Unit 3 – Variations

Multiple Choice Questions

Q. 1 Multiple Choice Questions

Four possible answers are given for the following questions. Tick (✓) the correct answer.

1. **In a ratio a: b, a is called:**
   (a) Relation (b) antecedent
   (c) Consequent (d) None of these

2. **In a ratio x: y, y is called:**
   (a) Relation (b) antecedent
   (c) Consequent (d) None of these

3. **In a proportion a: b:: c: d, a and d are called:**
   (a) Means
   (b) Extremes
   (c) Fourth proportional
   (d) None of these

4. **In a proportion a:b::c: d, b and c are called:**
   (a) Means (b) extremes

(c) Fourth proportional

(d) none of these

5. In continued proportion a:b = b:c, $ac = b^2$, b is said to be ___proportional.

(a) Third (b) fourth

(c) means (d) none of these

6. In continued proportion a:b = b: c, c is said to be __proportional to a and b.

(a) Third (b) fourth

(c) means (d) none of these

7. Find x in proportion 4:x::5:15

(a) $\frac{75}{4}$ (b) $\frac{4}{3}$

(c) $\frac{3}{4}$ (d) 12

8. If $u \propto v^2$, then:

(a) $u = v^2$ (b) $u = kv^2$

(c) $uv^2 = k$ (d) $uv^2 = 1$

9. If $y^2 \propto \frac{1}{x^3}$, then:

(a) $y^2 = \frac{k}{x^3}$ (b) $y^2 = \frac{1}{x^3}$

(c) $y^2 = x^2$ (d) $y^2 = kx^3$

10. If $\frac{u}{v} = \frac{v}{w} = k$, then:

(a) $u = wk^2$ (b) $u = vk^2$

(c) $u = w^2k$ (d) $u = v^2k$

11. The third proportional of x^2 and y^2 is:

(a) $\frac{y^2}{x^2}$ (b) x^2y^2

(c) $\frac{y^4}{x^2}$ (d) $\frac{y^2}{x^4}$

12. The fourth proportional w of x:y::v:w is:

(a) $\frac{xy}{v}$ (b) $\frac{vy}{x}$

(c) xyv (d) $\frac{x}{vy}$

13. If a: b=x: y, then alternant property is:

(a) $\frac{a}{x} = \frac{b}{y}$ (b) $\frac{a}{b} = \frac{x}{y}$

(c) $\frac{a+b}{b} = \frac{x+y}{y}$ (d) $\frac{a-b}{x} = \frac{x-y}{y}$

14. If a : b = x : y, then inverted property is:

(a) $\frac{a}{x} = \frac{b}{y}$ (b) $\frac{a}{a-b} = \frac{x}{x-y}$

(c) $\frac{a+b}{b} = \frac{x+y}{y}$ (d) $\frac{b}{a} = \frac{y}{x}$

15. If $\frac{a}{b} = \frac{c}{d}$, then components property is:

(a) $\frac{a}{a+b} = \frac{c}{c+d}$ (b) $\frac{a}{a-b} = \frac{c}{c-d}$

(c) $\frac{ad}{bc}$ (d) $\frac{a-b}{b} = \frac{c-d}{d}$

16. The simplest form of the ratio $\frac{(x+y)(x^2+xy+y^2)}{x^3-y^3}$ is:

(a) $\frac{x-y}{x+y}$ (b) $\frac{x+y}{x-y}$

(c) 1 (d) 2

17. Newton's law of Gravitation is an example of:

(a) variation
(b) direct variation
(c) inverse variation
(d) joint variation

18. The relation between radius and circumference of a circle is an example

of:

(a) Variation

(b) Direct variation

(c) Inverse variation

(d) Joint variation

19. If $\frac{24}{7}=\frac{6}{x}$, then 4x = ...

(a) 7 (b) $\frac{7}{4}$

(c) 4 (d) $\frac{42}{24}$

20. If $\frac{5a}{3x}=\frac{15b}{y}$, then ay = ...

(a) $\frac{9bx}{y}$ (b) $\frac{9y}{9b}$

(c) $5ay = 45bx$ (d) 9bx

21. In proportion 7:4::p:8, p =.....

(a) 1 (b) 28

(c) 14 (d) 56

22. If 6: m:: 9: 12, then m = ...

(a) 6 (b) 9

(c) 1 (d) 8

23. If x and y varies directly, then x = ...

(a) Y (b) ky

(c) $\frac{k}{y}$ (d) k

24. If v varies directly as u^3, then u^3 = ...

(a) Vk (b) $\frac{k}{v}$

(c) $\frac{v}{k}$ (d) vk^3

25. If w varies inversely as p^2, then k = ...

(a) $\frac{w}{P^2}$ (b) wp^2

(c) $\frac{P^2}{w}$ (d) WP

26. A third proportional of 12 and 4, is:

(a) $\frac{3}{4}$ (b) $\frac{4}{3}$

(c) 12 (d) 16

27. The fourth proportional of 15, 6, 5 is:

(a) 30 (b) 15

(c) 2 (d) 1

28. The mean proportional of $4m^2n^4$ and p^6 is:

1

(a) $\pm 2mnp$ (b) $\pm mnp$

(c) $\pm\frac{2m^2n}{P^3}$ (d) $\pm 2mn^2p^3$

29. **The continued proportion of 4, m, 9 is:**

(a) 4 : m : : m : 9

(b) 4: 9:: 9: m

(c) 9: 4:: 4: m

(D) 9: 4:: m : m

30. Third proportional of 6, 12 is: 10303175

(a) 24 (b) 2

(c) 18 (d) 84

31. Third proportional of a^3, $3a^2$ is:10303176

(a) $3a^5$ (b) 9a

(c) $9a^4$ (d) $9a^7$

32. Fourth proportional of 5, 8, 15 is:

(a) 120 (b) 40

(c) 24 (d) 20

33. **Fourth proportional of $4x^4$, $2x^3$, $18x^5$ is:**

(a) $36x^8$ (b) $9x^2$

(c) $9x^{12}$ (d) $9x^4$

34. Mean Proportional of 20 and 45 is:

(a) ± 30 (b) ± 25

(c) ± 20 (d) ± 15

35. Mean proportional of $20x^3y^5$, $5x^7y$ is:

(a) $\pm 10x^5y^6$ (b) $\pm 10x^5y^3$

(c) $\pm 10x^{10}y^6$ (d) $100x^{10}y^6$

36. What is the value of p in the continued proportion of 5, p, 45?

(a) 225 (b) ± 50

(c) ± 15 (d) ± 9

37. What is the value of x in the continued proportion of 8, x, 18?

(a) ± 144 (b) ± 8

(c) ± 18 (d) ± 12

38. If $\frac{9pq}{2\ell m} = \frac{18p}{5m}$, then 5q = …..

(a) 4m (b) 4p

(c) 4ℓ (d) 4q

39. The mean proportional of $9p^6q^4$ and r^8 is:

(a) $\pm 3p^3q^2r^4$ (b) $\pm 9p^6q^2r^8$

(c) $\pm 9p^3q^2r^4$ (d) $\pm 3p^6q^4q^8$

40. What is the value of P in continued proportion of 12, p, 3?

(a) ± 4 (b) ± 6

(c) ± 30 (d) ± 2

41. How many types of variations are there?

(a) One (b) two

(c) three (d) four

1.	b	2.	c	3.	b	4.	a	5.	c
6.	a	7.	d	8.	b	9.	a	10.	a
11.	c	12.	b	13.	a	14.	d	15.	a
16.	b	17.	d	18.	a	19.	a	20.	d
21.	c	22.	d	23.	b	24.	c	25.	b
26.	b	27.	c	28.	d	29.	a	30.	a
31.	b	32.	c	33.	d	34.	a	35.	b
36.	c	37.	d	38.	c	39.	a	40.	b
41.	b								