**Miscellaneous Questions**

**Type – 1**

**Assertion–reason–Type Questins**

• [Each question contains STATEMENT – 1(Assertion) and STATEMENT–2 (Reason). Each question has 4 choice out of which only one is correct.]

Q 1. The curve C is the locus of a point whose sum of distances from the points S(, 0) and S’(–,0) is 4.

STATEMENT–1: The curve C cuts off intercept 2from the line 2y – 1 = 0.

Because

STATEMENT–2: The equation of the curve C is .

(a) Statement–1 is True, Statement–2 is True; Statement−2 is Not a explanation for Statement–1

(b) Statement–1 is True, Statement–2 is True; Statement−2 is Not a correct explanation for Statement–2 is False

(c) Statement–1 is True, Statement–2 is False

(d) Statement–1 is False, Statement−2 is true

Q 2. STATEMENT–1: .

because

STATEMENT–2: where f(x) is an integrable function.

(a) Statement–1 is True, Statement−2 is True; Statement−2 is a correct explanation for Statement–1

(b) Statement–1 is True, Statement–2 is True; Statement–2 is Not a correct explanation for Statement–1

(c) Statement–1 is True, Statement–2 is False

(d) Statement–1 is False, Statement–2 is True

Q 3. Let F(x) = 

STATEMENT–1: F’(x) = cos x.

because

STATEMENT–2: If f(x) = then f’(x) = φ(x).

(a) Statement–1 is True, Statement–2 is True; Statement–2 is a correct explanation for Statement–1

(b) Statement–1 is True, Statement–2 is True; Statement−2 is Not a Correct explanation for Statement–1

(c) Statement–1 is True, Statement–2 is False

(d) Statement–1 is False, Statement−2 is True

Q 4. a1, a2, a3… an are in AP.

because

STATEMENT–2: a1 + an = ar + an – r + 1 for 1 ≤ r ≤ n.

(a) Statement–1 is True, Statement–2 is True; Statement–2 is a correct explanation for Statement–1

(b) Statement–1 is True, Statement−2 is True; Statement−2 is Not a correct explanation for Statement–1

(c) Statement–1 is True, Statement–2 is False

(d) Statement–1 is False, Satement–2 is True

Q 5. STATEMENT–1 1.3.5. … .(2n – 1) > nn, n ∈ N.

because

STATEMENT–2: The sum of the first n odd natural numbers is equal to n2.

(a) Statement–1 is True, Statement–2 is True; Statement–2 is a correct explanation for Statement–1

(b) Statement–1 is True, Statement–2 is true; Statement–2 is Not a correct explanation for Statement–1

(c) Statement–1 is True, Statement–2 is False

(d) Statement–1 is True, Statement–2 is False

Q 6. ABCD is a quadrilateral in which a circle is inscribed

STATEMENT–1: The length of the sides of the quadrilateral can be in AP.

because

STATEMENT–2: The lengths of tangents from an external point to a circle are equal.

(a) Statement–1 is True, Statement–2 is True; Statement–2 is a correct explanation for Statement–1

(b) Statement–1 is True, Statement–2 is True; Statement–2 is Not a correct explanation for Statements–1

(c) Statement–1 is True, Statement–2 is False

(d) Statement–1 is False, Statement–2 is True

Q 7. a,b,c are three unequal positive numbers.

STATEMENT–1: The product of their sum and the sum of their reciprocals exceeds 9.

because

STATEMENT–2: AM of n positive numbers exceeds their HM.

(a) Statement–1 is True, Statement–2 is True; Statement–2 is a correct explanation for Statement–1

(b) Statement–1 is True, Statement–2 is True; Statement−2 is Not a correct explanation for Statement−1

(c) Statement−1 is True, Statement−2 is False

(d) Statement−1 is False, Statement−2 is True

Q 8. z is a unimodular complex number.

STATEMENT−1; arg (z2 + )= arg z.

Because

STATEMENT–2: = cos (arg z) − i sin (arg z)

(a) Statement−1 is True, Statement−2 is True; Statement−2 is a correct explanation for Statement−1

(b) Statement−1 is True, Statement−2 is True; Statement−2 is Not a correct explanation for Statement–1

(c) Statement−1 is True, Statement−2 is False

(d) Statement−1 is False, Statement−2 is True

Q 9. Let (1 + x)36 = a0 + a1x + a2x2 + … + a36x36.

STATEMENT-1: a0 + a3 + a6 + ... + a36 =(235 + 1)

because

STATEMENT-2: a0 + a1+ a2+ ...+ a36 = 236 and

a0 + a2 + a4 + ... + a36 = 235

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True; Statement-2 is Not a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

Q 10. Let a, b, c be real such that ax2 + to + c = 0 and x2 + x +1 = 0 have a common root.

STATEMENT-1: a = b = c.

because

STATEMENT-2: Two quadratic equations with real coefficients cannot have only one imaginary root common.

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True; Statement-2 is Not a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

Q 11. Given in AABC, a:b:c = cos A : cos B : cos C.

STATEMENT-1: AABC is equilateral. because

STATEMENT-2:cos A =

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True; Statement-2 is Not a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

Q 12. STATEMENT-1: 

because

STATEMENT-2: If are linearly dependent vectors then they a coplanar.

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True; Statement-2 is Not a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

Q 13. STATEMENT-1: The probability of getting a tail most of the time in 10 tosses of a unbiased coin is

because

STATEMENT-2: 2nC0 + 2nC1 + 2nC2 + ...+ 2nCn = 22n - 1, n E N.

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True; Statement-2 is Not a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

Q 14. STATEMENT-1: The probability of solving a new problem by 3 students are and t respectively. The probability that the problem will be solved by them is

because

STATEMENT-2: If A, B and C are three independent events then the probability of at least one of them happenning = 1 - P(A) P(B) P(C).

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True; Statement-2 is Not a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True Q 15. Let A and B are two independent events.

STATEMENT-1: If P(A) = 0.3 and P(A u B) = 0.8 then P(B) is

because

STATEMENT-2: P(E) = 1 - P(E) where £ is any event.

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True; Statement-2 is Not a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

Q 16. The equations of two straight lines are



STATEMENT-1: The given lines are coplanar.

because

STATEMENT-2: The equations

2r-s = 1

r + 3s = 4

3r + 2s = 5 are consistent.

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True; Statement-2 is Not a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

Q 17. Given two straight lines whose equations are

STATEMENT-1: The line of shortest distance between the given lines is

perpendicular to the plane x + 3y + 5z = 0.

because

STATEMENT-2: The direction ratios of the normal to the plane ax + by + cz + d = 0 are .

(a) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1

(b) Statement-1 is True, Statement-2 is True; Statement-2 is Not a correct explanation for Statement-1

(c) Statement-1 is True, Statement-2 is False

(d) Statement-1 is False, Statement-2 is True

Q 18. Let In = where n ∈ N.

STATEMENT–1: .

because

STATEMENT–2: In + In – 2 = 

(a) Sratement–1 is True, Statement–2 is True; Statement–2 is a correct explanation for Statement–1

(b) Statement–1 is True, Statement–2 is True; Statement–2 is Not a correct explanation for Statement–1

(c) Statement–1 is True, Statement–2 is False

(d) Statement–1 is False, Statement–2 is True

Q 19. STATEMENT–1: The cubic equation 4x3 – 15x2 + 14x – 5 = 0 has a roots in the interval (2, 3)

because

STATEMENT–2: If f(x) = 0 is a polynomial equation which has two real roots α, β (α < β) then f’(x) = 0 will have a root γ such that α < γ < β.

(a) Statement–1 is True, Statement–2 is True; Statement is Not a explanation for Statement–1

(b) Statement–1 is True, Statement–2 is True; Statement–2 is Not a correct explanation for Statement–1

(c) Statement–1 is True, Statement–2 is False

(d) Statement–1 is False, Statement–2 is True

**Answers**

1c 2c 3d 4a 5d 6a 7a 8d 9b 10a

11a 13d 13c 14d 15a 16a 17d 18a 19a