

# **AVB PUBLIC SCHOOL**



## **SUMMER BREAK ASSIGNMENT (2024-2025) CLASS - XI**

## ENGLISH -301

### **WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ENGLISH CLASS REGISTER:**

Q1. You are Jacqueline from 27, Green Park, New Delhi. Your pet dog Brownie is missing. Write advertisement for the missing columns of a newspaper.

Q2. You would like to let out a portion of your independence house for office useful stuff. Write an advertisement for the classified columns of the local newspaper giving all the necessary details. Write the advertisement in not more than 50 words.

Q3. Fill the gaps with a suitable form of the verb in brackets:

Anyway, we (a)\_\_\_\_\_ (sit) in the plane and (b)\_\_\_\_\_ (just / take) off when there (c)\_\_\_\_\_ (be) a loud bang from the right hand side of the plane and I could see a lot of smoke coming from one of the engines. Of course, everyone (d)\_\_\_\_\_ (start) looking around but the plane (e)\_\_\_\_\_ (carry) on flying normally. And then a few minutes later the pilot\_\_\_\_\_ (come) on to the PA and said there was a problem with one of the engines and we'd have to return to the airport.

Q4. The grandmother herself was not formally educated but was serious about the author's education. How does the text support this?

Q5. How does the poet's past differ from her mother's? ( A Photograph)

Q6. Explain: "Mourad enjoyed being alive more than anybody else who had ever fallen into the world by mistake".

Q7. How does the narrator portray his Uncle Khusrove?

Q8. Briefly bring out the significance of the title- 'The Summer of the Beautiful White Horse'?

## PHYSICS

### **WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ASSIGNMENT REGISTER:**

#### **UNIT 1: DIMENSIONAL ANALYSIS AND MOTION IN A STRAIGHT LINE.**

Q1. How many ergs are there in 1KWH? Calculate using dimensional formula.

Q2. The value of Stefan's constant is  $\sigma = 5.67 \times 10^{-8} \text{Js}^{-1}\text{m}^{-2}\text{K}^{-2}$ . Find its value in the cgs system.

Q3. If the units of force were kilo Newton, that of time millisecond and that of power kilowatt, what would be the units of mass and length in the required system of units?

Q4. The critical velocity ( $v$ ) of flow of a liquid through a pipe of radius ( $r$ ) is given by  $v = \eta/\rho r$  where  $\rho$  is density of the liquid and  $\eta$  is the coefficient of viscosity of the liquid. Check the correctness of the given relation.

Q5. Write the dimensions of  $a \times b$  in the relation  $E = (b-x^2)/at$  where  $E$  is energy,  $x$  is distance and  $t$  is time.

Q6. The velocity  $v$  of a particle depends upon time  $t$ , according to the equation

$$v = a + bt + c/(d+t)$$

Write the dimensions of  $a$ ,  $b$ ,  $c$  and  $d$ .

Q7. The frequency of vibration ( $v$ ) of a string may depend upon length ( $L$ ) of the string, Tension ( $T$ ) in the string and mass per unit length ( $m$ ) of the string. Using the method of dimensions, derive the formula for  $v$ .

Q8. If energy, velocity and time are fundamental units, what will be the dimensions of surface tension.

Q9. If the speed of light  $c$  ( $3 \times 10^8$  m/s), Planck's constant  $h$  ( $6.6 \times 10^{-34}$  J/s) and gravitational constant  $G$  ( $6.67 \times 10^{-11}$  mks units) be chosen as fundamental units. Find out the dimensions and value of the unit of mass.

Q10. In an instrument, the Vernier scale has 30 divisions which coincide with 29 divisions of the main scale. The value of each main scale division is 0.5 mm. Find the least count of the instrument.

Q11. Motion of a particle is given by the equation  $s = 3t^3 + 70t^2 + 14t + 8$  metre. Find the value of acceleration at time  $t$  at one second

Q12. A person sitting in a balloon which is going up with speed 300 meters per second if the height of the balloon is 300 meters from the ground and the person dropped a packet to the earth, calculate the time taken by the packet to reach the earth and also calculate the height of the balloon at that time.

## **CHEMISTRY – 043**

### **WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ASSIGNMENT REGISTER:**

Q1. The molarity of a solution obtained by mixing 800 mL of 0.5 M HCl with 200 mL of 1 M HCl will be \_\_\_\_.

- a.) 0.8 M      b.) 0.6 M      c.) 0.4 M      d.) 0.2 M

Q2. The number of molecules present in 1 ml of water is \_\_\_\_.

- a.) 1      b.) 1000      c.)  $2.69 \times 10^{19}$       d.)  $6.02 \times 10^{20}$

Q3. Perform the following calculations up to a proper number of significant figures:

i.)  $(1.20 \times 10^{-6}) + (6.00 \times 10^{-5})$

ii.)  $(2.164 \times 10^5)^{1/2}$

iii.)  $(9.13 \times 10^{-2}) (7.006 \times 10^{-3})$

iv.)  $4.00 \times 10^{-2} + 3.26 \times 10^{-3} + 1 \times 10^{-6}$

Q4. What are some commonly used quantities?

Q5. What do you mean by precision and accuracy?

Q6. A solution is prepared by adding 60 g of methyl alcohol to 120 g of water. Calculate the mole fraction of methanol and water.

Q7. You are given 1L of 0.15 M HCl and 1L of 0.40 M HCl. What is the maximum volume of 0.25 M HCl that you can make from these solutions without adding any water?

Q8. The relative abundance of various isotopes of silicon is as Si (28) = 92.14%, Si (29) = 4.65% and Si (30) = 3.10%. Calculate the average atomic mass of silicon.

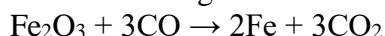
Q9. A solution of oxalic acid  $(\text{COOH})_2 \cdot 2\text{H}_2\text{O}$  is prepared by dissolving 0.63 g of the acid in 250 mL of the solution. Calculate

i.) Molarity of the solution

ii.) Normality of the solution

Q10. a.) How many moles of nitrogen are needed to produce 8.2 moles of ammonia by reaction with hydrogen?

b.) How many moles of iron can be made from  $\text{Fe}_2\text{O}_3$  by using 16 mol of carbon monoxide in the following reaction?



Q11. How many protons, electrons, and neutrons are there in the following nuclei?

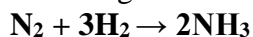
i.)  $^{17}_8\text{O}$       ii.)  $^{25}_{12}\text{Mg}$       iii.)  $^{80}_{35}\text{Br}$

Q12. State the drawbacks of the Rutherford Model of an atom.

Q13. Calculate and compare the energies of two radiations, one with a wavelength of 800 nm and the other with a wavelength of 400 nm.

Q14. What is the photoelectric effect? State the results of the photoelectric effect experiment that could not be explained based on the laws of classical physics. Explain this effect based on the quantum theory of electromagnetic radiations.

Q15. Dinitrogen and dihydrogen react with each other to produce ammonia according to the following chemical equation:



i.) Calculate the mass of ammonia produced if  $2.00 \times 10^3$  g of dinitrogen reacts with  $1.00 \times 10^3$  g of dihydrogen.

ii.) Will any of the two reactants remain unreacted?

iii.) If yes, which one and what would be its mass?

## BIOLOGY

### **WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ASSIGNMENT REGISTER:**

Q1. Make an investigatory project on any topic of your choice, provided that the topic must be of Botany or Zoology or any integrated field of Biology.

#### **Answer the following questions:**

- i) What is a Mesosome? Mention its functions.
- ii) What are nuclear pores? State their functions.
- iii) Explain the structure of the following with the help of well-labelled diagram:  
(a) Nucleus                      (b) Chloroplast
- iv) Explain the types of Chromosomes on the basis of the position of Centromere.
- v) Define the following terms:  
(a) Systematics              (b) Taxonomy              (c) Heterocysts              (d) Mycoplasma  
(e) Viroids  
(f) Taxonomic Hierarchy      (g) Species                      (h) Algal Bloom                      (i) Lichens  
(j) Prions
- vi) Explain the types of the following in detail:  
(a) Fungi                      (b) Protista

## ARTIFICIAL INTELLIGENCE - 843

### **WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ASSIGNMENT REGISTER:**

Q1 Multiple choice questions/ Fill ups :

(a) Statement 1: Artificial Intelligence is a technique that enables a machine to perform tasks related to cognitive capabilities of a human being, like perceiving, learning and reasoning.

Statement 2: Artificial Intelligence is the science and engineering of making intelligent machines.

- (i) Both Statements 1 and 2 are correct
- (ii) Only statement 1 is correct
- (iii) only statement 2 is correct
- (iv) both statement 1 and 2 are correct

(b) Which among the following devices can play music, take photographs and videos on the fly?

- (i) Kuri Robot                      (ii) Google Nest
- (iii) Boston Dynamic      (iv) Nest learning

(c) Who made the first reasoning program ?

- (i) Allen Newell and Herbert Simon
- (ii) J.C. Shaw and Herbert Simon
- (iii) Allen Newell and J.C. Shaw

(iv) John McCarthy and J.C. Shaw

(d) Which among the following was the first programming language?

- (i) SYBASE                      (ii) PROLOG  
(iii) BASIC                      (iv) PASCAL

(e) Unscramble the word and find the type of learning in which data is labeled.

- (i) NSUEPURVID                      (ii) EINFRRMOENCET  
(iii) AHMINCE                      (iv) RSPESRVUIED

(f) \_\_\_\_\_ a self- driving car, wins the DARPA Grand Challenge.

(g) \_\_\_\_\_ was the founder of the Google Brain Deep Learning Project.

(h) \_\_\_\_\_ is also frequently used for facial recognition with an image.

(i) \_\_\_\_\_ can be defined as a representation of facts or figures about some real life entity.

**Q2 Answer the following:**

- (i) What is Artificial Intelligence?  
(ii) Who is the founder of AI  
(iii) List various cognitive skill in AI?  
(iv) What are the different Types of AI?  
(v) What are the different Domains of AI  
(vi) Write any two benefits and limitations of AI.  
(vii) Write any two examples of machine learning from our real life.  
(viii) List few common Job Roles In AI  
  
(ix) Write few essential Skills and Tools for Prospective AI Careers .  
(x) List few opportunities in AI across Various Industries.

**Q3 Practical File Work**

- (i) Identify ten companies currently hiring employees for specific AI positions.  
( Note down the technical skills and soft skills listed by any two companies for the specific AI position.)  
(ii) Write an article on “IBM Project Debater – Interesting facts”  
(iii) Try to create a chatbot on ordering ice-creams using any of the following platforms:  
• Google Dialog Flow  
• Botsify.com  
• Botpress.com

Take screen shots of all the steps and paste it in your practical file.

(iv) There are sites where you can create your own AI model by giving some inputs and getting the desired out.

**Try to create your own projects on “AI in the Agricultural Sector ”. (Refer Page no 62 of your book)**

**WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ASSIGNMENT REGISTER:**

Q1 Convert the following numbers. Show all your rough work

- (i) Convert the Binary number 101011 to its Decimal equivalent.
- (ii) Convert  $(11011.101)_2$  to decimal.
- (iii) Convert  $(105.15)_{10}$  to binary
- (iv) Convert  $(23.25)_8$  to decimal
- (v) Convert  $(1E.8C)_{16}$  to decimal
- (vi) Convert  $(11100.1010)_2$  to hexadecimal equivalent.
- (vii) Convert the Hexadecimal number  $(10AF)_{16}$  to its Binary equivalent.
- (viii) Convert the Hexadecimal number  $(A42)_{16}$  to its Octal equivalent.
- (ix) Convert the Octal number  $(762)_8$  to its hexadecimal equivalent
- (x) Convert the  $(43)_{10}$  to its Binary number

Q2 Define the following gates and draw logic circuit diagram

- (a) OR Gate
- (b) AND Gate
- (c) NOT Gate
- (d) NAND Gate
- (e) NOR Gate

Q3 Prove by Boolean Algebra rules  $X(X + Y) = X$

Q4. Prove by Truth Table

- (a)  $X + X'Y = X + Y$
  - (b)  $AB + AC + ABC = AB + AC$
- Q5 Construct a logic diagram for expression
- (a)  $A \cdot B + C$
  - (b)  $A \cdot B + B \cdot C$
  - (c)  $B \cdot (A + C)$

Q6. Programming Section

- (a) Write a program to calculate compound simple interest after taking the principle, rate and time.
- (b) Write a program to check the given year is leap year or not.
- (c) Write a program to take two numbers and check that the first number is fully divisible by second number or not.
- (d) Write a program to take the temperatures of all 7 days of the week and displays the average temperature of that week.

**Q7 ART INTEGRATION PROJECT**

**Prepare a PowerPoint Presentation or Video on “Use of Python Language in App Development”.**

**PSYCHOLOGY – 037**

**WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ASSIGNMENT REGISTER:**

Q1. Who among the following psychologists have suggested that an intelligent individual not only adapts to the environment, but also actively modifies or shapes it?

- I. Gardner
- II. Sternberg
- III. Carl Jung
- IV. Guilford

Q2. Which psychologist believed that there is a common structure on which people differ from each other?

- (a) Gordon Allport
- (b) Raymond Cattell
- (c) Sigmund Freud
- (d) HJ Eysenck

Q3. In the following question, a statement of Assertion (A) is followed by a statement of the Reason (R). Mark the correct choice.

Assertion (A) An individual intelligence test is one which can be administered to one person at a time. A group intelligence test can be administered to several persons simultaneously.

Reason (R) Individual tests allow people to answer orally or in a written form or manipulate objects as per the tester's instructions. Group tests generally seek written answers usually in a multiple-choice format.

Codes

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
- (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
- (c) Assertion (A) is true, but Reason (R) is false
- (d) Assertion (A) is false, but Reason (R) is true

Q4. Monika has to be assessed for her abilities of creativity and original thinking. The test to be used by the psychologist will involve the following.

- (a) Convergent thinking
- (b) Divergent thinking
- (c) Both convergent and divergent thinking
- (d) Memory and logical thinking

Q5. Anna's application for admission to the college of her choice got rejected. When talking about the admission to the college with others, she tells everyone that she was never interested in studying in that college. Identify the defence mechanism used by Anna.

- (a) Repression
- (b) Reaction formation
- (c) Denial
- (d) Rationalisation

Q6. Priyanka is considered as a gifted child who showed early signs of intellectual superiority since childhood, she shows larger attention span, good recognition memory, sensitivity to environmental changes, and early appearance of language skills.

What type of traits a gifted child adhered with?



- I. Advanced logical thinking
- II. High level of intrinsic motivation
- III. Solitary academic activities
- IV. Passive generalisation

Choose the correct option.

- (a) I and II
- (b) II and III
- (c) I, II and III
- (d) II and IV

Q7. Which among the following provides us necessary information that may be used to change, modify, or strengthen certain aspects of self?

- (a) Self-instruction
- (b) Self-reinforcement
- (c) Observation of others' behaviour
- (d) Observation of own behaviour

Q8. In the following question, a statement of Assertion (A) is followed by a statement of the Reason (R). Mark the correct choice.

Assertion (A) When you say, "I know who I am", the self is being described as a knower as well as something that can be known.

Reason (R) As a subject (actor) the self actively engages in the process of knowing itself. As an object (consequence) the self gets observed and comes to be known.

Codes

- (a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A)
- (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)
- (c) Assertion (A) is true, but Reason (R) is false
- (d) Assertion (A) is false, but Reason (R) is true

Q9. Jaqueline is a very open minded teenage girl. She loves parties, outings and enjoys being at the centre of attention among her peer group. Which personality characteristics are associated with her?

Q10. Technologically advanced societies adopt child rearing practices that foster skills of generalisation and abstraction, speed, minimal moves and mental manipulation among children. What type of behaviour, these societies promote?

Q11. Read the case and answer the questions that follow.

As in the case of other mental and physical characteristics, such variations can be attributed to the complex interaction of heredity and environment. There is no disagreement that creativity is determined by both heredity and environment. Limits of the creative potential are set by heredity, environmental factors stimulate the development of creativity. How much of the creative potential can be realised, when and in what specific form and direction is largely determined by environmental factors such as motivation, commitment, family support, peer influences, training opportunities, etc. Although no amount of training can transform an average person to the level of Tagore, Shakespeare, etc. but it is also true that every individual can raise her/his level of creative potential beyond its present level.

What do you understand about creativity?

Limits of the creative potential are set by heredity, environmental factors stimulate the development of creativity. Explain.

Q12. Self-esteem shows a strong relationship with our everyday behaviour. Justify this statement with the help of an example.

Q13. Harish, a Passport issuing officer is known as a corrupt and greedy government employee. He treats people according to his/her capacity to pay him bribe to get their work done. When there is some external pressure, he surprisingly works honestly. Explain how consistency in behaviour, thought and emotion of an individual across situations and across time periods characterises her/his personality.

Q14. Explain the Pass model of intelligence with the help of an example?

Q15. Explain the self-report measures that are used to assess personality in detail?

**Practical Work: Development of case profile: Using appropriate methods like interview, observation & psychological tests.**

## **PHYSICAL EDUCATION**

### **WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ASSIGNMENT REGISTER:**

#### **Short Type Answer**

Q1. Discuss the career opportunities in communication media in brief.

Q2. Write a short note on performance related careers:

(a) As player

(b) As coach

Q3. Write down the rules of competitions for Ancient Olympic Games.

Q4. Discuss about the National Olympic Committees.

Q5. Elucidate about the development of values through Olympism.

#### **Long Type Answer**

Q6. Write short notes in brief on the following:

(1) Olympic Motto

(2) Olympic Flag

(3) Olympic Flame

(4) Olympic Award

(5) Olympic Oath

Q7. Briefly explain the International Olympic Committee.

Q8. Elaborate the Khelo India Programme & Fit India Movement in detail.

#### **PRACTICAL FILE WORK**

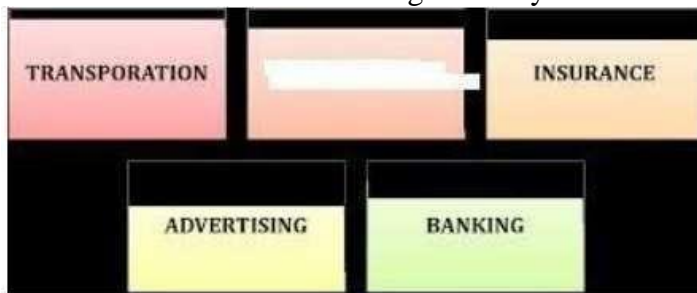
**PRACTICAL 1- SAI Khelo India Fitness Test.**

**PRACTICAL 2- anyone IOA recognized sport/game of choice. Labelled diagram of field and equipment. Also mention its rules, terminologies and skills.**

## BUSINESS STUDIES

### WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ASSIGNMENT REGISTER:

1. Which among the following is not a feature of business?  
a) Production or procurement of goods and services.  
b) Dealing in goods and services on regular basis.  
c) Certainty of Return.  
d) Profit earning.
2. Support services to industrial business activities are clubbed under? (a) Commercial industries (b) Primary industries  
(c) Secondary industries (d) Tertiary industries
3. A partner who allows the use of his name and goodwill for the benefit of the firm and can be represented as a partner is known as:  
a) Active Partner (b) Sleeping Partner  
c) Nominal Partner (d) Secret Partner
4. Give the name of the remaining auxiliary to trade missing in the picture



5. 'Strikes' come under which type of risk:  
a) Natural Causes (b) Human Causes  
c) Economic Causes (d) None of these.
6. 'Business is an organised institution that operates to provide goods and services under the incentive of private gain'. Explain.
7. Mr Ramit is a chartered accountant in a multinational company. He gets ₹ 1, 85,000 per month as his salary. On weekends, Mr. Ramit goes to near by village and teaches some slum children, he does not charge anything from them, he does it out of sympathy and concern for poor children. This gives him mental and psychological satisfaction.  
i) Working as CA in a MNC refers to which type of human activity?  
ii) Teaching students in slum is which type of human activity?  
iii) Give two differences between the activities identified in part (i) and part (ii).
8. Manjeet Pvt. Ltd is a reputed company manufacturing computers. The company is earning a considerable profit. Both the proprietors and the employees are putting their best efforts to make good quality products available to the customers at low price, paying its shareholders a good amount of dividends and the employees a reasonable remuneration. This

contributes to the successful operation of the business. With increased profits over the time, the company's foundation becomes strong and it earns a good reputation in the society. It utilises its profit to finance its growth and expansion requirements.

Explain the role of profit in the context of Manjeet Pvt. Ltd by quoting the lines from the abovepara.

9. After completing his study, Sarthak decided to enter into business to earn profits and create employment opportunities in the country. Taking advantage of the 'start up' scheme of the government of India. He decided to venture into the business manufacturing acupressure chairs. He decided to sell his products not only in India but also abroad. He established his factory in a remote village of Uttar Pradesh and initially employed 20 workers. Being of cautious nature, he insured his machine and factory building against fire, theft and natural calamities. For the purpose of finance, he obtained a loan from SBI. For creating demands for his product, he gave a contract to an advertising company.

A) In which category of industry did Sarthak venture into? Is sarthak innovative? Support your answer.

b) "He decided to sell his products not only in India but also abroad."

C) Which category of trade is being referred here?

Sarthak used number of auxiliaries to trade. Identify them.(any two)

Give the name of industry which is commonly used for auxiliaries to trade.

10. A sole proprietor directly reaps the benefits of his/her efforts as he/she is the sole recipient of all the profit. The need to share profits does not arise as he/she is the single owner.

Identify the advantage of sole proprietorship indicated above

Explain any other three merits of sole proprietorship.

11. The business assets of an organisation amount to Rs. 50,000 but the debts that remain unpaid are Rs. 80,000. What course of action can the creditors take if

The organisation is a sole proprietorship firm

The organisation is a partnership firm with A and B as partners.

Which of the two partners can the creditors approach for repayment of debt? Explain giving reasons.

12. Differentiate between Sole proprietorship and Partnership on the basis of : i) Number of Persons ii) liability iii) Stability.

**13. Prepare a collage on E-commerce / E-banking/ Digital Marketing.**

## **ACCOUNTANCY - 055**

### **WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ASSIGNMENT REGISTER:**

Q1. Answer the following:

a) Which of the following is not a business transaction?

a. Bought furniture of ₹ 10,000 for business

b. Paid for salaries of employees ₹ 5,000

- c. Paid son's fees from her personal bank account ₹ 20,000
- d. Paid son's fees from the business ₹ 2,000

b) Which qualitative characteristic of accounting information is reflected when accounting information is clearly presented?

- a. Understandability
- b. Relevance
- c. Compatibility
- d. Reliability

c) M/s SD Ltd. has invested Rs. 10,000 in the shares of Reliance industries Ltd. Current market value of these shares is Rs. 10,500. Accountant of S Ltd. wants to show Rs. 10,500 as value of investment in the books of accounts, which accounting convention restricts him from doing so?

- (A) Full Disclosure
- (B) Consistency
- (C) Conservatism
- (D) Materiality

d) As per income Tax Act, accounting period is

- (A) From 1st Jan to 31st Dec
- (B) From 1st April 1 to 31st March
- (C) From 1st July to 30th June
- (D) From Diwali to Diwali

Q2. Distinguish between:

- A. Debtors and Creditors
- B. Profit and Gain.

Q3. Define different external and internal users of accounting information?

Q4. Explain each of the following accounting terms with the help of an appropriate example:

- a) Fixed assets
- b) Revenue
- c) Expenses
- d) Short-term liability e) Capital

Q5. Enumerate the following concepts of Accounting:

- (A) Business Entity Concept
- (B) Matching Concept
- (C) Accounting Period Concept
- (D) Historical cost concept

Q6. State Double Entry Book Keeping system of Accounting. Define any five advantages of this system of Accounting.

Q7. Give three examples of each of the following:

- A. Fictitious Assets
- B. Intangible Assets
- C. Capital Expenditure

Q8. "Capital is the liability for the business." Explain this statement with the principle applied.

**# Prepare an Art integrated project from the following topics:**

**Career in Commerce**

**Different Accounting Terms**

**Advantages of Accounting**

**Accounting principles**

## Different accounting Concepts

### ECONOMICS – 030

#### **WRITE THE ANSWERS OF THE FOLLOWING QUESTIONS IN YOUR ASSIGNMENT REGISTER:**

##### Multiple Choice Questions (MCQ)

1. When the Percentage change in Quantity demanded is less than percentage change in price, elasticity of demand is :

- a) Less than unity                      b) More than unity  
c) Equal to unity                      d) None of the above

2. The statistical study begins with collection of data and ends with:

- a) Organization of Data                      b) Analysis of Data  
c) Interpretation of Data                      d) Presentation of Data

3. The survey which helps in pre-testing the questionnaire is called .

4. NSSO provides periodic estimates of:-

- a. Literacy and utilisation of educational services  
b. Employment and Unemployment  
c. Manufacturing and service sector enterprises  
d. All of these

5. Distinguish between increase in demand and increase in quantity demanded of a commodity.

6. When the price of a good is Rs.13 per unit ,the consumer buys 11 units of that good. When price rises to Rs 15 per unit , the consumer continues to buy 11 units. Calculate price Elasticity of Demand.

7. Explain the effect of the following on Price Elasticity of Demand of a commodity:

- Number of substitutes  
Nature of commodity

8. When price of a good is Rs.7 Per Unit a consumer buys 12 units .When Price falls to Rs.6 per unit , he spends Rs.72 on the good .Calculate Price Elasticity of Demand by using Percentage method.

9. Write any four methods of collecting primary data .Explain any one method along with its two merits and demerits.

10. “Statistics are figure, but all figures are not statistics”. Justify the statement.

### MATHEMATICS- 041

#### **❖ Write down all the questions in your respective notebooks:**

Q1. Multiple choice questions (MCQs):

(A) Let  $A = \{1, 2, 3, 4, \dots, 10\}$  and  $B = \{2, 4, 6, 8, 10\}$ . The value of  $A - B$  is equal to

- 1)  $\{2, 4, 6, 8, 10\}$
- 2)  $\{1, 5, 7, 8, 9\}$
- 3)  $\{1, 3, 5, 7, 9\}$
- 4) None

(B) Which of the following is NOT the Function?

- 1)  $R = \{(2,1), (3,1), (4,1), (5,1)\}$
- 2)  $R = \{(1,5), (1, 6)\}$
- 3)  $R = \{(2,4), (1,5), (2,7)\}$
- 4)  $R = \{(2,2), (3, 3), (1, 1), (-1,1), (2, 4)\}$

(C) Which of the following are null sets?

- 1) Set of even natural numbers divisible by 2.
- 2) Set of even prime numbers.
- 3) Set of lines parallel to  $x - axis$ .
- 4)  $\{X: X \text{ is a natural no, } 5 < x < 6\}$ .

(D) Let  $A = \{1, 2, \{3, 4\}, 5\}$ . Which of the following statements are incorrect and why?

- 1)  $\{3, 4\} \in A$
- 2)  $\{\{3, 4\}\} \in A$
- 3)  $\{1, 2, 5\} \subset A$

Q2. How many numbers of subsets are there if the set  $B = \{1, 2, 4\}$ ? Write down the subsets.

Q3. Let  $A = \{1, 2, 4, 5\}$ ,  $B = \{2, 3, 5, 6\}$  and  $C = \{4, 5, 6, 7\}$ . Verify the following:

- I.  $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
- II.  $A \cup (B - C) = (A \cup B) - (A \cup C)$

Q4. If  $f(x) = x^2 - 3x + 4$ , then find the value of  $x$  satisfying the equation  $f(x) = f(2x+1)$ .

Q5. If  $f(x) = 1/1 - x$ , show that  $f[f\{f(x)\}] = x$ .

Q6. Find the domain and range of the following functions:

$$F(x) = \sqrt{25 - x^2}$$

$$F(x) = |x - 1|$$

Q7. Let  $f(x) = 2x + 5$  and  $g(x) = x^2 + x$ . Describe

- I.  $f + g$
- II.  $fg$
- III.  $f - g$
- IV.  $f/g$

Find the domain in each case.

Q8. Sketch the graph of modulus function and Greatest Integer Function.