Swotters Academy

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Test / Exam Name: Maths - Exponents And Powers **Standard: 7th** **Subject: Mathematics**

Student Name: ..... **Section:** ..... **Roll No.:** .....

Questions: 18 | **Time: 01:00 hh:mm** | **Marks: 30**

Instructions

1. Honesty is the best policy.
2. Start a new section from a new page

SECTION - A

Q1. Mark (✓) tick against the correct answer in the following: **1 Mark**

By what number should $(-8)^{-1}$ be multiplied to get 10^{-1}?

A $\frac{4}{5}$ **B** $\frac{-5}{4}$ **C** $\frac{-4}{5}$ **D** None of these.

Q2. $\left\{(33)^2 - (31)^2\right\}^{\frac{5}{7}}$ **1 Mark**

A 64 **B** 16 **C** 32 **D** 4

Q3. Mark (✓) tick against the correct answer in the following: **1 Mark**

$\left(\frac{-1}{5}\right)^3 \div \left(\frac{-1}{5}\right)^8 = ?$

A $\left(-\frac{1}{5}\right)^5$ **B** $\left(\frac{-1}{5}\right)^{11}$

C $(-5)^5$ **D** $\left(\frac{1}{5}\right)^5$

Q4. In the 5th term of $(x + y)^n$, the exponent of y is 4, then the exponent of y in the 8th term is: **1 Mark**

1

7

5

9

A 1 **B** 7 **C** 5 **D** 9

Q5. $2^{74} - 2^{73} - 2^{72}$ is same as: **1 Mark**

A 2^{72} **B** 2^{71} **C** 2^{70} **D** None of these

Q6. 53700000 = _____ × 10^7 **1 Mark**

Q7. $\frac{-3^{100}}{5} = \frac{-3^{100}}{-5^{100}}$ **1 Mark**

Q8. Find the value of: **1 Mark**

(-3^5)

Q9. Find the value of: **1 Mark**

$(8^0 - 2^0) \times (8^0 + 2^0)$

Q10. Using laws of exponents, simplify and write the answer in exponential form: **1 Mark**

$a^3 \times a^2$

SECTION - B

Q11. The speed of light in vaccum is 3 × 108m/s. Sunlight takes about 8 minutes to reach the earth. Express distance of Sun from Earth in standard form. **2 Marks**

Q12. Simplify: **2 Marks**

$\frac{25 \times 5^2 \times t^8}{10^3 \times t^4}$

Q13. A googol is the number 1 followed by 100 zeroes. **2 Marks**

1. How is a googol written as a power?
2. How is a googol times a googol written as a power?

Q14. **Life Science:** Bacteria can divide in every 20 minutes. So 1 bacterium can multiply to 2 in 20 minutes. 4 in 40 minutes, and so on. How many bacteria will there be in 6 hours? Write your answer using exponents, and then evaluate. **2 Marks**

Most bacteria reproduce by a type of simple cell division known as binary fission. Each species reproduce best at a specific temperature and moisture level.

Q15. Simplify and write the following in exponential form: **3 Marks**

$\frac{9^8 \times (x^2)^5}{(27)^4 \times (x^3)^2}$

Q16. Simplify and write the following in exponential form: **3 Marks**

$\frac{3^2 \times 7^8 \times 13^6}{(21)^2 \times (91)^3}$

Q17. Simplify: **3 Marks**

$(3^5)^{11} \times (3^{15})^4 - (3^5)^{18} \times (3^5)^5$

Q18. Simplify: **3 Marks**

$\frac{10 \times (5)^{n+1} + 25 \times 5^n}{3 \times (5)^{n+2} + 10 \times (5)^{n+1}}$