



परमाणु ऊर्जा शिक्षण संस्था
Atomic Energy Education Society
कार्यपत्रक / Worksheet (2025-26)

कक्षा /Class: VIII विषय /Subject: Mathematics माह/ Month: AUGUST अंक/Marks: 40

दिया गया पाठक्रम/Portion covered: Chapter 2 Power play

विद्यार्थी का नाम/Name of the student: _____

अनुक्रमांक /Roll No. _____ कक्षा/अनुभाग Class /Sec.: _____ दिनांक /Date: _____

SECTION- A (10×1= 10 marks)

1. Express 0.000001 in standard form.

- (a) 1×10^{-5} (b) 1×10^{-6} (c) 1×10^5 (d) 1×10^6

2. Which of the following is equal to $\frac{2^5}{2^2}$?

- (a) 2^3 (b) 2^7 (c) $2^{2.5}$ (d) 2^{-3}

3. What is the value of 3^0 ?

- (a) Undefined (b) 3 (c) 1 (d) 0

4. Hundred kotis =.....?

- (a) 1 ayuta (b) 1 niyuta (c) 1 Kankara (d) 1 Crore

5. 1 quadrillion =.....?

- (a) 10^6 (b) 10^9 (c) 10^{12} (d) 10^{15}

6. 10^{googol} is called a

- (a) googolplus (b) googolplaza (c) googolplex (d) googolpledge

7. Ramu has 4 dresses , 2 hats and 3 pair of shoes . How many different ways can Ramu dress up?

- (a) 42 (b) 18 (c) 30 (d) 24

8. What is $(-1)^5$?

- (a) 1 (b) 5 (c) -1 (d) -5

9. Which expression describes the thickness of a sheet of paper after it is folded 10 times ? The initial thickness is represented by the letter-number v.

- (a) 2^{10} (b) $2^{10}v$ (c) $10 + v$ (d) $10v$

10. How many times larger than 2^{-2} is 2^2 ?

- (a) 2^2 (b) 2^{-2} (c) 2^4 (d) 2^{-4}

SECTION- B (04×02= 08 marks)

- 11.** Express number in standard form 34,30,000
- 12.** Write the number in expanded form using power of 10
561.903
- 13.** Simplify $3^2 \times 3^{-5} \times 3^6$
- 14.** Prove that 7^{-7} is inverse of 7^7

SECTION- C (03×03= 09 marks)

- 15.** If $13^2 = 169$ then what is
(i) $(1.3)^2$ (ii) $(0.13)^2$ (iii) $(130)^2$
- 16.** A digital locker has an alphanumeric (it can have both digits and letters) passcode of length 6.
How many such codes are possible?
- 17.** Simplify and write these in exponential form.
(i) $10^{-2} \times 10^{-5}$ (ii) $9^{-7} \div 9^4$ (iii) $m^5 n^{12} (mn)^9$

SECTION- D (01×05= 05 marks)

- 18.** Use the power line for 7 to answer the following questions.

7^7	823543	(i) $\frac{16,807}{49}$
7^6	117649	(ii) $1,17,649 \times \frac{1}{343}$
7^5	16807	
7^4	2401	(iii) 343×2401
7^3	343	
7^2	49	(iv) $\frac{7}{343}$
7^1	7	
7^0	1	(v) 49^3
7^{-1}	$\frac{1}{7}$	
7^{-2}	$\frac{1}{49}$	
7^{-3}	$\frac{1}{343}$	
7^{-4}	$\frac{1}{2401}$	

SECTION- E (02×04= 08 marks)

19. Case Study: During a school science project, students were studying the energy consumption of a powerful machine that multiplies its power output exponentially. The machine was designed to double its power output every hour.

Initially, in the first hour, the machine used 3 units of power.

- (i) Write the general formula using exponents for power used after n hours.
- (ii) Calculate the power used after 4 hours.

- (iii) Expand and simplify: 3×2^3
- (iv) Write the expression for power used after 2 hours.

20. Case Study: In a science journal, students read about the sizes of celestial bodies. The diameter of Earth is approximately 12,742 km, and the diameter of the Sun is about 1,392,000 km.

To compare these large numbers more easily, their teacher advised them to express the values in standard form (also known as scientific notation) using powers of 10.

- (i) Why is standard form useful in scientific calculations?
- (ii) Express the diameter of Earth (12,742 km) in standard form.
- (iii) Express the diameter of the Sun (1,392,000 km) in standard form.
- (iv) Write the ratio of the Sun's diameter to the Earth's diameter using their standard forms.