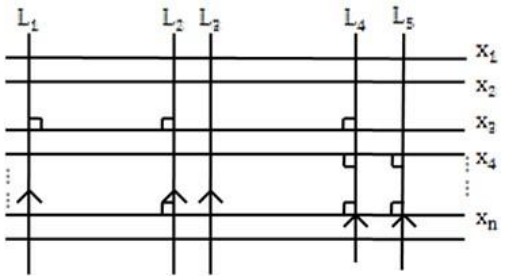
IPMAT INDORE 2021
ANSWER KEY AND EXPLANATIONS

1. **(320)** Factors of N which are not divisible by 45 = Total number of factors of N – Total number of factors which are multiple of 45.
$\Rightarrow N = 1890 \times 170 \times 130$
$= 2^3 \times 3^3 \times 5^3 \times 7 \times 13 \times 17$
It's total no. of factors $= (3+1)(3+1)(3+1)(1+1)(1+1)(1+1)$
$= 4 \times 4 \times 4 \times 2 \times 2 \times 2$
$= 512$
Now, finding its factors which are divisible by 45 or which are multiples of 45.
Writing N as $3^2 \times 5 \times (2^3 \times 3 \times 5^2 \times 7 \times 13 \times 17)$
$45 \times (2^3 \times 3 \times 5^2 \times 7 \times 13 \times 17)$
Finding the factors of the bold part of N.
$(3+1)(1+1)(2+1)(1+1)(1+1)(1+1)$
$4 \times 2 \times 3 \times 2 \times 2 \times 2$
$= 192$
So, number of factors of N which are not divisible by 45 = $512 - 192$
$= 320$

2. **(5310)** Given series can be seen as it is obtained by multiplying respective terms of two Arithmetic Progressions.
First AP : 1 , 5 , 9 , 13 ……
Its general term $T_{n_1} = 1 + (n-1)4 = 4n - 3$
Second AP: 3, 7, 11, 15 ……
Its general term $T_{n_2} = 3 + (n-1)4 = 4n - 1$
Now, general term of given series will be
$(4n-3)(4n-1) = 16n^2 - 16n + 3$
$\sum(16n^2 - 16n + 3) = 16\sum n^2 - 16\sum n + 3n$
$16\frac{n(n+1)(2n+1)}{6} - 16.\frac{n(n+1)}{2} + 3n$
Put n = 10, we get sum as 5310.

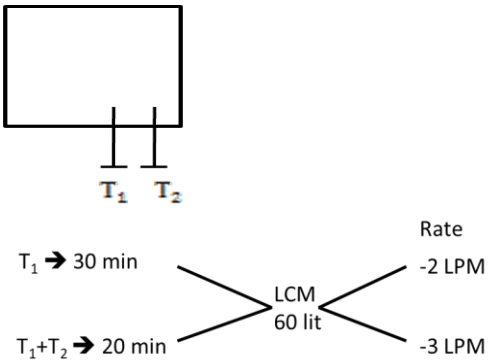
3. **(960)** $x_1 = 0$
Put $n = 1$, $x_2 = x_1 + 1 + 2\sqrt{1+x_1} = 0 + 1 + 2\sqrt{1+0} = 3 = 2^2 - 1$
Put $n = 2$, $x_3 = x_2 + 1 + 2\sqrt{1+x_2} = 3 + 1 + 2\sqrt{1+3} = 8 = 3^2 - 1$
Put $n = 3$, $x_4 = x_3 + 1 + 2\sqrt{1+x_3} = 8 + 1 + 2\sqrt{1+8} = 15 = 4^2 - 1$
⋮
⋮
Following the pattern $x_{31} = 31^2 - 1 = 961 - 1 = 960$

4. **(9)**



No. of rectangles $= {}^5C_2 \times {}^nC_2 = 360$
$= 10 \times \frac{n!}{(n-2) \times 2!} = 360°$
$= \frac{n(n-1)(n-2)!}{(n-2)!\,x\,2} = 36$
$= n(n-1) = 72$
Solving n = 9.

5. **(60)** **60 min**



Let LCM of 30 & 20 i.e. 60L. be the capacity of the tank.
Emptying rate of T1 = 60L/30min = -2 litres/min (- sign indicates tank is being emptied)
Emptying rate of (T1+T2) combined = 60L/ 20min= -3 litres/min.
Emptying rate of T_1 + Emptying rate of T_2 = Net rate of emptying (or, combined rate)
$\Rightarrow -2LPM + x = -3LPM$
$x = -1LPM$
So, time reqd. by T_2 to empty the tank $= \frac{60L}{1LPM} = 60$ min $\left[\because \text{time} = \frac{\text{work}}{\text{rate}}\right]$
= 60 min.

6. **(6)** Total marks $= 200 \times 5 = 1000$
Average marks = 800 (Before revaluation)
Average marks = 80.2
(After revaluation)
Change in average = 0.2
We know, change is average $= \frac{\text{Net addition of marks}}{\text{Total number of students}}$
$0.2 = \frac{\text{Net addition of mark.}}{30}$
$6 = a + b$
So the maximum value of a or b can be 6 when other is zero.

7. **(7)** Minimum 7 weights will be required.
The rule, $2^n \leq 100$, where $n = 0, 1, 2$ ……..
$2^\circ = 1$gm (smallest weight) | $2^1 =$ 2gm (second smallest weight)| $2^2 = 4$gm | $2^3 =$ 8gm | $2^4 = 16$gm |
$2^5 = 32$gm | $2^6 = 64$gm (The largest weight)
Any integer number of any gram of gold from 1 to 100gm. can be weighed using different combination of these 7 weights only.

8. **(26)** $2x^2 + axy + 3y^2 = (y - mx)(y - m'x) = y^2 + (-m - m')xy + xy + mm'x^2$
$2x^2 + bxy - 3y^2 = \left(y + \frac{1}{m}x\right)(y - m'x)$
$= y^2 + \left(\frac{1}{m} - m'\right)xy - \frac{m'}{m}x^2$
Comparing the coefficient of like terms, we get

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$\left(\frac{2}{3}\right)x^2 + \left(\frac{a}{3}\right)xy + y^2$

$= mm'x^2 + (-m - m')xy + y^2$

$\left(\frac{2}{-3}\right)x^2 + \left(\frac{b}{-3}\right)xy + y^2$

$= -\frac{m'}{m}x^2 + \left(\frac{1}{m} - m'\right)xy + y^2$

Equating the coefficients of like terms, we get

$mm' = \frac{2}{3}$ ---------eq.1

$-\frac{m'}{m} = \frac{2}{-3}$ --------eq.2

$-m - m' = \frac{a}{3}$ ----eq.3

$\frac{1}{m} - m' = \frac{b}{-3}$------eq.4

Solving equations 1 and 2, we get $m = \pm 1$ & $m' = \pm\frac{2}{3}$

$\therefore$ put $m = 1$ & $m' = \frac{2}{3}$ in equation 3

$\Rightarrow a = -5$

& put $m = -1$& $m' = -\frac{2}{3}$ in equation 3

$\Rightarrow a = 5$

Similarly, b =1 or -1

$\therefore a^2 + b^2 = 25 + 1 = 26$

9. **(3)** It is evident that the function's value will be 0, if the input a is any negative integer.

And the value of function will be a, if it is positive integer.

So checking for.

x = 0 $f(-3) + 2f(1) = 0 + 2 \times 1 = 2 \neq 8$

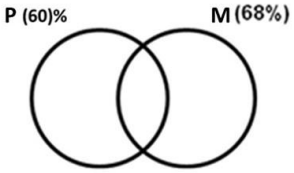
x = 1 $f(-2) + 2f(2) = 0 + 2 \times 2 = 4 \neq 8$

x = 2 $f(-1) + 2f(3) = 0 + 2 \times 3 = 6 \neq 8$

x = 3 $f(0) + 2f(4) = 0 + 2 \times 4 = 8$

x = 3

10. **(28)**



$n(P \cup M) = n(P) + n(M) - n(P \cap M)$

$n(P \cap M) = n(P) + n(M) - n(P \cup M)$

Or,

n[passed in both P & M] = n[passed in Math] + n[passed in Physics]

$-$n[passed in at least one of the subjects]

n[P&M] = 68% + 60% $-$ n[P or M]

In order to minimize n [P & M], we need to maximize n [P or M], which can be 100%.

$\therefore$ [n(passed in both)]least = 68% + 60% $-$ 100% = 28%

11. **(a)** This functional equation holds true for only one kind of function i.e.,

f(x) = k.x , when k $\rightarrow$ is any constant

$\therefore$ if f(2020) = 1

$\Rightarrow$ k. 2020 = 1

$\therefore$ $k = \frac{1}{2020} \ldots\ldots\ldots (1)$

$\therefore$ $f(2021) = k.2021$

Putting the value of k from option (1)

$f(2021) = \frac{2021}{2020}$

12. **(c)** Take $\log_2\log_3\log_4 a = 0$

$\log_3\log_4 a = 1$ ($\because \log_2 1 = 0$)

$\log_4 a = 3$ ($\because \log_3 3 = 1$)

Converting it into exponential form, we get

$a = 4^3 = 64$

Similarly $b = 2^4 = 16$

& $c = 3^2 = 9$

$\therefore a + b + c = 64 + 16 + 9 = 89$

13. **(a)** Given $S_5 = S_9$

$\frac{5}{2}[2a + 4d] = \frac{9}{2}[2a + 8d]$

$\frac{5}{2} \times 2[a + 2a] = \frac{9}{2} \times 2[a + 4d]$

$\frac{a+2d}{a+4d} = \frac{9}{5} = \frac{a_3}{a_5}$

$a_3 : a_5 = 9 : 5$

14. **(a)** We should know the property of matrices mentioned below:

$AA^{-1} = I$ & $A.I = I.A = A$

$2A - B - A(A+B)^{-1}A + B(A+B)^{-1}B$

$= 2A - B - (A+B)^{-1}[A.A - B.B]$

$= 2A - B - (A+B)^{-1}[A^2 - B^2]$

$= 2A - B - (A+B)^{-1}[(A+B)(A-B)]$

$= 2A - B - (A+B)^{-1}(A+B)(A-B)$

$= 2A - B - I.(A-B)$ [Using property $A.A^{-1}=I$]

$= 2A - B - (A-B)$ [Using property A. I = A]

$= 2A - B - A + B$

$= A.$

15. **(a)** Let the angle A, B & C be a – d, a, a + d

$(a - d) + a + (a + 2a) = 180°$

$3a = 180°$

$a = 60°$

Given $\sin(2A + B) = \frac{1}{2}$

$\therefore 2A + B = 30°$ or $150°$

$2(a - d) + a = 30°$

$3a - 2d = 30°$

$3 \times 60° - 2d = 30°$

$d = 75°$

Angle A = a-d = -15°. Not possible.

Or

$2A + B = 150°$

$3a - 2d = 150°$

$2d = 30°$

$d = 15°$

$A = a - d = 60 - 15 = 45°$. Possible.

also $B = 60°, C = 75°$

$\therefore \sin(B + 2C) = \sin(60 + 150)$

$\sin 210 = \sin(180 + 30)$

$= -\sin 30°$

$= -1/2$.

16. **(a)** Unit digit of $(743)^{85} = (3)^{85} = 3$ (using cyclicity method)

Unit digit of $(525)^{37} = (5)^{37} = 5$ (using cyclicity)

Unit digit of $(987)^{96} = (7)^{97} = 1$ (using cyclicity)

The unit digit of the expression will can be find out as follows:

= (…3) –(…5) + (…1)

= (…4) – (…5)

= (…9), by subtracting 5 from 14.

17. **(c)** $3\sin^2 x + 12\cos x - 3 = p$

$\Rightarrow 3(1-\cos^2 x) + 12\cos x - 3 = p$

$\Rightarrow -3\cos^2 x + 12\cos x = p$

$\Rightarrow \cos^2 x - 4\cos x = -p/3$

$\Rightarrow \cos^2 x - 4\cos x = -p/3$

$\Rightarrow \cos^2 x - 4\cos x + 4 = -p/3 + 4$

$\Rightarrow (\cos x - 2)^2 = -p/3 + 4$

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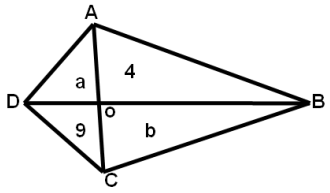
⇨ We know -1≤ cosx ≤ 1
⇨ -3 ≤ cosx -2 ≤ -1
⇨ 9 ≥ (cosx-2)² ≥ 1
⇨ 1 ≤ (cosx –2)² ≤ 9
⇨ 1≤ -p/3 +4 ≤ 9
⇨ -3 ≤ -p/3 ≤ 5
⇨ 3 ≥ p/3 ≥ -5
⇨ 9 ≥ p ≥ -15
⇨ -15 ≤ p ≤ 9.
Or [-15, 9].
Ans. [-15, 9]

18. **(b)**

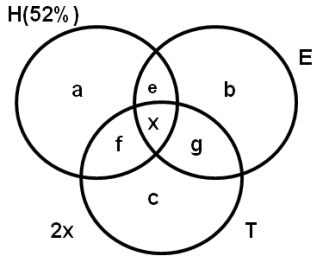


Let the area of ΔAOD & ΔBOC be 'a' & 'b' unit respectively.
Property1: In any quadrilateral, product of area of pair of opposite Δs formed by the two diagonals is a constant.
Using it, we put 4 × 9 = a × b
Or 36 = a b ------(1)
Property 2: In algebra, we know
If a. b = k (a constant)
Minimum value of $(a + b)_2$ can be obtained,only when a = b.
In order to minimize the area of Quad. ABCD, sum of a & b should be minimum or $(a + b)_{min}$ =?
From (1), we have
a.b = 36
a.a = 36
$a^2 = 36$
a=b=6.
∴ Minimum value of a + b = 6 + 6 = 12
∴ Minimum value of area of Quad. ABCD
= a+b+9+4 = 12+9+4 = 25.

19. **(a)** Let the A-digit no. be ABCD.
In expended from 1000A + 100B + 10C + D.
Required ratio will be maximum only when the digit B, C, D are '0'.
eg.
$\frac{9000}{9+0+0+0} = \frac{9000}{9} = 1000$ (max ratio)
$\frac{2000}{2+0+0+0} = \frac{2000}{2} = 1000$ (max ratio)
Taking any other no.
$\frac{1234}{(1+2+3+4)} = 123.4$ (too less compared to 1000)
Explanation:
Let's us assume the ratio required is greater than or equal to 1000.
$\frac{1000a+100b+10c+d}{a+b+c+d} \geq 1000$
We get
0 ≥ 900b + 990c + 999d
only condition possible is 0 = 900b + 990c + 999d=0
Therefore, b = c= d=0
& a could be any non-zero digit form (0-9).

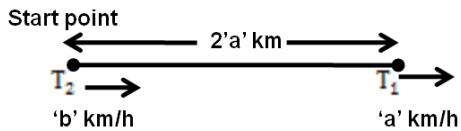
20. **(b)** g(x) passes though (a, b), means this point should satisfy the line $g(x) = -2x$
∴ $b = -2a$ ----------(1)
Also f(x) passes though (−2,0), therefore
$f(x) = ax^2 + bx + c$
$0 = a(-2)^2 + b(-2) + c$
$0 = 4a - 2b + c$ --------(2)
From eqn. (1) & (2), we get
$c = 2b - 4a$
$= 2(-2a) - 4a$
$c = -4a - 4a = -8a$ ------(3)
The given expression is
E = f(x) + 9a + 1
$E = ax^2 + bx + c + 9a + 1$
$E = ax^2 + (-2a)x + (-8a) + 9a + 1$
$E = ax^2 - 2ax + a + 1$
We have to find E's minimum value,
$\frac{dE}{dx} = 2ax - 2a = 0$
Put x = 1
In $E = ax^2 - 2ax + a + 1$
$= a - 2a + a + 1$
$E_{min} = 1$.

21. **(a)**



Given
a + b + c = 50% ----------(1)
e + f + g + x = 40% -----(2)
Adding two condition
a + b + c + e + f + g + x = 90%. This represents the population who speaks at least one language.
It means 10% population does not speak any language i.e. 2x = 10%
⇨ x = 5%
Also given b + c = 25%
From diagram b + g + c = 90% − [52%]
= 38%
∴ g = 38% − 25% = 13%
Now put value of g & x in equation (2)
e + f + g + x = 40%
e + f + 13% + 5% = 40%
e + f = 40% − 18% = 22%
No. of people who speaks Hindi and exactly one other language = e + f = 22%

22. **(c)** **At 2 pm:**



Let the speed of train first a train second be 'a' and 'b'
After 2pm, both train will meet after $= \frac{2a}{b-a} = 6$ hr.
(∵ from 2pm − 8pm, it is 6hr.)
⇒ 2a = 6b − 6a
8a = 6b
b: a = 4 : 3
As a+b =140km/h.

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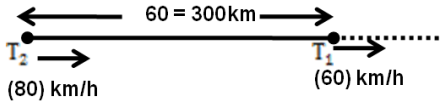
We get, b = 80km/h & a = 60 km/h

Now, at 5pm:



Given a + b = 140 kmph.

$3x + 4x = 140.$

$7x = \frac{140}{x} = 20$

Time taken by train 2 to meet 1st train after 5pm $= \frac{300}{80-60} = \frac{300}{20} = 15$ hr.

i.e. 8am next day.

23. **(c)** 5 ways × 7 ways × 4 ways × 6 ways × 3 ways. (Underlined positions are odd position)

After filling odd positions with odd digits, we can fill even place with 7 left out digit.

∴ Total numbers formed = 5 × 7 × 4 × 6 × 3

24. **(d)** ${}'^{10}C_3 - {}'^{5}C_3 + 1$

$45 - 10 + 1 = 36$

= 36.

25. **(a)** First find the coordinates of the point of intersection of the two lines.

$x + 2y = 4$

$2x + 3y = 6$

$(x = 0, y = 2)$ it means our line passes thorough point $(0, 2)$

Our line is also perpendicular to $3x - y = 2$

Any line which is perpendicular to $3x - y = 2$ will be in the form $x + 3y + k = 0$ (where k = a constant)

Now it is given that this line passes though $(2, 0)$

Then this point should satisfy the equation.

Put $x = 0$ & $y = 2$, we get $k = -6$

∴ equation of required line ⇒ $x + 3y - 6 = 0$.

$3x + y = 6.$

Transforming it into intercept form, we get

$\frac{x}{2} + \frac{y}{6} = 1$

x − intercept = 2.

Solution (Q.26-Q.30):

Total matches played between 6 teams = ${}^6C_2$ = 15 matches.

(A playing with B, B playing with A is same case)

#1. In a match, total points awarded = 2

(i) 2 points to winner team and 0 to losing team, or

(ii) 1 point to each team, which ends in a draw.

#2. Total points awarded in 15 matches = 15 × 2 = 30 points

Total points bagged by E & F together

=30-[8+6+5+5]= 30-24=6 points.

Possible cases: E+F=6 points

(i) 4+2⇒ Only possibility

(ii) 3+3⇒ Not possible

(iii) 2+4⇒ Not possible

Justification for the possibility of case (i) only.

E scores less than 5 points (given)

E also lost 1 match out of 5 played (given)

Means rest of the 4 matches that E played should end in 4 draw and its scores come out as 4 points.

If we take E won 1 match, draws 3, then its total point will become 5 (Not possible)

Final Conclusion:

E lost 1 & draws 4. Total points = 4 points

F lost 3 & draws 2. Total points = 2 points

Justification for 2 draws for F

Out of 5 matches played by E, 4 resulted in draw. Table below shows that E cannot have draw against B, as B had 0 draws. Means E definitely had one draw with F.

In order to score 2 points, only possibility with F is to have 2 draws and 3 losses.

Now let's Fill The Table

Team	Matches played	Matches won (× 2)	Match lose (× 0)	Match ending in a draw (× 1)	Total points
A	5	3	0	2	8
B	5	3	2	0	6
C	5	2	2	1	5
D	5	1	1	3	5
E	5	0	1	4	4
F	5	0	3	2	2

26. **(d)** Adding all the entries in 'draw` column of the table we get 12 draw matches.

Halving them will give us the correct number of matches those end in a draw

∴ 12/2=6 matches.

[In 12, A draw match with D & D draw match with A considered as different cases whereas, it should Be taken as single drawn match.]

27. **(d)** Team E

28. **(c)** 2 points

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29. **(c)** One team must be D [it has 3 draws, which cannot be with C & B]
∴ A- D must be a draw.
One team must be E [E had 4 draws, except with B]
∴ A- E must be a draw.
Team D

30. **(c)** Obviously, E had 4 draw matches and 1 lost.
(From the table, B had no draw')
Thus 'B' must have beaten 'E'.
Only Team B

31. **(b)** The aim of education in the past and even now is to train the young to recognize and understand the fake arguments as stated in the opening lines of the first paragraph.

32. **(b)** It's a direct question. As stated in the third line of the last paragraph, There is, at least in principle, an attempt to tell **both sides of a story in each report**, clearly suggests that option is the most appropriate answer.

33. **(c)** It's a direct question. The fifth line of the last paragraph clearly suggests that the biases are reinforced than countered in the present day forum – social media. Hence option C is the only appropriate answer.

34. **(c)** It's a contextual vocabulary based question. It means self-serving intentions.

35. **(d)** It's a contextual vocabulary based question. Spurious means – fake. It's opposite is genuine

36. **(d)** The first paragraph is about the purpose of education in olden days and the present day is to help the young recognize and understand the spurious or fake arguments and how contemporary Italy is determined that its youth are prepared to engage meaningfully with the present-day version of **the Forum** — social media. The focus of the passage is no political propaganda or nurturing political ambitions. Neither is it to discuss idea. The entire passage is about fake arguments and how the present generation should deal with it. Hence option D.

37. **(a)** Domineer – browbeat, bully
Dominate – control, influence
Denominate - be expressed in a specified monetary unit
Dominion - sovereignty or control
The word required in the given blank has to be a verb as it is preceded by 'to'. Option D - Dominion being a noun will be eliminated.
Option C – denominate is a misfit contextually
Option B – dominate is a good choice but child's lives will be grammatically wrong.
Option A is a perfect fit

38. **(b)** Effect – Consequence, result
Affect - influence
Affective – relating to mood, need and attitude
Affectionate – loving, fond, adoring
The word required in the given blank has to be a verb. Option A, C and D will be ruled out.

39. **(b)** At arm's length – avoid, keep away from
Out of harm's way – in a safe place
A foot away means literary at some distance and at bay's length is an incorrect expression.

40. **(a)** **make ends meet – to have just enough to survive**
tie up the loose ends - **to complete the parts of something that have not been completed**
philanthropic – benefactor, a person who seeks to promote the welfare of others, especially by the generous donation of money to good causes.be tax compliant - disposed to agree with others or obey rules, especially to an excessive degree; acquiescentoption A is the perfect fit.

41. **(b)** cut corners - to do something in the easiest, cheapest, or fastest way bite the bullet - decide to do something difficult or unpleasant made a fortune - To earn a very large amount of money
Now a portion of the house collapsed as the contractor had used poor quality material hence "cut corners" implying cheap quality material.

42. **(c)** rolling in money – to be very rich
On a roll – experiencing a prolonged spell of success or good luck. on a roller coaster – sudden or extreme changes in a short time.
Rolling in luck is not a valid expression. Since the players have won every single match, they are rolling in luck. Winning doesn't automatically mean rolling in money.

43. **(d)** Merely being an adverb will modify a verb whereas here the sentence is talking about a noun, Alexandria Ocasio-Cortex, therefore an adjective is required to modify it. Hence, option a, b and c will be eliminated.

44. **(b)** The subject of the sentence is the coastal city of Kundapur therefore option D should be eliminated since it uses the incorrect pronoun "their".
It's – it is
Its – shows possession. Therefore option A will also be eliminated.
Option C is grammatically wrong. Option B is grammatically and syntactically correct.

45. **(d)** To get the answer, let's understand the problems in the sentence.
Less – refers to quantity
Fewer – refers to number
Than – refers to comparison
Then – refers to time
Option A and B can be eliminated.
option C fails to maintain the parallel structure since the position of 'every year' is faulty.
Option D is the most appropriate answer.

46. **(c)** The paragraph talks about reviving both carnivorous and herbivorous animals and restoring the eco system.
Option A talks about reviving more of herbivorous animals only. Similarly option B talks about conservation of just the carnivorous. Option D looks irrelevant as it talks about reviving all the species regardless of their being carnivorous. Option C is about the revival of the ecosystem that depends on the eating habits of the animals introduced therein. Hence the perfect conclusion to the given passage.

47. **(d)** The paragraph preceding the blank refers to the problems. The part following the blank talks about Japan seen as a safe option to host the Olympic.

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This line begins with YET that denotes contrast. Hence option D is the only option that can bridge the two parts perfectly.

48. **(d)** To get the answer right, all the three words should fit in the blanks contextually and grammatically.
Option A and C can be eliminated as one can't 'forget' or 'reject' a vital function.
Fallacy – is a false idea as it is based on incorrect facts or reasoning whereas misconception means a wrong idea or understanding of something. Therefore, misconception, instinctive and neglect fit perfectly in the given blanks.

49. **(a)** To get the answer right, all the three words should fit in the blanks contextually and grammatically.
Pandemic resolutions or systems can't be relaxed hence options c and d can be eliminated. Confounding which means confusing is a misfit in the third blank. The correct answer id option A.

50. **(b)** To get the answer right, all the three words should fit in the blanks contextually and grammatically
Solution: option B
The words "compassionate and friendly" won't fit the third blank as it requires a superlative. Option C and D get eliminated.
Assiduous - diligent
Analytical - systematic and logical
Ludicrous – absurd
Option A will be a misfit because both the adjectives are contrasting. Option B is a good answer choice.

51. **(c)** Appraisal – the act of assessing something/someone
Recognise – identify
To get the answer right, all three words should fit in the blanks contextually and grammatically.
The word writing in the second blank is the key. "The best strategy to give an appraisal is to deliver it orally as well as in **writing**."
No company would **advertise** or **realize** its employee's achievements. Therefore option b and d get eliminated. The approval can't be delivered as award hence option will also get eliminated.

52. **(c)** To get the answer right, all three words should fit in the blanks contextually and grammatically.
Surviving – continuing to exist,
Eroded – to gradually wear away
Witness – observer
Third word in option d observers will be a misfit as these diminutive hills can't be observers 'to' many important events. Therefore option D gets eliminated.
Second word 'destroyed' in option B is a misfit as when rocks, soil and mountains wear away, they get eroded not destroyed or reduced. Thus option B and A also get eliminated.

53. **(a)** Climatic – relating to climate
Climactic – final, culminating, forming an exciting climax
The words climatic and climactic have been correctly used in sentence b, c and d. however, the usage is incorrect in sentence a.

54. **(b)** Luxurious – opulent, sumptuous, extremely comfortable
Luxuriant – rich and profuse in growth
The usage is incorrect in sentence B.

55. **(a)** Intensive: Thorough, exhaustive
Intense – great, enormous.
The words intense and intensive have been correctly used in sentence b, c and d. the usage in sentence A is wrong.

56. **(d)** Appraise – to evaluate, access, estimate
Apprise – to inform, tell
The words appraise and apprise have been correctly used in sentence a, c and b. the word appraise in sentence D has been incorrectly used hence it is the answer.

57. **(c)** To get the answer, first we need to understand the meaning of the words that have been repeated in all the four sentences.
Lighting: abrupt electric discharge from cloud to cloud
Lighting: Illumination
Lightening: To become lighter or less dark; brighter
So, apparently, the word lighting and lightning have been used correctly in sentence A and B respectively. In sentence C however, the usage in incorrect. The word that should have been used is lightening which means to make brighter.

58. **(4123)** sentence 4 works as a passage opener for it explains what needs to be done in order to succeed globally in today's global market place. Sentence 1 will follow as it elaborates how companies with international aspirations familiarized themselves with the any differences in the legal system or in the procedures used in the day-to-day business of import and export in the past. Sentence 2 and 3 are connected statements that will follow as sentence B takes the idea forward as talks about the modern trade and its demands. Sentence 3 builds on it. **4123**

59. **(3142)** Sentence 3 works a passage opener for it begins with a question. Sentence 3 and 1 are connected as the pronoun 'it' in sentence 3 refers to the article mentioned in sentence 1. sentence 4 takes the idea forward by posing the question. Sentence 2 concludes the passage. 3142

60. **(3142)** Let's start solving this parajumble by looking for a passage opener. Sentence 3 looks like a plausible start as it is a broad statement that introduces the leopards. Sentence 1 builds on it as it talks about a recent incident when the villagers found a cub in a trench. Sentence 1 and 3 are connected statements as these talk about the cub and how "it" was found and then taken to the vet. Sentence 4 concludes the paragraph as it says that the cub was then reunited with her mother. So the correct sequence is 3142

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