

Part – A

1. B
2. B
3. D
4. A
5. A
6. C
7. 201
8. 0
9. 12
10. 1
11. 20%
12.  $3x^2$
13.  $5^5$
14. 18
15. 61
16. 120
17. 71
18.  $y = 4x - 1$  if  $x > 1$  and  $= 4$  if  $x = 1$
19. G
20. D

Part –B

1. Number of cows = 9 and number of hens = 6.
2. 9 km
3. 1
4. 5 times pi
5. 10
6. 3 ways
7. 9 squares
8. 24
9. C = 63 and D = 117
10.  $5/12$

Part – C

1.  $5 + 25 + 125 + 625 = 780$
2. Last digit of powers of 2 form a cycle of length 4 namely 2, 4, 8, 6, 2, 4, 8, 6...etc. Hence the last digit of  $2^{48}$  will be 6 and hence the required answer is 4.
3. Possible divisors after dividing by 5 are 0,1,2,3 or 4. Hence among 6 integers difference of one of the pairs will have to be 0. (Piegonhole principle)
4. Given number is made uop of cycle of length 8 (13579753).  $2014 = 251 * 8 + 6$ . Hence the answer is 7.
5. 14
6.  $8 + \pi$