. 3.25
- c. 2.25
- d. 3.0

25. What is the approximate value of $\int_{-1}^1 e^x dx$, $n = 4$ by using composite trapezoidal rule;

- a. 2.93315
- b. 2.39915
- c. 2.53319
- d. 2.11935

Section C– Science (Physics)

1. The dimension of ϵ_0 is

- a. $[M^3L^{-2}T^2A^3]$
- b. $[M^0L^0T^0A^0]$
- c. $[M^{-1}L^{-3}T^4A^2]$
- d. $[M^1L^{-3}T^3A^1]$

2. The unit vector along $\hat{i} + \hat{j}$ is

- a. \hat{k}
- b. $\hat{i} + \hat{j}$
- c. $\frac{\hat{i} + \hat{j}}{\sqrt{2}}$
- d. $\frac{\hat{i} + \hat{j}}{2}$

3. When a body rolls down an inclined plane, the total potential energy of the body changes into
- Rotational KE
 - Translation KE
 - Both rotational and translational KE
 - None
4. In Simple Harmonic Motion, the particle velocity is minimum at
- mean position
 - extreme position
 - at a distance of $\frac{A}{2}$
 - at a distance of $\frac{A}{4}$
5. In laminar flow, the velocity of flow at any point in the liquid is
- does not vary with time
 - may vary in magnitude but not in the direction
 - may vary in direction but not in magnitude
 - may vary both in magnitude and direction
6. At what depth, the value of 'g' is the same as that of 'g' at a height of 10 km?
- 20 KM
 - 10 KM
 - 40 KM
 - 80 KM
7. When liquid changes into a vapor, on increasing pressure the boiling point of the liquid
- decreases
 - increases
 - may increase or decreases
 - cannot be predicted
8. At constant T, the graph of P versus $\frac{1}{V}$ is
- Straight line
 - Circle
 - Parabola
 - Ellipse
9. Which one cannot be reversed, even theoretically without doing work?
- isothermal expansion
 - adiabatic expansion
 - adiabatic compression
 - isobaric expansion

10. The door of a refrigerator is kept open. Which of the following is true?
- Room is cooled
 - Room is heated
 - Room is neither cooled nor heated
 - Room will be cooled in summer and heated in winter
11. A person inside water can see the sun set at an angle of
- 41 degree
 - 49 degree
 - 60 degree
 - 90 degree
12. Red color is used as a danger signal because it is
- scatter most
 - scattered least
 - refracted least
 - reflected most
13. The velocity of sound in air is independent of any change in
- pressure
 - density
 - temperature
 - humidity
14. A listener is moving away from a stationary source of the sound. The listener hears a sound of frequency
- higher than the source frequency
 - lower than the source frequency
 - same as that of source frequency
 - none of them
15. An electric field can deflect
- Gamma rays
 - X - rays
 - neutrons
 - alpha particles
16. The capacitance of the earth of radius 6400 KM is
- 711 F
 - 711 μF
 - 711 mF
 - 711 * 10^{-5} μF

17. Out of 3 equal resistances, how many different combinations are possible?

- a. 2
- b. 3
- c. 4
- d. 6

18. Laminated cores are used in a transformer in order to

- a. reduce eddy current
- b. increase electric flux
- c. use the transformer as a rectifier
- d. use the transformer in AC

19. The plane at which the earth's magnetic field is horizontal is

- a. Plane through the magnetic meridian
- b. Plane through magnetic equator
- c. Plane through magnetic poles
- d. It is not a horizontal poles

20. When the temperature of silicon is cooled from 100°C to 0°C , its

- a. conductivity decreases
- b. conductivity remains constant
- c. conductivity increases
- d. conductivity highly decreases

21. Neutrino is a particle that has

- a. spin and chargeless
- b. spin and charge as an electron
- c. no spin and chargeless
- d. no spin but charge like electrons

22. Particle nature of light is shown by

- a. refraction
- b. diffraction
- c. interference
- d. photoelectric effect

23. When mercury is cooled to 4 K, it behaves as

- a. semiconductor
- b. superconductor
- c. insulator
- d. conductor

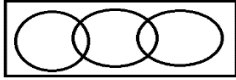
24. X-rays can't penetrate bone because bonds have
- high molecular weight
 - low molecular weight
 - hard crystalline structure
 - amorphous nature
25. What is de-Broglie wavelength of electron having energy 10 keV?
- 0.12 \AA
 - 1.2 \AA
 - 12.2 \AA
 - none of these*

Section D – IQ

- In January, the value of a stock increased by 25%, and in February, it decreased by 20%. How did the value of the stock at the end of February compare with its value at the beginning of January?
 - It was less
 - It was same
 - It was 5% greater
 - It was more than 5% greater
- If BUTWAL is coded UWLUWL, TANSEN is coded as ASNASN, then how is POKHARA written in that code?
 - OHRPKAA
 - OHAOHA
 - PAKHOR
 - KAPKAP
- A clock gains 5 minutes every hour. What will be the angle traversed by the second hand in one minute?
 - 390°
 - 360.5°
 - 380°
 - 365°
- Which of the following digits will replace the H in the equation $9H + H8 + H6 = 230$?
 - 3
 - 4
 - 5
 - 6
- If today is Saturday, what day will it be in 500 days?
 - Friday
 - Saturday
 - Sunday
 - Tuesday

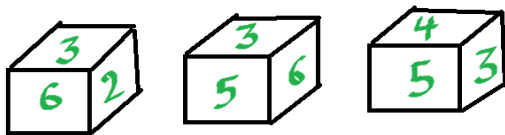
6. Five Boys A, B, C, D and E are sitting in a park in a circle. A is facing South-west, D is facing South-East, B and E are right opposite A and D respectively and C is equidistant between D and B. Which direction is C facing?
- West
 - South
 - North
 - East

7. Which of the following correctly represents the given Venn diagram?



- Rose, Flower, Lotus
 - Girls, Human, Singer
 - Human, Animal, Plant
 - Students, Singers, Players
8. After covering Five-eighth of my Journey, I find that I have travelled 60 km. How much Journey is left?
- 40
 - 80
 - 36
 - 27
9. What is the 100th letter of the series
ABBCCDDDD --- ?
- I
 - J
 - K
 - N

10. Three positions of a dice are given below. Identify the number on the face opposite to 6?



- 1
- 4
- 5
- 7