

# Class XII

## BUSINESS STUDIES

Questions and answer on following topics from NCERT book.

1. Nature and purpose of management.
2. Principles of management.

## ACCOUNTS

All numeric questions from NCERT books on following topics:

1. Not for profit organization.
2. Partnership accounts basic concepts.

## ECONOMICS

Write NCERT question and answers of unit 1 and 2.

Solve 20 sums on Price elasticity of demand

**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  $R = \{(a, b) : a, b \in A, |a - b| \text{ is even}\}$  is an 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  $A = \{x \in \mathbb{Z} : 0 \leq x \leq 12\}$ . Show that  $R = \{(a, b) : a, b \in A, |a - b| \text{ is divisible by } 4\}$  is an equivalence relation.
- 3 Let  $\mathbb{N}$  denote the set of all natural numbers and let  $R$  on  $\mathbb{N} \times \mathbb{N}$  is defined by :  $(a, b) R (c, d)$  iff  $ad = bc$  for all  $(a, b), (c, d) \in \mathbb{N} \times \mathbb{N}$ . Show  $R$  is an equivalence relation.
- 4 Show that the relation  $R$  in the set of real numbers, defined as  $R = \{(a, b) : a \leq b^3\}$  is neither reflexive, nor symmetric nor transitive.
- 5 Show that  $R = \{(a, b) : a, b \in \mathbb{Z}, 2 \text{ divides } (a - b)\}$  is an equivalence relation.

#### FUNCTION

- 1 Let  $f: \mathbb{W} \rightarrow \mathbb{W}$  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  $\mathbb{W}$  is the set of whole numbers.
- 2 Consider  $f: \mathbb{N} \rightarrow \mathbb{R}$ , given by  $f(x) = 4x^2 + 12x + 15$ . Show that  $f: \mathbb{N} \rightarrow S$  is an invertible function, where  $S$  is the range of  $f$ . Find its inverse.
- 3 Consider  $f: \mathbb{R} - \{3\} \rightarrow \mathbb{R} - \{1\}$  given by  $f(x) = \frac{x - 2}{x - 3}$ . Show that  $f$  is bijective.
- 4 Consider the mapping  $f: [0, 2] \rightarrow [0, 2]$  defined as  $f(x) = \sqrt{4 - x^2}$ . 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)  $F(x)=\cos x$  and  $g(x)=x^4$
- iii)  $F(x)=\log x$  and  $g(x)=e^x$

### BINARY OPERATION

1 Show that the binary operation  $*$  on  $A = \mathbb{R} - \{1\}$  defined as  $a*b = a + b - ab$  for all  $a, b \in A$  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  $A = \mathbb{Q} \times \mathbb{Q}$  and let  $*$  be a binary operation on  $A$  defined by  $(a,b)*(c,d)=(ac,b+ad)$  for  $(a,b), (c,d) \in A$ . 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:

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

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  $A = \mathbb{N} \times \mathbb{N}$  and let  $*$  be a binary operation on  $A$  defined by  $(a,b)*(c,d)=(a+c,b+d)$  for  $(a,b), (c,d) \in A$ . Determine whether  $*$  is commutative and associative. Also find w.r.t  $*$  on  $A$  Identity elements in  $A$  if any.

5 Let  $*$  be a binary operation on  $\mathbb{N}$  defined by  $a*b = \text{HCF of } a \text{ and } b$ . find

- i) Is  $*$  commutative and associative
- ii) Does there exist any identity elements for this binary operation?

### INVERSE TRIGONOMETRIC FUNCTION

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

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

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

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

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

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

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

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

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

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