Corrigendum/Explanation PTS 2024 Simulator CSAT Test 5

There are 7 updates in the paper (Q.28, 29, 35, 46, 66, 71 and 72)

- **In Q.28, there is no matching option, so all the students need to be awarded 2.5 marks.**
- **In Q.29, there is no matching option, so all the students need to be awarded 2.5 marks.**
- **In Q.35, there is no matching option, so all the students need to be awarded 2.5 marks.**
- **In Q.46, there is no matching option, so all the students need to be awarded 2.5 marks.**
- **In Q.66, there is no matching option, so all the students need to be awarded 2.5 marks.**
- **In Q.71, there is no matching option, so all the students need to be awarded 2.5 marks.**
- **In Q.72, there is no matching option, so all the students need to be awarded 2.5 marks.**

Q.28) There is no matching option

For Future Reference:

Q.28) For any three natural numbers a, b and c such that c divides both 3a + b and 5a+3b completely, c must be factor of:

a) 2a and 2b
b) 2a and b
c) 4a and 4b
d) a and 2b

Ans) c
Exp) Option c is the correct answer
To solve this, let's first analyze the given conditions:

1. c divides (3a + b) completely.
2. c divides (5a + 3b) completely.

If (c) divides both (3a + b) and (5a + 3b) completely, then it must also divide any linear combination of these two expressions. In other words, (c) must divide any expression of the form k (3a + b) + m (5a + 3b), where k and m are integers.

Now, to eliminate a and b one by one
For 3 x (3a + b) - (5a + 3b) = 4a
For - 5 x (3a + b) + 3 (5a + 3b) = 4b

- So, from the above combinations both 4a and 4b are divisible by c.

Hence c is definitely a factor of 4a and 4b.

Q.29) There is no matching option

For Future Reference:

Q.29) In a class of 100 students, 52 study math, 65 study English and 47 study Hindi. If there are only 8 students who don't study any of these three subjects, what is the maximum number of students who study all three subjects?

a) 23
b) 11
c) 14
d) Can’t be determined

Ans) b
Exp) Option b is the correct answer
x as the number of students who study math only,
y as the number of students who study English only,
z as the number of students who study Hindi only,
a as the number of students who study both math and English only,
b as the number of students who study both English and Hindi only,
c as the number of students who study both math and Hindi only, and
d as the number of students who study all three subjects.

Given:
Total number of students N = 100
Number of students who don't study any of the three subjects = 8

We can set up equations using the given information:

1. x + a + c + d = 52 (students who study math)
2. y + a + b + d = 65 (students who study English)
3. z + b + c + d = 47 (students who study Hindi)

From total number of students who study = 92(total students minus those who don't study any subject)

x + y + z + (a + b + c) + d = 100 – 8 = 92
Now, let's solve these equations: 4

From adding equations 1, 2, and 3, we get
x + y + z + 2 (a + b + c) + 3 x d = 114. 5

Subtracting eq 4 from eq 5

We get 2d + (a + b + c) = 114 - 92

For maximizing d, we can take a = b = c = 0,

2d = 22

d = 11

Q.35) There is no matching option

For Future Reference:

Q.35) What will be unit digit in the expression $1^3 + 2^3 + 3^3 + 4^3 ..... + 50^3$?

a) 2
b) 4
c) 5
d) 0

Ans) c
Exp) Option c is the correct answer
Unit digit depends only on unit digit.
Unit digit of
$1^3 = 1$,
$2^3 = 8$,
$3^3 = 7$,
$4^3 = 4$,
$5^3 = 5$,
$6^3 = 6$,
$7^3 = 3$,
$8^3 = 2$,
$9^3 = 9$,
$10^3 = 0$

So unit digit of $(1^3 + 2^3 + 3^3 ..... + 10^3) = (1 + 8 + 7 + 4 + 5 + 6 +\_3 + 2 + 9 +0) = 45 = 5$
So, unit digit 1^3 = unit digit of 11^3 = unit digit of $21^3 = 31^3 = 41^3 = 1$
Similarly for 2
unit digit 2^3 = unit digit of 12^3 = unit digit of $22^3 = 32^3 = 42^3 = 8$

So unit digit of $(1^3 + 2^3 + 3^3 ..... + 50^3)$ = 5 x unit digit of $(1^3 + 2^3 + 3^3 ..... + 10^3)$
= 5 x 5 = 25
= 5
Hence unit digit of the given expression is 5.

Q.46) There is no matching option

For Future Reference:

Q.46) Akash's computer test had 60 problems carrying equal marks i.e. 10 hardware, 30 software and 20 algorithms. Although he answered 60% of the hardware, 30% of the software and 60% of the algorithm's problems correctly, he did not pass the test because he got less than 60% marks. The number of more questions he would have to answer correctly to earn a 60% passing marks is:

a) 3
b) 5
c) 9
d) 11

Ans) c

Exp) Option c is the correct answer
Total marks = 60
Marks obtained in hardware = 60 % of 10 = 6/10
Marks obtained in software = 30 % of 30 = 9/30
Marks obtained in hardware = 60 % of 20 = 12/20

Total marks obtained = 27 /60
The passing Mark's is 60% = 36/60
Number of more questions required = 36 – 27 = 9

Q.66) There is no matching option

For Future Reference:

Q.66) a and b are two natural numbers both greater than 1 such that a x b = 1800. How many values are possible for a?

a) 36
b) 68
c) 40
d) 34

Ans) d
Exp) Option d is the correct answer.

Prime factorization of 1800 = 2^3 x3^2 x 5^2

Total number of factors will be (3 + 1) x (2 + 1) x (2 + 1) = 4 x3x 3 = 36
But the case where 1 x factor = 1800 or factor x 1 = 1800 needs to exclude as a and b both should be greater than 1.

Therefore, number of possible values for a = 36 – 2 = 34

Q.71) There is no matching option.

For Future Reference:

Passage

Glocalization, a concept derived from the blend of "globalization" and "localization," embodies the adaptation of global products or services to align with the nuanced preferences and cultural intricacies of local markets. It signifies a harmonious coexistence of global and local elements, where businesses navigate the delicate balance between standardization and customization to cater to diverse consumer segments. Glocalization strategies encompass a spectrum of approaches, encompassing linguistic and cultural tailoring in marketing strategies, product localization to resonate with regional sensibilities, and fostering community engagement initiatives tailored to specific local contexts.

Q.71) With reference to the above passage, the following assumptions have been made:

1) Glocalization prioritizes standardization over customization in adapting global products or services.
2) Glocalization is responsible for taking local cultures to the globe.
3) Glocalization requires businesses to strike a delicate balance between global and local elements to resonate with diverse consumer segments.

Which of the above assumptions are valid?

a) 1 and 2 only
b) 3 only
c) 2 and 3 only
d) 1, 2 and 3

Ans) b
Exp) Option b is the correct answer
Statement 1 is invalid: The passage does not suggest that glocalization prioritizes standardization over customization but rather emphasizes the importance of striking a delicate balance between global and local elements. Therefore, this statement is incorrect.
Statement 2 is invalid: Contrary to this statement, glocalization involves adapting global products or services to align with the preferences and cultural intricacies of local markets, rather than taking local cultures to the globe. Therefore, this statement is incorrect.
Statement 3 is valid: The passage explicitly states that glocalization requires businesses to strike a delicate balance between global and local elements to resonate with diverse consumer segments, supporting this statement.

Q.72) There is no matching option.

For Future Reference:

Passage

Plasma, often referred to as the fourth state of matter, is a highly ionized gas composed of positively charged ions and free electrons. It is characterized by its ability to conduct electricity and respond strongly to electromagnetic fields. Plasma is abundant in the universe, comprising stars, lightning, and the auroras, and it also plays a crucial role in various technological applications, including plasma TVs, fusion reactors, and semiconductor manufacturing processes.

Q.72) With reference to the above passage, the following assumptions have been made:

1) Plasma is composed of positively charged ions and free electrons.
2) Plasma is not abundant in the universe.
3) Plasma has limited applications in certain niche industries.

Which of the above assumptions are valid?

a) 1 only
b) 1 and 3 only
c) 2 and 3 only
d) 1, 2 and 3

Ans) a
Exp) Option a is the correct answer.

Statement 1: The passage explicitly states that plasma is composed of positively charged ions and free electrons, supporting this statement.
Statement 2: The passage mentions plasma's abundance in the universe, including its presence in stars, lightning, and auroras, contradicting this statement. Therefore, it is incorrect.
Statement 3: The passage discusses various technological applications of plasma, such as plasma TVs, fusion reactors, and semiconductor manufacturing processes.