

- If  $n((A \times B) \cap (A \times C)) = 8$  and  $n(B \cap C) = 2$ , then  $n(A)$  is \_\_\_\_\_.  
 a) 6      b) 4      c) 8      d) 16
- The number of relations on a set containing 3 elements is \_\_\_\_\_.  
 a) 0      b) 81      c) 512      d) 1024
- Let A and B be subsets of the universal set N, the set of natural numbers. The  $A^1 \cup ((A \cap B) \cup B^1)$  is  
 a) A      b)  $A^1$       c) B      d) N
- The function  $f: [0, 2\pi] \rightarrow [-1, 1]$  defined by  $f(x) = \sin x$  is  
 a) one to one      b) onto      c) bijection      d) cannot be defined
- If  $|x + 2| \leq 9$ , then x belongs to \_\_\_\_\_.  
 a)  $(-\infty, -7)$       b)  $[-11, 7]$       c)  $(-\infty, -7) \cup [11, \infty)$       d)  $(-11, 7)$
- If  $\frac{|x-2|}{x-2} \geq 0$  then x belongs to \_\_\_\_\_.  
 a)  $[2, \infty)$       b)  $(2, \infty)$       c)  $(-\infty, 2)$       d)  $(-2, \infty)$
- The number of roots of  $(x+3)^4 + (x+5)^4 = 16$  is \_\_\_\_\_.  
 a) 4      b) 2      c) 3      d) 0
- The value of  $\log_3 11 \cdot \log_{11} 13 \cdot \log_{13} 15 \cdot \log_{15} 27 \cdot \log_{27} 81$  is \_\_\_\_\_.  
 a) 1      b) 2      c) 3      d) 4
- If a and b are the roots of the equation  $x^2 - kx + 16 = 0$  and satisfy  $a^2 + b^2 = 32$ , then the value of k is \_\_\_\_\_.  
 a) 10      b) -8      c) -8, 8      d) 6
- The number of 5 digit numbers all digits of which are odd is  
 a) 25      b)  $5^5$       c)  $5^6$       d) 625
- The product of r consecutive positive integers is divisible by  
 a) r!      b)  $(r-1)!$       c)  $(r+1)!$       d)  $r^r$
- $1+3+5+7+\dots+17$  is equal to \_\_\_\_\_.  
 a) 101      b) 81      c) 71      d) 61

- The number of five digit telephone numbers having atleast one of their digits repeated is \_\_\_\_\_.  
 a) 90000      b) 10000      c) 30240      d) 69760
  - Find the odd one out:  
 a)  $f(x) = x^3$       b)  $f(x) = x^3 + 3x$       c)  $f(x) = \sin x$       d)  $f(x) = \cos x$
  - If  $f: \mathbb{R} \rightarrow \mathbb{R}$  is defined by  $f(x) = 3x - 4$  is bijective its inverse of  $f^{-1}(x)$  is \_\_\_\_\_.  
 a)  $\frac{x+4}{3}$       b)  $\frac{x-4}{3}$       c)  $3x+4$       d)  $4x+3$
  - A cubic equation has roots 2 and  $1 + \sqrt{3}$  then its equation is  
 a)  $x^3 - 6x^2 + 2x + 4$       b)  $x^3 + 6x^2 - 2x + 4$       c)  $x^3 - 6x^2 - 2x - 4$   
 d)  $x^3 + 6x^2 - 2x - 4$
  - The solution set for  $\frac{|x-1|}{x+3} < 1$  is \_\_\_\_\_.  
 a)  $(-1, \infty)$       b)  $(-\infty, -1)$       c)  $-1 \leq x < 3$       d) none of these
  - No. of permutation of the letters of the word SIMPLE if all are taken at a time is \_\_\_\_\_.  
 a) 120      b) 720      c) 20      d) 5
  - \_\_\_\_\_ is the product of the first n natural numbers.  
 a) Permutations      b) Factorial      c) Combinations      d) Functions
  - $\sqrt{7}$  is a member of \_\_\_\_\_.  
 a) R-Q      b) Q      c) Z      d) N
- II. Answer any 7 from the following: 7x2=14  
 (Q.No.30 is compulsory)
- Given  $n(A) = 7$ ,  $n(B) = 8$ ,  $n(A \cup B) = 10$  find  $n[P(A \cap B)]$
  - Let  $A = \{a, b, c\}$  what is the equivalence relation of smallest cardinality on A? What is the equivalence relation of largest cardinality on A?
  - Find the domain of  $\frac{1}{1-2 \sin x}$
  - Solve  $3|x - 2| + 7 = 19$
  - If the sum & product of the roots of the quadratic equation  $ax^2 - 5x + c = 0$  are both equal to 10 then find a and c.

26. If  $x=2$  is one root of  $x^3+2x^2-5x-6=0$  then find the other roots.

27. Simplify and find the value of  $n \frac{3^{2n} \cdot 9^2 \cdot 3^{-n}}{3^{2n}} = 27$

28. In how many ways can the letter of the word SUCCESS be arranged so that all Ss are together?

29. Find the permutations of the word MISSISSIPPI?

30. If  $(n-1)P_3 : {}_n P_4 = 1:10$  find  $n$ .

III. Answer any 7 from the following:  $7 \times 3 = 21$

(Q.No.40 is compulsory)

31. If  $n(A)=10$ ,  $n(A \cap B)=3$  find  $n[(A \cap B)^c \cap A]$ .

32. Let  $P$  be the set of all triangles in a plane and  $R$  be the relation defined on  $P$  as  $aRb$  if  $a$  is similar to  $b$ . Prove that  $R$  is an equivalence relation.

33. Find the inverse of  $f(x)=2x-3$

34. Prove that  $\sqrt{7}$  is an irrational number.

35. Ravi obtained 70 and 75 marks in first two unit tests. Find the minimum marks he should get in the third test to have an average of atleast 60 marks.

36. If the difference of the roots of the equation  $2x^2-(a+1)x+(a-1)=0$  is equal to their product then prove that  $a=2$

37. How many numbers are there between 1 and 1000 (both inclusive) which are divisible neither by 2 nor by 5.

38. If the letters of the word GARDEN are permuted in all possible ways and the strings thus formed are arranged in the dictionary order find the rank of DANGER.

39. 8 women and 6 men are standing in a line.

i) How many arrangements are possible if any individual can stand in any position?

ii) In how many arrangements will no two men be standing next to one another?

40. Solve  $\log_{16}x + \log_4x + \log_2x=7$

IV. Answer the following:  $7 \times 5 = 35$

41. a) How many strings can be formed using the letters of the word LOTUS if the word (i) either starts with L or ends with S? (ii) neither starts with L nor ends with S?

(or)

b) Find the number of positive integer greater than 6000 and

less than 7000 which are divisible by 5, repetition is not allowed.

42. a) Prove that  $\frac{(2n)!}{n!} = 2^n [1.3.5 \dots (2n-1)]$

(or)

b) How many 3-digit numbers are there with 3 in the unit place?

(i) with repetition (ii) without repetition

43. a) If  $\frac{\log x}{y-z} = \frac{\log y}{z-x} = \frac{\log z}{x-y}$  then prove that  $xyz=1$

(or)

b) Find the condition that one of the roots of  $ax^2+bx+c$  may be (i) negative of the other (ii) thrice the other (iii) reciprocal of the other.

44. a) The formula for converting from Fahrenheit to Celsius temperatures is  $y = \frac{5x-160}{9}$ . Find the inverse of this function and determine whether the inverse is also a function.

(or)

b) Let  $f, g: \mathbb{R} \rightarrow \mathbb{R}$  be defined as  $f(x)=2x-|x|$  and  $g(x)=2x+|x|$ . Find  $f \circ g$ .

45. a) By taking suitable sets  $A, B, C$  verify the following results  $(A \times B) \cap (B \times A) = (A \cap B) \times (B \cap A)$

(or)

b) Solve  $\frac{x}{2} \geq \frac{5x-2}{3} - \frac{7x-3}{5}$

46. a) Resolve into partial fractions:  $\frac{6x^2-x+1}{x^3+x^2+x+1}$

(or)

b) If  $a^2+b^2=23ab$  prove that  $\log \frac{a+b}{5} = \frac{1}{2} (\log a + \log b)$

47. a) In the set  $\mathbb{Z}$  of integers, define  $mRn$  if  $m-n$  is divisible by 7, prove that  $R$  is an equivalence relation.

(or)

b) Determine the region in the plane determined by the inequalities  $2x+y \geq 8$ ,  $x+2y \geq 8$ ,  $x+y \geq 6$

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## COMMON QUARTERLY EXAMINATION –SEP 2019

## HIGHER SECONDARY FIRST YEAR

## PART – III - COMMERCÉ

[Time Allowed : 2.30 Hours]

[Maximum Marks : 90]

**Instructions :** (1) Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately  
 (2) Use Blue or Black ink to write and underline and pencil to draw diagrams.

## PART – I

**Note :** (i) Answer all the questions.

20 X 1 = 20

(ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

- Activities undertaken out of love and affection or with social service motive are termed as .....  
 a) Economic Activities                      b) Monetary activities  
 c) Non Economic Activities                d) Financial Activities
- Normally high level risk involved in .....  
 a) Industry            b) Commerce    c) Trade            d) All the above
- The place where the goods are sold is .....  
 a) Angadi            b) Market        c) Nalangadi    d) Allangadi
- Occupation of a Doctor is .....  
 a) Employment    b) Business     c) Profession    d) Sole proprietor
- In the firm of Hindu undivided family, how one gets the membership?  
 a) By agreement                              b) By birth  
 c) By investing capital                        d) By Managing
- The Partnership deed is also called as .....  
 a) Articles of Association                    b) Articles of Partnership  
 c) Partnership Act                            d) Partnership
- The Relationship between outsiders and the company is defined in .....  
 a) Prospectus                                    b) Articles of Association  
 c) Memorandum of Association            d) Certificate of incorporation
- All Co-operatives are established with .....  
 a) Philanthropic Motive                      b) Service Motive  
 c) Profit Motive                                d) Reform Motive
- Dispersal of decision making power to branches / affiliates / subsidiaries by head office represents  
 a) Centralisation    b) DeCentralisation    c) Power            d) Integration
- The Primary objective of the state enterprises is to.....  
 a) Earn Profit                                    b) Provide Employment  
 c) Serve the People                            d) All the Above
- Foreign Banks are begun their operation since.....  
 a) 1979                b) 1980                c) 1981                d) 1982
- WareHouses remove the hindrance of .....  
 a) Person            b) Time                c) Risk                d) Knowledge
- The Largest commercial bank of India is.....  
 a) ICICI                b) SBI                c) PNB                d) RBI
- Which is the fastest means of Transport?  
 a) Rail                b) Road                c) Sea                d) Air

- The basic principle of insurance is.....  
 a) Insurable Interest    b) Co-Operation    c) Subrogation    d) proximate cause
- The local area banks are promoting .....  
 a) Rural Savings                              b) Business Savings  
 c) Industrial Development                    d) Agricultural Development
- The main benefit of outsourcing is  
 a) Productivity    b) Cost Reduction    c) Skill            d) Units
- Rochdale society of equitable pioneers was started by .....  
 a) Robert Owen    b) H.C.Calvert        c) Talmaki            d) Lambent
- A major disadvantage of sole proprietorship is.....  
 a) Limited liability                            b) Unlimited liability  
 c) Easy Formation                            d) Quick Decision
- Electronic banking can be done through.....  
 a) Computers        b) Mobile Phones    c) ATM                d) All of the above

## PART II

**Answer any 7 Questions in which Question No.30 is Compulsory: 7 X 2 = 14**

- What is meant by "Nalangadi"?
- Define profession.
- Define Commerce.
- Define Multinational company.
- Who is called "KARTA"?
- Briefly explain about central bank.
- Write any two advantages of water transport.
- What is health insurance?
- What is warehouse?
- What do you mean by E-commerce?

## PART III

**Answer any 7 Questions in which Question No.40 is Compulsory: 7 X 3 = 21**

- What do you mean by tertiary industries?
- What is meant by Hindrance of finance?
- Give some examples of sole trading business.
- What is meant by Foreign Company?
- Mention the importance of banking services.
- Differentiate the ware house warrant from the warehouse receipt.
- What is meant by Government company?
- Give the meaning of crop insurance.
- What are the types of land transport?
- Write any three characteristics of commerce?

## PART IV

**7 X 5 = 35****Answer all the questions.**

- What are the hindrances of commerce? How are they overcome? (OR)  
 What are the types of co-operative society? (OR)
- Discuss any five objectives of business?  
 What are the advantages of MNC's? (OR)
- Compare industry, commerce and trade.  
 What are the features of Departmental organisation? (OR)
- Explain the characteristics of Sole trading business.  
 Classify the various functions of Reserve Bank of India? (OR)
- What are the contents of partnership Deed?  
 Write a note on E-Commerce models. (OR)
- Explain the different types of transport.  
 Explain the various secondary functions of commercial banks. (OR)
- Explain the different types of ware houses.  
 Explain the principles of Insurance.