Instructions
For the following questions answer them individually

Question 1

The unit digit in the product 122^{173} is

A 2

B 4

C 6

D 8

Answer: A

Explanation:
As we know a number with unit digit 2 have repeating cycle of 2,4,8,6 after every fourth power
as power is 173 or (172+1) where till 172 , 43rd cycle will get complete and next unit digit will be 2.

Question 2

The unit digit in the sum of $(124)^{372} + (124)^{373}$ is

A 5

B 4

C 20

D 0

Answer: D

Explanation:
Both of numbers have unit digit as 4 and it has a repeating cycle of 2 with unit digits as 4 and 6
so in first number power is 372 which is exactly divisible by 2 hence unit digit of first number will be 6.
and in second number power is 373 which exceeds one with the reapeating cycle of 2 hence its unit digit will be 4.

now unit digit of the sum will be 6+4 = 10

Question 3

The digit in the unit place in the square root of 66049 is

A 3

B 7

C 8

D 2

Answer: B

Explanation:
Square root of 66049 = 257

Thus, unit's digit = 7

Question 4

Find the unit digit in the product $(4387)^{245} \times (621)^{72}$.

A 1

B 2

C 5

D 7

Answer: D

Explanation:
we need to find unit digit of $(4387)^{245} \times (621)^{72}$

unit digit of 4387^{245} = unit digit of 7^1 = 7

unit digit of 621^{72} = 1

and hence 7 x 1 = 7 is the unit digit for the given expression

Question 5

If in a two digit number, the digit at unit place is z and the digit at tens place is 8, then the number is

A 80z + z

B 80 + z

C 8z + 8

D 80z + 1

Answer: B

Explanation:
Digit at unit's place = z

Digit at ten's place = 8

=> 2-digit number = $(10 \times 8) + (1 \times z)$

= 80 + z

=> Ans - (B)

Question 6

Find the unit place digit in 71 x 72 x 73 x 74 x 76 x 77 x 78 x 79.

A 2

B 0

C 4

D 6

Answer: D

Explanation:
Expression : 71 x 72 x 73 x 74 x 76 x 77 x 78 x 79

Unit place is the product of unit digits.

= $(1 \times 2 \times 3 \times 4) \times (6 \times 7) \times (8 \times 9)$

= $24 \times 42 \times 72$

$\equiv 4 \times 2 \times 2 = 16$

Thus, unit digit = **6**

=> Ans - (D)

Question 7

What is the unit digit of the sum of first 111 whole numbers?

A 4

B 6

C 5

D 0

Answer: C

Explanation:
Sum of first 11 whole numbers is 0+1+2...110
i.e n(n+1)/2 =110*111/2
=55*111
Therefore units digit is 5

Question 8

What is the unit digit of $(217)^{413} \times (819)^{547} \times (414)^{624} \times (342)^{812}$**?**

A 2

B 4

C 6

D 8

Answer: D

Explanation:
Power series of 7 i.e units digit 7 power expansion has 7,9,3 and 1 and it is raised to power 413 i.e 413/4 remainder 1 and so last digit is 7
Power series of 9 i.e units digit 9 power expansion has 9 and 1 and it is raised to power 547 i.e 547/2 remainder 1 and so last digit is 9
Power series of 4 i.e units digit 4 power expansion has 4 and 6 and it is raised to power 624 i.e 624/2 remainder 0 and so last digit is 6
Power series of 2 i.e units digit 2 power expansion has 2,4,8 and 6 and it is raised to power 812 i.e 812/4 remainder 0 and so last digit is 6
All the last digits product=7*9*6*6
=8

Question 9

If the unit digit of $(433 \times 456 \times 43N)$ **is** $(N + 2)$**, then what is the value of** N**?**

A 1

B 8

C 3

D 6

Answer: D

Explanation:
If we multiply 433 and 456 then we will get 8 as unit digit .

But when 433 and 456 multiply together with 43N then the unit digit appears as 8N .

So,Unit digit of $8N = N + 2$.

It is possible only when N=6 .

So, D is correct choice.