EduSahara™ Assignment

Name : Equations involving Base Powers

Chapter : Exponents and Powers

Grade : SSC Grade VIII

1. If $5^{m}=125$, find m

   (i) 5 (ii) 1 (iii) 2 (iv) 3 (v) 4

2. If $3^{v}=243$, find 4^{v}

   (i) 1025 (ii) 1024 (iii) 1026 (iv) 1022 (v) 1023

3. If $4^{(9b+2)}=256^{(2b+4)}$, find b

   (i) 13 (ii) 17 (iii) 15 (iv) 12 (v) 14

4. If $625^{(i+2)}=3125^{(i+1)}$, find i

   (i) 0 (ii) 6 (iii) 2 (iv) 3 (v) 4

5. If $125^{(i+6)}=625^{24}=5^{j}$, find j

   (i) 93 (ii) 95 (iii) 97 (iv) 96 (v) 98

6. If $3^{q}=27$, find $3^{(2q+2)}$

   (i) 6564 (ii) 6562 (iii) 6559 (iv) 6561 (v) 6560

7. If $\left(8^{7}\right)^{40}=\left(8^{5}\right)^{a}$, find a

   (i) 55 (ii) 57 (iii) 58 (iv) 54 (v) 56

8. If $16\times 2^{g}=2^{8}$, find g

   (i) 5 (ii) 1 (iii) 7 (iv) 3 (v) 4

9. If $3^{(3t+3)}\div 27=3^{12}$, find t

   (i) 6 (ii) 5 (iii) 3 (iv) 4 (v) 2

10. Which of the following statements are true?

a) $\frac{x^m}{x^n} = x^{\frac{m}{n}}$

b) $\left(x^m\right)^n = x^{(m+n)}$

c) $a^m . a^n = a^{mn}$

d) $\left(x^m\right)^n = \left(x^n\right)^m$

e) $a^0 = 1 \ (a \neq 0)$

f) $a . x^m = a^m . x^m$

(i) {b,e} (ii) {d,e} (iii) {c,f,d} (iv) {a,d} (v) {a,e,d}

11. If $j^w = k$, $k^x = l$ and $l^y = j$, then $wxy =$

(i) jkl (ii) 1 (iii) $(j+k+l)$ (iv) 0 (v) -1

12. If $g^t = h^u = i^v = j^w$ and $gh = ij$, then

(i) $\frac{1}{u}+\frac{1}{v}=\frac{1}{t}+\frac{1}{w}$ (ii) $\frac{1}{u}+\frac{1}{w}=\frac{1}{v}+\frac{1}{t}$ (iii) $ut = vw$ (iv) $uv = tw$ (v) $\frac{1}{u}+\frac{1}{t}=\frac{1}{v}+\frac{1}{w}$

13. If $n^{(u-1)} = op$, $o^{(v-1)} = pn$, $p^{(w-1)} = no$ then

a) $uv + vw + wu = 0$
b) $uv + vw + wu = 1$
c) $uv + vw + wu = uvw$
d) $(u+v+w) = 1$
e) $uvw = 1$

(i) {a,c} (ii) {b,c} (iii) {c} (iv) {d,e,c}

14. Simplify $\left(\frac{v^d}{v^e}\right)^{(d+e)} \left(\frac{v^e}{v^f}\right)^{(e+f)} \left(\frac{v^f}{v^d}\right)^{(f+d)}$

(i) $v^{(d+e+f)}$ (ii) -1 (iii) 0 (iv) 1 (v) v

15. Simplify $\left(z^p\right)^{(q-r)} \left(z^q\right)^{(r-p)} \left(z^r\right)^{(p-q)}$

(i) 0 (ii) -1 (iii) 1 (iv) z (v) $z^{(p+q+r)}$

16. Simplify $\left(v^{(j+k)}\right)^{(j-k)} \left(v^{(k+l)}\right)^{(k-l)} \left(v^{(l+j)}\right)^{(l-j)}$

(i) 1 (ii) $v^{(j+k+l)}$ (iii) 0 (iv) -1 (v) v

17. Simplify $\left(\frac{z^g}{z^h}\right)^i \left(\frac{z^h}{z^i}\right)^g \left(\frac{z^i}{z^g}\right)^h$

(i) z (ii) -1 (iii) $z^{(g+h+i)}$ (iv) 0 (v) 1

18. Simplify $\left(\frac{7^p . 64^{(p-4)} . 81^{(p-2)}}{49^{(p-4)} . 8^{(p-2)} . 9^{(p-4)}}\right)$

(i) $7^{(-p+8)} . 8^{(p-6)} . 9^p$ (ii) $7^{(-p+8)} . 8^{(-p)} . 9^{(-p+6)}$ (iii) $7^{(p+4)} . 8^{(-p)} . 9^{(-p+6)}$ (iv) $7^4 . 8^{(-2)} . 9^2$

19. $\left(d^8 + e^8\right)^0 =$

(i) $d^8 + e^8$ (ii) 3 (iii) (-1) (iv) 1 (v) 0

Assignment Key

1) (iv)	2) (ii)	3) (v)	4) (iv)	5) (iv)	6) (iv)
7) (v)	8) (v)	9) (iv)	10) (ii)	11) (ii)	12) (v)
13) (iii)	14) (iv)	15) (iii)	16) (i)	17) (v)	18) (i)
19) (iv)					