Choose the correct answer from the given four options in the following questions:

1. For some integer m, every even integer is of the form

(A) m (B) m + 1 (C) 2m (D) 2m + 1

2. For some integer q, every odd integer is of the form

(A) q (B) q + 1 (C) 2q (D) 2q + 1

3. n2 – 1 is divisible by 8, if n is

(A) an integer (B) a natural number (C) an odd integer (D) an even integer

4. If the HCF of 65 and 117 is expressible in the form 65m – 117, then the value of m is

(A) 4 (B) 2 (C) 1 (D) 3

5. The largest number which divides 70 and 125, leaving remainders 5 and 8, respectively, is (A) 13 (B) 65 (C) 875 (D) 1750

6. If two positive integers a and b are written as a = x3 y2 and b = xy3 ; x, y are prime numbers, then HCF (a, b) is

(A) xy (B) xy2 (C) x 3 y3 (D) x2 y 2

7. If two positive integers p and q can be expressed as p = ab2 and q = a3 b; a, b being prime numbers, then LCM (p, q) is

(A) ab (B) a2 b2 (C) a3 b2 (D) a3 b3

8. The product of a non-zero rational and an irrational number is

(A) always irrational (B) always rational (C) rational or irrational (D) one

9. The least number that is divisible by all the numbers from 1 to 10 (both inclusive) is

(A) 10 (B) 100 (C) 504 (D) 2520

10. The decimal expansion of the rational number 14587 1250 will terminate after:

(A) one decimal place (B) two decimal places (C) three decimal places (D) four decimal places

11. If one of the zeroes of the quadratic polynomial (k–1) x2 + k x + 1 is –3, then the value of k is (A) 4/3 (B) –4/3 (C) 2/3 (D) –2/3

12. A quadratic polynomial, whose zeroes are –3 and 4, is

(A) x2 – x + 12 (B) x2 + x + 12 (C) (x2)/2 – (x)/2 - 6 (D) 2x2 + 2x –24

13. If the zeroes of the quadratic polynomial x2 + (a + 1) x + b are 2 and –3, then

(A) a = –7, b = –1 (B) a = 5, b = –1 (C) a = 2, b = – 6 (D) a = 0, b = – 6

14. The number of polynomials having zeroes as –2 and 5 is

(A) 1 (B) 2 (C) 3 (D) more than 3

15. Given that one of the zeroes of the cubic polynomial ax2 + bx + c is zero, the product of the other two zeroes is

(A) – c/a (B) c/a (C) 0 (D) none of these

16. The zeroes of the quadratic polynomial x2 + 99x + 127 are

(A) both positive (B) both negative (C) one positive and one negative (D) both equal

17. How many times graph cuts the x-axis for quadratic equations

(a) 1 (b) 2 © 3 (d) 4

11. Which of the following is a quadratic equation?

(A) x2 + 2x + 1 = (4 – x)2 + 3 (B) –2x2 = (5 – x) (2x - (2/ 5) (C) (k + 1)x2 + 3/ 2 x = 7, where k = –1 (D) x3 – x2 = (x – 1)3

12. Which of the following equations has 2 as a root?

(A) x2 – 4x + 5 = 0 (B) x2 + 3x – 12 = 0 (C) 2x2 – 7x + 6 = 0 (D) 3x2 – 6x – 2 = 0

13. If 1/2 is a root of the equation x2 + kx – 5 4 = 0, then the value of k is

(A) 2 (B) – 2 (C) 1 4 (D) 1 2

14. Which of the following equations has the sum of its roots as 3?

(A) 2x2 – 3x + 6 = 0 (B) –x2 + 3x – 3 = 0 (C) None of these (D) 3x2 – 3x + 3 = 0

15. Values of k for which the quadratic equation 2x2 – kx + k = 0 has equal roots is

(A) 0 only (B) 4 (C) 8 only (D) 0, 8

16. The quadratic equation 2x2 – (√5)x + 1 = 0 has

(A) two distinct real roots (B) two equal real roots (C) no real roots (D) more than 2 real roots

17. (x2 + 1)2 – x2 = 0 has

(A) four real roots (B) two real roots (C) no real roots (D) one real root.

18. Graphically, the pair of equations 6x – 3y + 10 = 0 2x – y + 9 = 0 represents two lines which are

(A) intersecting at exactly one point. (B) intersecting at exactly two points. (C) coincident. (D) parallel.

19. The pair of equations x + 2y + 5 = 0 and –3x – 6y + 1 = 0 have

(A) a unique solution (B) exactly two solutions (C) infinitely many solutions (D) no solution

20. If a pair of linear equations is consistent, then the lines will be

(A) parallel (B) always coincident (C) intersecting or coincident (D) always intersecting

21. The pair of equations y = 0 and y = –7 has

(A) one solution (B) two solutions (C) infinitely many solutions (D) no solution
22. The pair of equations x = a and y = b graphically represents lines which are
(A) parallel (B) intersecting at (b, a) (C) coincident (D) intersecting at (a, b)
23. For what value of k, do the equations 3x – y + 8 = 0 and 6x – ky = –16 represent coincident lines? (A) 1 2 (B) 1 – 2 (C) 2 (D) –2
24. If the lines given by 3x + 2ky = 2 and 2x + 5y + 1 = 0 are parallel, then the value of k is
(A) –5 /4 (B) 2/ 5 (C) 15 /4 (D) 3 /2
25. The value of c for which the pair of equations cx – y = 2 and 6x – 2y = 3 will have infinitely many solutions is
(A) 3 (B) – 3 (C) –12 (D) no value
30. One equation of a pair of dependent linear equations is –5x + 7y = 2. The second equation can be (A) 10x + 14y + 4 = 0 (B) –10x – 14y + 4 = 0 (C) –10x + 14y + 4 = 0 (D) 10x – 14y = –4 31. A pair of linear equations which has a unique solution x = 2, y = –3 is
(A) x + y = –1 (B) 2x + 5y = –11 2x – 3y = –5 4x + 10y = –22 (C) 2x – y = 1 (D) x – 4y –14 = 0 3x + 2y = 0 5x – y – 13 = 0
32. If x = a, y = b is the solution of the equations x – y = 2 and x + y = 4, then the values of a and b are, respectively
(A) 3 and 5 (B) 5 and 3 (C) 3 and 1 (D) –1 and –3
33. Aruna has only Re 1 and Rs 2 coins with her. If the total number of coins that she has is 50 and the amount of money with her is Rs 75, then the number of Re 1 and Rs 2 coins are, respectively (A) 35 and 15 (B) 35 and 20 (C) 15 and 35 (D) 25 and 25
34. The father's age is six times his son's age. Four years hence, the age of the father will be four times his son's age. The present ages, in years, of the son and the father are, respectively (A) 4 and 24 (B) 5 and 30 (C) 6 and 36 (D) 3 and 24

35. What is the empirical formula?
36. What less than and more than ogive gives?
37. The probability of winning is P(E) what is losing prob?
38. The probability lies between 0 and 1 (T/F).

39. The lengths of the diagonals of a rhombus are 16 cm and 12 cm. Then, the length of the side of the rhombus is (A) 9 cm (B) 10 cm (C) 8 cm (D) 20 cm
40 If A B C ~ E D F and A B C is not similar to D E F, then which of the following is not true? (A) BC . EF = A C. FD (B) AB . EF = AC . DE (C) BC . DE = AB . EF (D) BC . DE = AB . FD
41. If in two triangles ABC and PQR, AB/BC = BC/PR = CA/ PQ
(A) PQR ~ CAB (B) PQR ~ ABC (C) CBA ~ PQR (D) BCA ~ PQR
42. If in two triangles DEF and PQR, D = Q and R = E, then which of the following is not true?
(A) EF/ DF = PR/ PQ (B) DE/ EF= PQ/ RP (C) DE /DF = QR/ PQ (D) EF/ DE = RP/ QR
43. In triangles ABC and DEF, B = E, F = C and AB = 3 DE. Then, the two triangles are
(A) congruent but not similar (B) similar but not congruent (C) neither congruent nor similar (D) congruent as well as similar
44. It is given that ABC ~ PQR, with BC/QR = 1/ 3 . Then, ar (PRQ)/ ar (BCA) is equal to
(A) 9 (B) 3 (C) 1/3 (D) 1/9
45. It is given that ABC ~ DFE, A =30°, C = 50°, AB = 5 cm, AC = 8 cm and DF= 7.5 cm. Then, the following is true:
(A) DE = 12 cm, F = 50° (B) DE = 12 cm, F = 100° (C) EF = 12 cm, D = 100° (D) EF = 12 cm, D = 30°
46. If in triangles ABC and DEF, A B BC DE FD , then they will be similar, when
(A) B = E (B) A = D (C) B = D (D) A = F
47. If ABC ~ QRP, ar (A BC)/ ar (PQR) =9/ 4 , AB = 18 cm and BC = 15 cm, then PR is equal to (A) 10 cm (B) 12 cm (C) 20 / 3 (D) 8 cm
48. If S is a point on side PQ of a PQR such that PS = QS = RS, then
(A) PR . QR = RS 2 (B) QS 2 + RS 2 = QR 2 (C) PR 2 + QR 2 = PQ 2 (D) PS 2 + RS 2 = PR 2

Choose the correct answer from the given four options:

1. In Fig. 6.2, $\angle BAC = 90°$ and $AD \perp BC$. Then,

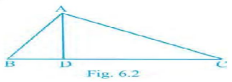

Fig. 6.2

(A) $BD \cdot CD = BC^2$ (B) $AB \cdot AC = BC^2$

(C) $BD \cdot CD = AD^2$ (D) $AB \cdot AC = AD^2$

5. In Fig.6.3, two line segments AC and BD intersect each other at the point P such that PA = 6 cm, PB = 3 cm, PC = 2.5 cm, PD = 5 cm, $\angle APB = 50°$ and $\angle CDP = 30°$. Then, $\angle PBA$ is equal to

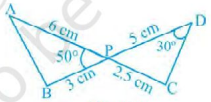

Fig. 6.3

(A) 50° (B) 30° (C) 60° (D) 100°