KENDRIYA VIDYALAYA ONGC PANVEL
HOLIDAY HOMEWORK

PHYSICS HOLIDAY HOMEWORK

1. Electrostatics – 5 Marks
2. 5 Years Board Question
3. Electrostatic Potential
4. NCERT Exercise
5. Current Electricity
6. Circuit diagrams
7. Projects on allotted topics

CLASS XII SUBJECT: CHEMISTRY

8. Make one and two mark questions with answers on Biomolecules, Chemistry in everyday life and polymers'
9. Solve all the board questions on solid state & solutions from 2013 to 2017.
10. Solve numerical and textual questions on solid state & solutions.
11. P – block elements and draw all structure based on VSEPR theory.
12. Investigatory Project. Make the write up and do the investigation which you can do it home.

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HOLIDAY HOMEWORK
CLASS XII SUBJECT : COMPUTER SCIENCE

ASSIGNMENT (Boolean Algebra)

Q1. Design NAND-to-NAND circuit for the following expressions

a. XYZ' + X'Y'Z

b. A'B.(A'B'C' + B'C)

c. A'B'C' + A'B'C + A'BC + ABC' + ABC

d. (X + Y').Z

e. Y' Z + Z X'

f. (A+B) (B+D)

g. 3 input AND gate

h. 3 input OR gate

Q2. Design NOR-to-NOR circuit for the following expressions

a. X(Y' + Z') + XY'

b. A'B.(A'B'C' + B'C)

c. X.Y' + Z

d. (X + Y) (Y + Z) (X+Z)

e. F(A,B,C) = (A+B') (B+C)

f. F(X,Y,Z) = (X'+Y) (Y'+Z)

g. (A'+B'+C') (A+B'+C') (A+B+C')

Q3. Obtain a simplified form of a Boolean Expression using Karnaugh Map

a. F(W,X,Y,Z)=Σ(2,3,6,10,11,14)

b. F(A,B,C,D)=Σ(0,1,3,4,5,6,7,9,10,11,13,15)

c. F(A,B,C,D)=Π(0,1,3,4,5,6,7,9,10,11,13,15)

d. F(X,Y,Z)=Π(3,4,5,6,7)

e. F(A,B,C,D)=Σ(0,1,2,5,6,8,9,10,13,15)

f. F(W,X,Y,Z)=Σ(2,3,6,10,11,14) Find expression in POS form

g. F(X,Y,Z)=Σ (3,4,5,6,7)

h. F(U,V,W,X)=Σ(7,9,10,11,12,13,14,15)

i. F(U,V,W,X)=Π(0,2,3,7,8,10,11)

Q4. Find the minimal SOP expressions for F1 and F2 using K-Map for the given truth table for a function F(X,Y,Z),

X Y Z F1 F2

0 0 0   0 1

0 0 1   1 0

0 1 0   0 0

0 1 1   1 1

1 0 0   0 1

1 0 1   1 0

1 1 0   0 1

1 1 1   1 1

Q5. A combination circuit has 4 inputs and single output. Output is 1 if

  i.   All inputs are 1
  ii.   Even number of inputs are 1
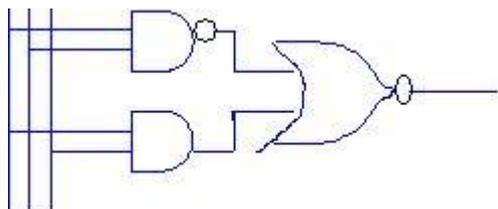 iii. All inputs are 0
  iv.   Make the truth table

• Write Canonical SOP and POS forms of expressions
• Simplify using K-Map (Both SOP and POS expressions)
• Draw logic circuit diagram for simplified expression

Q6. A truth table having 4 input variables (A, B, C, D) has an output 1 when ABCD=0001 ABCD=0110 ABCD=1110
Express in SOP and POS

Q7. Evaluate logic circuit diagram

For i) a=1, b=1, c=0
ii) a=0, b=0, c=0
iii) a=1, b=1, c=1

Q8. Evaluate Boolean expression

(w.x.y' + (x'. y)') for w=1, x=1, y=0, z=1

Q9. Simplify using algebraic method

1. AC+A'BC
2. XZ' + X'Y'Z + X'YZ' + Y'Z
3. (A+B)(A+B')
4. abc+a'bc+ab'c+abc'+ab'c'+a'bc'a'b'c'
5. AB+AB'+A'C+(AC)'
6. XY (X'YZ'+XY'Z')

Q10. Verify the following :

1. A + A'B = A+B
2. (A+B)' . (A' + B') = 0
3. AB + AB' = A
4. X'Y+Z = (X'+Y'+Z).(X'+Y+ Z).(X+Y+Z)
5. (X+Y)(X+Z) = X+YZ
6. x'y'z'+x'y'z+x'yz+x'yz'+xy'z'+xy'z = x'+y'
7. a.(a+b)=a
8. (a'+b').(a'+b).(a+b') = a'b'

Q11. Write dual of following:

1. (x+y') 3. a+1.bc
2. xy+xy'+x'y 4. a.a'=0

Q12. Write complement of following:

1. x'yz' + x'y'z 3. xy(y+z)
2. ab' +c'd' 4. x(y'z+yz)

Q13. State and verify Absorption Law using truth table.

Q14. State and verify Involution Law using truth table.

Q15. State and verify Idempotent Law using truth table.

Q16. State and verify Distributive Law using truth table.

Q17. State and verify DeMorgan's Law using truth table.

Communication Networks

Q.1   (a) Write one advantage and one disadvantage of Star topology.

    (b) Expand followings:

        i) FTP   ii) W3C   iii) SIM   iv) CDMA

(c) What is Firewall?

(d) What is Open Source S/W?

(e) Name any two Client Side scripting?

KENDRIYA VIDYALAYA ONGC PANVEL
CLASS XII ENGLISH
HOLIDAY HOME WORK

1. Read & Write the chapterwise Summary of "The Invisible Man" by H G Wells..(28 chapters)
2. 2) Collect & paste 10 Classified Advertisements, commercial ads(big advertisements with pictures), 10 Invitations.
3. You are Smitha/Sunil, Secretary AVM housing Society. you are going to organize a blood donation camp. Write a notice in not more than 50 words, urging the members of yours society to come in large number for this noble cause. Invent all the necessary details.
4. You are General Manager, Hotel Dosa, Gurgaon. You need a lady Front Office Assistant with sound knowledge of computers She must be a graduate and good in communication skills with pleasing manners. Draft an advertisement in not more than 50 words to be published in Gurgaon Times.
5. Your school, Sea View Public School, Kochi, organized a Blood-donation Camp on the occasion of the Republic Day celebrations. As Cultural Secretary of your school, write a report on the event in 100-125 words.

6. Traffic police has launched drive against pollution causing vehicles. This has led to traffic jams and crowds at important intersections. Write a report in 100-125 words to be published in 'Chennai Times'. You are Prince/Priya, 12 M.G. Road, Adyar, Chennai.

7. You have noticed many stray animals on the road during the busy hours of the day. These animals cause traffic jams as well as accidents. You have already written to the concerned authorities but on action has been taken so far. Write a letter to the Editor, The Hindu, drawing attention of the Municipal Commissioner, Chennai. You are Shantha/Suresh, 12 M.G. Road,Chennai. 10
8. You are Nalini/Vishal, Hostel Warden, Zenith Public School, Kosikalan. Write a letter to the Sales Manager, Bharat Electronics and Domestic Appliances, New Delhi, placing an order for a few fans, microwave and geysers that you wish to purchase for the hostel. Also ask for the discount permissible on the purchase.
9. Your family has recently shifted from Kota in Rajasthan to Ernakulam in Kerala, where your house is situated in the midst of beautiful flowering plants and fruit-yielding trees. Every minute and every second, you are experiencing the joy of being in the lap of nature. Write an article in 150-200 words on the diversity of nature that you have experienced. you are Latha/Lalith of Class XII. 10

10. Write an article in 150-200 words on the topic, 'Poverty is the cause of all evils', to be published in the Young Worlds of 'The Hindu', Chennai.

HOLIDAY HOMEWORK

CLASS XII

MATHS

EQUIVALENCE RELATION

1   Let A ={1,2,3,4,5} .Show that R = {(a,b) : a,b ∈ A, |a – b| is even} is even} is equivalence
    relation. Also show that all the elements {1,3,5,} are related to each other and the elements
    {2,4} are related to each other, but no element of {1,3,5} are related to {2,4}.

2   Let $A = \{x \in Z : 0 \leq x \leq 12\}$ .Show that R = {(a,b) : a,b ∈ A, |a – b| is divisible by 4} is an
    equivalence relation.

3   Let N denote the set of all natural numbers and let R on NxN is defined by : (a, b) R (c, d) iff ad

    = bc for all (a, b), (c, d) ∈NxN.show R is equivalence relation.

4   Show that the relation R in the set of real numbers, defined as R = {(a,b):a≤b^3} is neither
    reflexive, nor symmetric nor transitive.

5   Show that R = {(a,b) : a,b ∈ Z, 2 divides (a – b)} is an equivalence relation.

FUNCTION

1   Let f:W→W be defined as f(x) = x-1, if x is odd and f(x) = x+1, if x is even. Show that f is
    invertible. Find the inverse of f, where W is the set of whole numbers.

2   Consider $f : N \to R$, given by f(x) = 4x^2 + 12x 15. Show that f:N→S is an invertible function,
    where S is the range of f. Find its inverse.

3
    Consider $f : R - \{3\} \to R - \{1\}$ given by $f(x) = \dfrac{x-2}{x-3}$. Show that f is bijective.

4   Consider the mapping f:[0,2]→[0,2] defined as f(x)=√(4-x^2). Show that f is invertible and hence
    find its inverse.

5   Find fog and gof if
       i)   F(x)=8x^3 and   g(x)=x$^{1/3}$
       ii)   F(x)=cosx   and   g(x)=x^4
       iii)   F(x)=logx   and   g(x)=e^x

BINARY OPERATION

1   Show that the binary operation * on A = R –{1} defined as a*b = a + b - ab for all a,b ∈A is
    commutative and associative on A. Also find the identity element of * in A and prove that
    every element of A is invertible.

2   Let A = QxQ and let * be a binary operation on A defined by
    (a,b)*(c,d)=(ac,b+ad) for (a,b), (c,d) ∈ A. Determine whether * is commutative and
    associative. Also find w.r.t * on A
        (i)   Identity elements in A   (ii) invertible elements of A

3   A binary operation * on set { 0,1,2,3,4,5} is defined as:

$$a * b = \begin{cases} a+b, & if \ a+b < 6 \\ a+b-6 & if \ a+b \geq 6 \end{cases}$$

Show that zero is the identity for the operation and each element 'a' of the set is invertible with '6-a' being the inverse of 'a'.

4   Let A = NxN and let * be a binary operation on A defined by
(a,b)*(c,d)=(a+c,b+d) for (a,b), (c,d) ∈ A. Determine whether * is commutative and associative. Also find w.r.t * on A Identitity elements in A if any.

5   Let * be a binary operation on N defined by a*b=HCF of a and b. find
    i)   Is * commutative and associative
    ii)   Does there exist any identity elements for this binary operation?

INVERSE TRIGONOMETRIC FUNCTION

1   Simplify $\tan^{-1}\left\{\dfrac{\cos x - \sin x}{\cos x + \sin x}\right\}$ $\dfrac{-\pi}{4} \leq x \leq \dfrac{\pi}{4}$

2   If $y = \cot^{-1}\sqrt{\cos x} - \tan^{-1}\sqrt{\cos x}$, then prove that $\sin y = \tan^2(x/2)$

3   Prove $\tan^{-1}\left\{\dfrac{\sqrt{1+x^2} + \sqrt{1-x^2}}{\sqrt{1+x^2} - \sqrt{1-x^2}}\right\} = \dfrac{\pi}{4} + \dfrac{1}{2}\cos^{-1}x^2,$

4   Prove $\tan^{-1}\left\{\dfrac{x}{\sqrt{a^2 - x^2}}\right\} = \sin^{-1}(x/a)$

5   Simplify $\tan^{-1}\left\{\dfrac{a\cos x - b\sin x}{b\cos x + a\sin x}\right\}$

6   If $\tan^{-1}\dfrac{x-1}{x-2} + \tan^{-1}\dfrac{x+1}{x+2} = \dfrac{\pi}{4}$, then find the value of x.

7   Solve: $2\tan^{-1}(\cos x) = \tan^{-1}(2\operatorname{cosec}x)$

8   Solve $\cos^{-1}\dfrac{x^2 - 1}{x^2 + 1} + \tan^{-1}\dfrac{2x}{x^2 + 1} = \dfrac{2\pi}{3}$

9   Solve the equation for x: $\sin^{-1}(1-x) - 2\sin^{-1}x = \dfrac{\pi}{2}$

10   Solve $\tan^{-1}(x-1) + \tan^{-1}x + \tan^{-1}(x+1) = \tan^{-1}3x$

11   Prove $\cos^{-1}(12/13) + \sin^{-1}(3/5) = \sin^{-1}(56/65)$

12   If $\tan^{-1}x + \tan^{-1}y + \tan^{-1}z = \pi/2$, then prove that $xy + yz + zx = 1$

13   Prove $\sin^{-1}(63/65) = \sin^{-1}(5/13) + \cos^{-1}(3/5)$

14   Prove $9\pi/8 - (9/4)\sin^{-1}1/3 = (9/4)\sin^{-1}(2\sqrt{2}/3)$

15   Prove $\cos^{-1}(4/5) + \cos^{-1}(12/13) = \cos^{-1}(33/65)$

के॰ वि॰ ओ॰ एन॰ जी॰ सी॰ पनवेल

कक्षा–बारहवीं अ, ब, स, ड,

विषय–हिन्दी

शब्दों

दिए गए विषयों पर लगभग 250 शब्दों में निबंध लिखिए–

1. मेरी बेटी मेरा मान–बेटी बचाओ बेटी पढ़ाओं

2. स्वच्छ तन–स्वच्छ मन सफल भारत स्वच्छ भारत

3. तिलस्मी दुनिया ध्वनि तरंगों की–डिजीटल इंडिया

4. आओ नदियों को स्वच्छ करें

5. अपना हाथ जगन्नाथ–स्किल इंडिया

6. हम स्मार्ट, सिटी स्मार्ट देश स्मार्ट–स्मार्ट सिटी।

7) किताब पुस्तक के तीनों पाठ का प्रश्न उत्तर स्वच्छ, सुन्दर ढंग से गृह कार्य में पूर्ण करें।

8) आत्म परिचय, दैन जल्दी - जल्दी ढलता है।

मिथिला सिंह
के॰ वि॰ ओ॰ एन॰
जी॰ सी॰ पनवेल
नवी मुम्बई
जि॰ = रायगढ़