

1. (A)  
EXHORT: to urge, advice  
{ex- out + hortari- to urge (HORTATORY: strong urging)}
2. (B)  
PREAMBLE: preface or introductory statement to a constitution  
{pre (before) + ambular (to go), refer VPL-1 for more words originating from ambular}  
  
PROLOGUE: *an introduction to a story or play*  
{pro- before + legein, to say, speak, EPILOGUE: speech or poem spoken at the end of a play (epi- upon)}
3. (C)  
Explanation: Since only the strengths are highlighted, this is a biased report.
4. (D)  
INEVITABLE: unavoidable (usage: Inevitable circumstances)  
CONTINGENT: dependent  
OBLIVIOUS: lacking conscious awareness (usage: The patient was completely oblivious to physical pain)  
IMPERATIVE: a rule, principle or instinct that compels a certain behaviour; absolutely necessary
5. (D)  
Compound interest for 1<sup>st</sup> 2 years and simple interest for next 5 years.  
Interest after 1 year= Rs 100 (10% of 1000)  
Thus, prime amount after 1 year=RS 1100  
Interest after 2 year= Rs 110 (10% of 1100)  
Thus, prime amount=Rs 1210  
Interest after 5years @12% simple interest on Rs 1210  
=1210×0.12×5=Rs 726  
Hence total value =1210+726= RS 1936
6. (B)  
Note that the word “ban” is used in almost every sentence of the passage. Therefore options (A) and (C) can be eliminated at first sight. Option (B) sums up the passage.
7. (A)  
The series has triangular numbers  $(n(n + 1)/2$ , where n is the serial number of alphabet ). The series consists of alphabets in following manner.  
  
A(1<sup>st</sup> in series), 2 times B(2<sup>nd</sup>, 3<sup>rd</sup>), 3 times C( 4<sup>th</sup>,5<sup>th</sup>, 6<sup>th</sup> ), 4 times D(7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup> ) and so on.....

Each letter is written the times as the letter’s serial number in alphabets.

If serial number of letter in alphabets is  $n$ , after writing  $n$  times the number of letter in series is given by  $n(n+1)/2$ .

e.g., after writing last D which is 10<sup>th</sup> number in series and 4<sup>th</sup> number in alphabets which is written 4 times the relation is

$$10 = 4 \times 5/2 \quad (Sn = n \times (n + 1)/2)$$

Thus the 240<sup>th</sup> number may be end of a letter or may be repetition of a letter at any position. Considering a triangular number just less than 240,

$$n(n + 1)/2 \leq 240$$

$$n(n + 1) \leq 480$$

$$21 \times 22 = 462 \text{ or } 21 \times 21/2 = 231$$

Thus 21<sup>st</sup> number in alphabets after writing 21 times gives 231<sup>st</sup> number in the series which is U. V is 22<sup>nd</sup> number in alphabets which is written 22 times. But  $240 - 231 = 9$ . Thus after "U" the 9<sup>th</sup> letter in series is "V" as "V" is written 22 times. 240<sup>th</sup> letter is "V".

8. (C)

Let,  $A$  = set of numbers divisible by 3

And  $B$  = set of numbers divisible by 4

$A \cap B$  = set of numbers divisible by both 3 and 4 or by 12

Then,

$$n(A) = 5000/3 = 1666.66 = 1666 \text{ (according to floor function)}$$

$$n(B) = 5000/4 = 1250$$

$$n(A \cap B) = 5000/12 = 416.6 = 416$$

Number of integers divisible by both 3 and 4

$$= n(A \cup B) = n(A) + n(B) - n(A \cap B) = 2500$$

Number of integers neither divisible by 3 nor 4

$$= n(A \cup B)' = 5000 - 2500 = 2500$$

9. (B)

Since the difference between  $p$  and  $q$  is 990 in decimal, so  $p$  must be 4 digit number in binary and the least number is 1000 which is 8.

Decimal (m)	binary(p)	tertiary(q)	difference (p-q)
9	1001	100	901
10	1010	101	909
11	1011	102	909
12	1100	110	<b>990</b>
13	1101	111	<b>990</b>
14	1110	112	998

Thus  $9 \leq m \leq 13$

10. (A)

Differentiation shows the rate of change of a function. First comparing  $n^{100}$  and  $1.2^n$ . By differentiating with respect to  $n$ , 100 times, you will get a constant number,  $100!$ , for  $n^{100}$  but for  $1.2^n$  you will get  $n(n-1)(n-2)\dots(n-99)1.2^{n-100}$  which is ever increasing with  $n$ . So,  $1.2^n$  is greater than  $n^{100}$  for large value of  $n$ . Also,

$$1.2^n = (1.2^6)^{n/6} = 2.98^{n/6}$$

$$2^{n/2} = (2^3)^{n/6} = 8^{n/6}$$

$$3^{n/3} = (3^2)^{n/6} = 9^{n/6}$$

So,  $3^{n/3}$  increases faster than others for large value of  $n$ .

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