Q.1: Consider the sets :

A = {1, 3, 7, 11}
B = {2, 6, 10, 15}
C = {7, 11, 3, 1}
Here
1. A and C are equal sets
2. B and C are equivalent sets
3. A, B and C are equal sets.
Out of the above

1. 1 and 2 are true
2. 1 and 2 are true
3. 1 and 2 are true
4. All are true

Answer 1

Q.2: If E is a universal set, them E∩A is equal to

1. E
2. A
3. φ(null set)
4. None of these

Answer 2

Q.3: Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?

1. 1/2
2. 2/5
3. 8/15
4. 9/20

Answer: 4

Q.4: A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?

1. 10/21
2. 11/21
3. 2/7
4. 5/7

Answer: 1

Q.5: In a box, there are 8 red, 7 blue and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green?

1. 1/3
2. 3/ 4
3. 7/19
4. 8/21

Answer: 1

Q.6: A train running at the speed of 60 km/hr crosses a pole in 9 seconds. What is the length of the train?

A.   120 metres
B.   180 metres
C.   324 metres

D. 150 metres

Answer: D

Q.7: Two ships are sailing in the sea on the two sides of a lighthouse. The angle of elevation of the top of the lighthouse is observed from the ships are 30° and 45° respectively. If the lighthouse is 100 m high, the distance between the two ships is:

A. 173 m
B. 200 m
C. 273 m
D. 300 m

Answer: C

Q.8: $\int f'(x) = ?$

A. 0
B. 1
C. $f(x)$
D. $f''(x)$

Answer : C

Q.9: The notation $f'(x)$ was used for derivative by ?
   A.   Leibniz
   B.   Einstein
   C.   Newton
   D.   Lagrange

Answer : D

Q.10: If $f \circ g(x) = (x^2 + 1)^{10}$, then $f(x) = ?$
   A. x^5
   B. x^{10}
   C. $x^2 + 1$
   D. $(x^2 + 1)^2$

Answer :B

Q.11: If $f(x) = e^x$ then $f^{-1}(x) = ?$

   A.   e-x

   B.   -ex

   C.   lnx

   D.   logx

Answer :C

Q.12: $\log 0 = ?$

A. $-\infty$
B. 0
C. 1
D. 2

Answer :A

Q.13: The cross product of two parallel vectors is ?

A. 0
B. 1
C. parallel
D. perpendicular

Answer :A

Q.14 If $f(x) = |x| + x^2$, then $f'(-1) = ?$

A. -3
B. 1
C. 1
D. 3

Answer :A

Q.15 The differentiation of $\sin x$ with respect to $\cos x$ is ?

A. $\tan x$
B. $-\tan x$
C. $\cot x$
D. $\cot x$

Answer : D

Q.16: $\int \ln e^{2x} dx = ?$

A. $x + c$
B. $x^2 + c$
C. $\ln x + c$
D. $e^x + c$

Answer : D

Q.17: Which of the following statements is not correct?

A. $\log_{10} 10 = 1$
B. $\log (2 + 3) = \log (2 \times 3)$
C. $\log_{10} 1 = 0$
D. $\log (1 + 2 + 3) = \log 1 + \log 2 + \log 3$

Answer: B

Q.18: What decimal of an hour is a second ?

A. .0025
B. .0256
C. .00027
D. .000126

Answer: C

Q.19 : A does half as much work as B in three-fourth of the time. If together they take 18 days to complete the work, how much time shall B take to do it?

A. 30 days
B. 40 days
C. 15 days
D. None of these

Answer : A

Q.20: A and B can together finish work in 30 days .They worked together for 20 days and then B left. After another 20 days, A finished the remaining work .In how many days A alone can finish the job?

A. 40
B. 50
C. 54
D. 60

Answer : D