

# Kendriya Vidyalaya Banswara

## HOLIDAYS HOMEWORK

### CLASS 12 Science

#### English

1. Write a Notice on Each of the following

(a) Announcing a GK competition next week in the Vidyalaya

(b) Postponement of practicals for science students

(c) Announcing annual sports day celebration on 25th June

2. Invitation & Replies

(a) Invite , in post card format, the district MP for planting a tree on Earth Day

(b) You are a vocal artist. You have been invited to judge a competition of aspiring singers in Dune School. Decline the invitation.

(c) Send an invite in Letter format to an eminent sports person to be chief guest at Annual Sports Day.

3. Write a letter to the editor on

(a) Rising sound pollution

(b) Menace of mosquitoes

(c) Mobile phones are helping students

4. Write a report for local newspaper on

(a) Annual Day celebrated in KV Banswara

(b) Teacher's Day celebrated in KV Banswara

(c) Free Eye camp organized by Rotary Club

5. Write an application for a job along with Bio-Data

(a) You are a Sports coach and recently saw an advertisement of vacancy in KV Banswara. Apply for the job.

(b) Apply for the post of Librarian in Ranchi University Library

(c) Apply for the post of Typist in Raman Enterprises

6. Write an article on

(a) Regular exercise a must for good health. Outdoor games are essential.

(b) How to beat exam stress

(c) Ways to reduce air pollution.

## Hindi

1 आत्मपरिचय , दिन जल्दी - जल्दी ढलता है , भक्तिन पाठों के अन्य महत्वपूर्ण प्रश्नों का निर्माण करें ।

2 पिछले बोर्ड प्रश्नपत्रों में आए कोई 5 रचनात्मक लेख लिखिए ।

3 परियोजना कार्य -किसी भी एक पाठ पर परियोजना कार्य तैयार करें ।

4 कहानी का नाट्य रूपान्तरण करते समय किन बातों का ध्यान रखना चाहिए ।

5 रेडियो पर आधारित किन्हीं पाँच प्रश्नों के उत्तर लिखिए ।

## Computer Science

Revision tour of List and Tuple

## Chemistry

Chapter 2

Electrochemistry

Complete along with numerical

## Physics

Attempt numericals on chapter 1

Electric charges and fields.

Write three applications of Gauss law.

## Maths

1. Let  $R$  be a relation on the set  $N$  be defined by  $\{(x, y) \mid \forall x, y \in \mathbb{N}, 2x + y = 41\}$ . Then,  $R$  is
  - (a) Reflexive
  - (b) Symmetric
  - (c) Transitive
  - (d) None of these

2. For real numbers  $x$  and  $y$ , we write  $x R y \leftrightarrow x - y + \sqrt{2}$  is an irrational number. Then, the relation  $R$  is  
 (a) Reflexive (b) Symmetric (c) Transitive  
 (d) None of these
3. The relation  $R = \{(1, 1), (2, 2), (3, 3), (1, 2), (2, 3), (1, 3)\}$  on set  $A = \{1, 2, 3\}$  is  
 (a) Reflexive but not symmetric  
 (b) Reflexive but not transitive  
 (c) Symmetric and transitive  
 (d) Neither symmetric nor transitive
4. Consider the non-empty set consisting of children in a family and a relation  $R$  defined as  $a R b$  if  $a$  is brother of  $b$ . Then  $R$  is  
 (a) symmetric but not transitive  
 (b) transitive but not symmetric  
 (c) neither symmetric nor transitive  
 (d) both symmetric and transitive
5. Let  $P = \{(x, y) : x^2 + y^2 = 1, x, y \in \mathbb{R}\}$ . Then,  $P$  is  
 (a) Reflexive (b) Symmetric (c) Transitive (d) Anti-symmetric
7. Let  $S$  be the set of all real numbers. Then, the relation  $R = \{(a, b) : 1 + ab > 0\}$  on  $S$  is  
 (a) Reflexive and symmetric but not transitive  
 (b) Reflexive and transitive but not symmetric  
 (c) Symmetric, transitive but not reflexive

(d) Reflexive, transitive and symmetric

8. Let  $R$  be the relation in the set  $Z$  of all integers defined by  $R = \{(x, y) : x - y \text{ is an integer}\}$ . Then  $R$  is

9. reflexive (b) symmetric (c) transitive (d) an equivalence relation

10. For the set  $A = \{1, 2, 3\}$ , define a relation  $R$  in the set  $A$  as follows  $R = \{(1, 1), (2, 2), (3, 3), (1, 3)\}$  Then, the ordered pair to be added to  $R$  to make it the smallest equivalence relation is

- a. (a)  $(1, 3)$  (b)  $(3, 1)$  (c)  $(2, 1)$   
(d)  $(1, 2)$

11. Let  $A = \{1, 2, 3\}$  and  $R = \{(1, 2), (2, 3)\}$  be a relation in  $A$ . Then, the minimum number of ordered pairs may be added, so that  $R$  becomes an equivalence relation, is

- a. (a) 7 (b) 5 (c) 1  
(d) 4

12. Let  $A = \{1, 2, 3\}$ . Then, the number of relations containing  $(1, 2)$  and  $(1, 3)$ , which are reflexive and symmetric but not transitive, is

- a. (a) 1 (b) 2 (c) 3  
(d) 4

13. Let  $f : \mathbb{R} \rightarrow \mathbb{R}$  be a function defined by  $f(x) = x^3 + 4$ , then  $f$  is

- a. (a) Injective (b) Surjective (c) Bijective (d) None of these

14. Let  $X = \{0, 1, 2, 3\}$  and  $Y = \{-1, 0, 1, 4, 9\}$  and a function  $f : X \rightarrow Y$  defined by  $y = x^2$ , is

15. one-one onto (b) one-one into (c) many-one onto (d) many-one into
16. Let  $g: \mathbb{R} \rightarrow \mathbb{R}$   $g(x) = x^2 - 4x - 5$ , then
17.  $g$  is one-one on  $\mathbb{R}$  (b)  $g$  is not one-one on  $\mathbb{R}$
18.  $g$  is bijective on  $\mathbb{R}$  (d) None of these
19. The mapping  $f: \mathbb{N} \rightarrow \mathbb{N}$  given by  $f(n) = 1 + n^2$ ,  $n \in \mathbb{N}$  when  $\mathbb{N}$  is the set of natural numbers, is
20. The function  $f: \mathbb{R} \rightarrow \mathbb{R}$  given by  $f(x) = x^3 - 1$  is  
 a. (a) a one-one function (b) an onto function  
 b. (c) a bijection (d) neither one-one nor onto
21. A function  $f: X \rightarrow Y$  is said to be onto, if for every  $y \in Y$ , there exists an element  $x$  in  $X$  such that  
 a. (a)  $f(x) = y$  (b)  $f(y) = x$  (c)  $f(x) + y = 0$   
 (d)  $f(y) + x = 0$
22. Let  $R$  be the relation in the set  $\{1, 2, 3, 4\}$  given by  $R = \{(1, 2), (2, 2), (1, 1), (4, 4), (1, 3), (3, 3), (3, 2)\}$ .  
 (a)  $R$  is reflexive and symmetric but not transitive  
 (b)  $R$  is reflexive and transitive but not symmetric  
 (c)  $R$  is symmetric and transitive but not reflexive  
 (d)  $R$  is equivalence relation
23. Let  $A = \{1, 2, 3\}$  and  $B = \{a, b, c\}$ , then the number of bijective functions from  $A$  to  $B$  are



31. If A and B are 2 non-zero matrices such that  $AB=0$ , then
- (a) both A and B are singular (b) either of them is singular  
(c) neither of them is singular (d) none of these
32. If A is a singular matrix then  $\mathbf{A.adjA=}$
- (a) is a scalar matrix (b) is a zero matrix  
(c) is an identity matrix (d) none of these
33. For how many integral values of x in the closed interval  $[-4,-1]$ , matrix  $\begin{bmatrix} 3 & -x-1 & 2 \\ 3 & -1 & x+2 \\ x+3 & -1 & 2 \end{bmatrix}$  is singular?
- (a) Zero (b) 2 (c) 1  
(d) 3
34. If A and B are square matrices of size  $n \times n$ , such that  $A^2 - B^2 = (A+B)(A-B)$ , then which one of the following is always true-
- (a)  $AB=BA$  (b) either of A or B is a zero matrix  
(c) Either of A or B is an identity matrix (d)  $A=B$
35. If  $[a_{ij}]_{n \times n}$  be a diagonal matrix with diagonal element all different and  $B=[b_{ij}]_{n \times n}$  be some matrix. Let  $AB=[c_{ij}]_{n \times n}$ , then  $c_{ij}$  is equal to
- a)  $a_{jj}b_{ij}$  (b)  $a_{ii}b_{ij}$  (c)  $a_{ij}b_{ij}$  (d)  $a_{ij}b_{ji}$



36. If  $A$  is a skew matrix of odd order, then  $|adjA|$  is equal to  
 (a) 0 (b)  $n$  (c)  $n^2$  (d) none of these
37. A square matrix  $P$  satisfies  $P^2 = I - P$  where  $I$  is the identity matrix. If  $P^n = 5I - 8P$ , then  $n =$   
 (a) 4 (b) 5 (c) 6 (d) 7
38. If  $A = \begin{bmatrix} 4 & x+2 \\ 2x-3 & x+1 \end{bmatrix}$  is symmetric, then  $x =$   
 (a) 3 (b) 5 (c) 2 (d) 4
39. If  $A$  is  $3 \times 4$  matrix and  $B$  is a matrix such that  $A'B$  and  $BA'$  are defined, then  $B$  is of the type  
 (a)  $3 \times 4$  (b)  $3 \times 3$  (c)  $4 \times 4$  (d)  $4 \times 3$

### **CASE STUDY QUESTIONS**

1. Aman and Ramesh are playing Ludo at home during Covid-19. While rolling the dice, Aman's sister Lata observed and noted the possible outcomes of the throw every time belongs to set  $\{1, 2, 3, 4, 5, 6\}$ . Let  $A$  be the set of players while  $B$  be the set of all possible outcomes. Let  $A = \{A, R\}$ ,  $B = \{1, 2, 3, 4, 5, 6\}$ . Using the information given above, answer the following:
- (i) Let  $R: B \rightarrow B$  be defined by  $R = \{(x, y) : y = x\}$  is
- (a) Reflexive and transitive but not symmetric  
 (b) Reflexive and symmetric but not transitive  
 (c) Reflexive but not symmetric and transitive  
 (d) Equivalence

(ii) Let  $R : B \rightarrow B$  be defined by  $R = \{(1,2)(2,2)(1,3)(3,4)(3,1)(4,3)(5,5)\}$ . Then  $R$  is

- (a) Symmetric (b) Reflexive  
(c) Transitive (d) None of these three

(iii) Let  $R : B \rightarrow B$  be defined by  $R = \{(2,1)(1,2)(2,2)(3,3)(4,4)(5,5)(6,6)\}$ , then  $R$  is

- (a) Symmetric (b) Reflexive and Transitive (c) Transitive and symmetric (d) Equivalence

(iv) Lata wants to know the number of relations possible from  $A$  to  $B$ . How many relations are possible?

- (a) 36 (b) 64 (c) 6!  
(d)  $2^{12}$

(v) Lata wants to know the number of functions from  $A \rightarrow B$ , How many numbers of functions are possible?

- (a) 36 (b) 64 (c) 6! (d)  $2^{12}$

2. A Robot works on the software which follows function  $f(x) = \frac{x-2}{x-1}$ . If the value of domain is put in place of  $x$ . This robot works and performs various works. Based on the above information, answer the following:

(i) What will the value/values of  $x$ , on which this robot works

(a) On all real values except 1

(b) On all real values

(c) On all real values except 2

(d) On all real values except  $\{1,2\}$

(ii) If range denotes the number of works performed, then range of the works performed will be

(a)  $R - \{1\}$

(b)  $R - \{2\}$

(c)  $R - \{1,2\}$

(d) On all real values

(iii) If this function is defined from  $f:R-\{1\}\rightarrow R - \{1\}$

(a) Injective

(b) Surjective

(c) Bijective

(d) Into

(iv) If a Robot follows the  $f:R-\{1\}\rightarrow R$ , then  $f(x)$  is

(a) Injective

(b) Surjective

(c) Bijective

(d) Into

(v) If a Robot follows the  $f:N-\{1\}\rightarrow R - \{1\}$ , then  $f(x)$  is

(a) Injective

(b) Surjective

(c) Bijective

(d) Into