Section- I

Clean Development or Kyoto or Global Warming or Climate Change

Q. No. 2. (a) What were the main objectives of Clean Development Mechanism? Also explain the reasons for the criticism on Koyoto Protocol by the developed countries. (2016)

Q. No. 2. (C) What do you mean by Ozone depletion and how we can prevent its depletion? (2017)

Q. No. 9 (b) Comment, Green House Effect is a blessing. Also discuss Enhanced Green House Effect and its relation with global warming. (2016)

Q. 4. (c) Discuss the possible negative effects that Pakistan may face due to Global Warming and Climate Change. What steps may be helpful to control the climate change? (2022)

Q. 2. (d) Discuss various factors which affect the variations in the climate of a place. (2022)

Q.2 (d) Why are Scientists worried about the increase of CO2 in atmosphere? (2019)

Q.5 (a) What does Ozone depletion mean and how can we protect the ozone layer? (2019)

Q. No. 2. (B) Briefly explain the main reasons of water-logging in Pakistan. (2017)

Carbohydrates

Q. 3. (b)What are carbohydrates? Classify and give detail of each class along with examples. (2020)

Q. No. 3. (C). Define 'Carbohydrates'. Describe different steps to digest these in the human body. (2018)

Cell

Q. No. 3. (D). Describe the 'Cell Structure'. Write down at least three differences between an animal cell and plant cell. (2018)

Q. 3. (a)Explain with examples the relationship between cells, tissues and organs.   (2021)

Q. 3. (b) Explain the differences in structure & function between a cell wall and a cell membrane. (2021)

Acid Rain

Q. No. 2. (D) What is an Acid Rain and how it is produced. Briefly describe the dangers associated with it? (2017)

Q. No. 4. (A). What is 'Acid Rain'.Describe its causes and how it can be prevented? (2018)

Water Cycle or Water Molecule

Q. No. 6 (b) What is hydrological cycle? Discuss its importance. (2016)

Q. 4. (b) Describe water cycle and briefly explain the major processes involved in water cycle?   (2021)

Q. No. 8. (a) Explain the shape of water molecule with the help of Molecular Orbital Theory, also draw its orbital diagram. (2016)

Atmosphere or Lithosphere

Q. 4. (a) What is the sequence of strata of atmosphere and on what factors does it depends?   (2021)

Q. 4. (c)What is the Difference between atmosphere and lithosphere? Explain various components of lithosphere.   (2021)

Q. 4. (a)Briefly describe the various segments of atmosphere. How these segments are maintaining the Earth Radiation Balance? (2020)

Q. 4. (b)How the organic particulate matter enters in the atmosphere. Also describe the sources? (2020)

Food

Q. 4. (d) Differentiate between food contaminants and food adulterants. (2021)

Q. 5. (a) Define the term "malnutrition". Elaborate its major causes and consequences.   (2021)

Q. 5. (b) Explain how a slice of bread after few days decomposes due to the growth of fungi.   (2021)

Q. No. 9. (a) Discuss importance of preservatives and antioxidants in food. (2016)

Q. No. 5. (C). Write a comprehensive note on 'Balanced Diet'. (2018)

Q. 3. (c) Discuss different methods of Food preservation. (2020)

Cholesterol

Q. No. 5. (b) What is Cholesterol? Discuss its importance, normal blood level and dangers of elevated levels with reference to the health and disease in humans. (2016)

Q.2 (b) People suffering from cardiovascular disease having high level of cholesterol in their blood, this often leads to build of fats on its internal arterial walls, suggests how this might be harmful to the heart (2019)

Fertilizers

Q.2 (c) Why the excessive use of chemical fertilizers should be avoided? (2019)

Pollution

Q. No. 2. (A) What are the factors responsible for environmental pollution? (2017)

Q. No. 4. (B). What is 'Water Pollution'. Discuss its causes and measurement methods. Name the countries with the highest and lowest percentage of it. (2018)

Q. 4. (a) Define the term Water Pollution. What indicators are used to measure the quality of water? (2022)

Computer

Q. No. 5. (A) Differentiate between RAM and ROM. (2017)

Q. No. 5. (B) Name three basic buses employed in a computer and explain what each is used for. (2017)

Q. No. 5. (C) Draw a basic computer block diagram and briefly explain the function of each part. (2017)

Q. No. 5. (D) Describe various types of computers classified on the basis of size, memory, capacity and speed. (2017)

Q. 5. (c)What is a computer memory? Describe its units and discuss various types of memories.   (2021)

Vitamin

Q. No. 3. (D) What is the significance of Vitamins? Describe the sources, uses and deficiency symptoms of fat soluble vitamins. (2017)

Q.2 (a) Deficiency of vitamins causes different human diseases some of which are given in the table below choose the correct type of vitamin from the box and write in front of each disease.

Diseases caused due to lack of vitamin: Vit. A Vit. B1 Vit. C Vit. D Vit. E Vit. K

Name of the vitamin: 1.Poor night vision 2. Bleeding gums 3. Rickets in children 4. Beri-Beri 5. Anaemia (2019)

Energy or Renewable Energy or Non-Renewable Energy

Q. No. 3. (B). Define the term 'Bio-Fuel'. How is it helpful to promote clean energy? (2018)

Q.3 (a) Differentiate between the renewable and non- renewable sources of energy giving example of each one of them. (2019)

Q. 2. (d)Differentiate between the renewable and non renewable energy sources. Briefly explain Geothermal Energy and Hydro Electricity. (2020)

Q. 2. (d)What are the advantages and limitations of renewable energy resources? Briefly explain the prospects of non-conventional energy resources in Pakistan. (2021)

Q. 2. (b) Differentiate between renewable and non-renewable sources of energy. Briefly explain wind energy, solar energy and biofuels. (2022)

Tsunami or Cyclones or Tornado or Tidal Waves

Q. No. 7. (a) What is tsunami? How the tsunamis generated and what are their characteristics? (2016)

Q. No. 4. (D). Describe different causes of 'Tsunami'. Is there any difference between a Tsunami and a tidal wave? Name the worst Tsunami ever recorded. (2018)

Q. 2. (c) What is a Tornado? How is it formed and what are the effects of tornadoes? Explain briefly. (2022)

Q.3 (c) What is the most dangerous part of hurricane and how do cyclone affect humans?   (2019)

Q. 5. (b)Differentiate between Middle Latitude Cyclones and Tornadoes. (2020)

Landfills

Q. No. 2 (b) Differentiate between Sanitary and Industrial Landfills, also describe the land selection criteria for Landfills. (2016)

Artificial Intelligence

Q. No. 3. (a) Write a short note on artificial intelligence. (2016)

Q. No. 5. (D). What is 'Artificial Intelligence'? How is it helpful for humanity? (2018)

Q. 5. (d) Explain Artificial Intelligence. What do you understand by the term Robotics? (2022)

Radioactivity

Q. 4. (c) What is natural radioactivity? How it is different from the artificial radioactivity? (2020)

Q. 4. (d) What is Radioactivity? Differentiate between natural and artificial radioactivity. (2022)

GPS

Q. No. 3. (b) Write short notes on: (2½ each)

(ii) Global Positioning System (2016)

Q. 5. (d)What is GPS? How does it work? (2020)

Fiber Optics

Q. No. 3. (b) Write short notes on: (2½ each)

(i) Fibre Optics (2016)

Q. No. 5. (B). How an 'Optical Fiber' is constructed? How is it helpful in transmitting the electromagnetic radiations? (2018)

Q.3 (b) Give a brief account of optic fibers. What is their importance in present day telecom system? (2019)

Q. 3. (d)Where and how Fiber Optics are used? Also write down their advantages and disadvantages. (2020)

Q. 5. (b) Explain the Optical Fiber. Explain how Fiber Optic Communication works? (2022)

Earthquake

Q. No. 7 (b) What is an earth quake? Discuss Richter Scale in this context. What was the intensity of the earth quake in Pakistan dated 26 October 2015 and where was the locus? (2016)

Q. 2. (c) World largest earthquake was assigned a magnitude of 9.5 by the United States Geological Survey on 22 May 1960 in southern Chile Valdivia. What do you know about earthquake? Also explain shallow-focus and deepfocus earthquakes. (2020)

Other Natural Disasters

Q. 2. (a)On 7th April 2012 an Avalanche hit a Pakistan military base in Gayari sector trapping 140 soldiers and civilians under deep snow. What is Avalanche; describe its four types with focus on most dangerous type? (2020)

Q. 2. (a) What do you know about Volcanoes? Discuss the causes and effects of volcanic eruptions. (2022)

Remote Sensing Technique

Q. No. 6. (a) What do you know about the Remote Sensing Techniques? Explain resolution and write down the names of its various types? (2016)

Q. 5. (a) What do you understand by the term Remote Sensing? Write its basic principle. Give its important applications. (2022)

Diseases

Q. No. 3. (A). Describe different causes and preventions of 'Polio' (2018)

Q. 3. (b) What is Polio? Discuss its symptoms, causes of spreading, prevention and vaccine. (2022)

Q. No. 4 (b) What are causative organism and vector for dengue, enlist possible ways of prevention from dengue. (2016)

Q. 5. (a) What do you know about Hepatitis? Describe its types and write down preventive measures. (2020)

Vaccines

Q. No. 4. (a) What are vaccines? Classify these and discuss DNA vaccines in detail. (2016)

Q.3 (d) What is the difference between vaccines and Antibiotics? How do antibiotics and vaccines contribute to health? (2019)

Q. 3. (a) Discuss Vaccination, types of Vaccines, their side-effects and effectiveness. (2022)

Antibiotics

Q.3 (d) What is the difference between vaccines and Antibiotics? How do antibiotics and vaccines contribute to health? (2019)

Heart & Other Organs of Human Body

Q. No. 3. (A) Explain in detail the common causes of Heart Attack. (2017)

Q. 3. (d) What is meant by the term double circulation? Briefly describe how the heart is adapted to keep blood flowing in a double circulation. (2021)

Q. No. 3. (C) Draw the structure of human ear and briefly explain its functions. (2017)

Q. No. 5. (a) Comment, 'liver is the chief chemist in human body'. (2016)

Atoms or Bonds

Q. No. 8 (b) What are the gamma rays? Explain their applications. (2016)

Q.5 (d) Why do atoms form bonds? Name three major types of chemical bonds. (2019)

Universe or Planet

Q. No. 2. (A). Describe different methods to estimate the age of the Universe. (2018)

Q. No. 2. (C). Explain the terms Dark Energy and Dark Matter. (2018)

Q. No. 2. (D). Define the term Black Hole. What's expected inside it? (2018)

Q. 2. (a) Differentiate between a star and a planet. What is the magnitude of a star and how the color of stars is correlated with their temperatures?   (2021)

Q. 2. (c)Briefly describe the most popular and accepted theory about the origin of the Universe.   (2021)

Earth

Q. No. 4. (B) Differentiate between the occurrence of Lunar and Solar Eclipse? (2017)

Q. No. 4. (C) Briefly explain what effects are produced due to Rotation & Revolution of Earth? (2017)

Q. No. 2. (B). Explain the formation of Lunar Eclipse. (2018)

Other IT Related Topics

Q. 5. (c)What is Open System Interconnections (OSI) and describe its layers? (2020)

Q. 2. (b) "Semiconductors are the Brains of Modern Electronics". Explain in detail what this quotation means. (2021)

Q. 5. (d) Differentiate between natural and artificial satellites. Briefly describe the working of communication satellites with some applications. (2021)

Q. 5. (c) Briefly explain the working and structure of a Cell Phone. (2022)

Q. No. 5. (A). Write a note, how data is stored on a 'Hard Disk'. (2018)

Q.5 (b) What are the different types of a network? Explain each briefly. (2019)

Q.5 (c) Why an indiscriminate / causal use of antibiotic may prove dangerous? (2019)

DNA and RNA

Q. 3. (c) What do you understand by the DNA and RNA? (2022)

Miscellaneous

Q. No. 3. (B) Differentiate between drug addiction and drug abuse. (2017)

Q. No. 4. (A) What is a mirage? Describe in detail the creation of mirage. (2017)

Q. No. 4. (D) Most of the household appliances utilize 'DC' then why we generate 'AC' at power stations? (2017)

Q. No. 4. (C). Write a comprehensive note on 'Smog'. (2018)

Q.4 (a) What is the importance of forests in the economy of a country? (2019)

Q.4 (b) Give a brief account of biotechnology. (2019)

Q.4 (c) Do the mammals always lay eggs? If yes, where in the world do they live? Write the name some of them. (2019)

Q.4 (d) How can the sun have such a strong gravitational field if its made of gases? (2019)

Q. 2. (b)What do you understand by Global Wind and Pressure patterns? Also explain wind and pressure features at higher altitude. (2020)

Q. 3. (a) What are Pesticides? Explain their different types; why persistent pesticides are more lethal for mankind? (2020)

Q. 4. (d)What are the Fossils? Discuss the importance of paleontology. (2020)

Q. 3. (c)What is meant by transpiration? Explain in detail the significance of leaf structure in the process of transpiration. (2021)

Q. 3. (d) What is Solid Waste? Discuss the main issues of Solid Waste Management in our country? (2022)

Q. 4. (b) What do you understand by the term Population Planning? Point out the different benefits of Population Planning. (2022)

Section II

Definitions and Difference or Theory portion

Q. No. 10. (a) Define and draw the following: (2½ each)

(i) Rightangle triangles (2016)

(ii) Equilateral triangles (2016)

(B). Define a Histogram. How is it constructed? What information may be deduced from it? (2018)

Q. No. 10. (b) There are nine students in a group having ages 15, 15, 16, 16, 16, 17, 17, 18, 19. Calculate mean, medium, mode and range of their ages also define the above mentioned terms: (2016)

Q. No. 13. (a) Differentiate between primary and secondary mental abilities. How the general mental ability scales differ from IQ test. (2016)

Q. No. 6. (A) Differentiate with examples between a "Pictogram" and "Histogram".

Q.7 (c) What is polygon? Describe different types of regular polygon. (2019)

Q. 6. (c) There are seven students in a group having ages 17,17,18,18,18,19,19. Calculate mean, median, mode and range of their ages. Also define these mentioned terms. (2020)

Q. 6. (d) How does mental ability scales differ from IQ test? (2020)

Q. 7 (d) What are social skills? Describe four causes of weak social skills. (2020)

Q. 8. (a) What do you understand by systematic sampling? Discuss its types. (2020)

Q. 6. (c) What do you understand by Mental Ability Scales? Differentiate between Aptitude and Intelligence? (2022)

Q. 6. (d) Discuss the factors affecting Intelligence. (2022)

Q. 8. (a) What do you understand by Sampling? Discuss Non-Probability Sampling. (2022)

Q.6 (d) What do you understand by measure central tendency? State its types. (2019)

Mean, Medium, Mode and Range

Q. No. 10. (b) There are nine students in a group having ages 15, 15, 16, 16, 16, 17, 17, 18, 19. Calculate mean, medium, mode and range of their ages also define the above mentioned terms: (2016)

Q. 6. (c) There are seven students in a group having ages 17,17,18,18,18,19,19. Calculate mean, median, mode and range of their ages. Also define these mentioned terms. (2020)

Relationship Problems

Q. No.7. (D) A told B that C is his father's nephew. D is A's cousin but not the brother of C. What relationship is there between D and C? (2017)

Direction Problems

Q. No. 8. (C) A man walks 2km towards North. Then he turns to East and walks 10km. After this he turns to North and walks 3km. Again he turns towards East and walks 2km. How far is he from the starting point? (2017)

Q. No. 6. (B). An automobile travels 3 km towards south, 4 km towards west, 5 km towards north and 2 km towards south-east. How far is it from its starting position? (2018)

Q. 7 (a) A child went 90m towards East, and then he turned Right and went 20m. Subsequently he turned Right and after going 30m he reached his uncle's house. From there he went 100m to his North. Determine how far he is from his starting point. (2021)

Q. 6. (a) For his morning walk Aslam went 110 meters towards east from his house and then turned right to keep walking for 40 meters before turning right again. After continuing to walk for 50 more meters, he turned right again and kept walking for another 120 meters before he sat down on a bench at the park. How far was the bench located from his house? (2022)

Share

Q. No. 8. (A) Divide Rs.500 between Arham, Mariam and Sarim so that Arham gets 2/3 of what Mariam gets and Mariam gets ¼ of what Sarim gets. Find the share of each. (2017)

Q. No. 6. (C). Tahir started a business with a capital of Rs. 15,000. After 5 months Umar also joined him with an investment of Rs. 30,000. At the start of 9th month, Usman joined them by investing Rs. 45,000. At the end of the year they earned a profit of Rs. 406,000. Find the share of each one. (2018)

Q.7 (a) Moiz and Mair share a lottery win of Rs. 2000 in the ratio of 1:4. Moiz then share this part between himself, his wife and his son.in the ratio of 4:5:1. How much more his wife gets over his son? (2019)

Q. 8. (d) Zahid left a property worth Rs 1750,000/. His family had to pay off a debt of Rs 150,000/. The rest of money was distributed between a son and a daughter. How much did each child receive if share of a son was double than that of a daughter? (2020)

Q. No. 6. (D). A man left his property of Rs. 640,000. A debt of Rs. 40,000 was due to him and Rs. 5,000 was spent on his burial. Distribute the amount between his widow, one daughter and two sons according to the Islamic Law. (2018)

Jumbled Words

Q. 7. (c) Find out the correct word from the given jumbled spellings.

(i) THRSI (ii) GNDREA (iii) SCHAMOT (iv) ONLNDO (v) HIODALY (2022)

Q. 8. (a) Find out the correct word from the given jumbled spellings.

(i) UORSEIS (ii) REGAHT (iii) TYLEAL (iv) RAMYR (v) RYUHR (2021)

Missing Number

Q. 6. (b) Find the missing number to complete each sum.

(a) $9 + 8 - 5 = 2 \times$ (-------------) (b) $3 \times 9 - 14 = 24 -$ (-------------) (c) $15 \div 3 \times 12 = 41 +$ (-------------) (d) $24 \div 4 + 5 = 66 \div$ (-------------) (e) $8 \times 6 - 13 + 3 = 7 \times 6 -$ (-------------)(2020)

Q. 8. (d) Find the missing numbers in the given series.

(i) 4, 18, ?, 100, 180, 294 (ii) 15, 31, 63, 127, ? (iii) 1, 8, 27, 64, 125, ? (iv) 132, 156, ?, 210, 240, (v) 8, 24, 12, 36, 18, 54, ? (2021)

Q. 7. (b) Find the missing number in the given series.

(i) 4, 16, 36, 64, ?, 144. (ii) 30, 29, 27, ?, 20, 15 (iii) 1, 7, 15, 25, ?, 51 (iv) 0, 2, 6, 12, 20, 30, ? (v) 48, 24, 72, 35, 108, ? (2022)

Code Language

Q. No. 8. (D) In a certain code language COMPUTER is written as RFUVQNPC. How will MEDICINE be written in that code language? (2017)

Q. No. 8. (D). In a certain code language LANDMINE is written as PYRBQGRC. How will HOMEMADE be written in that code language? (2018)

Q.7 (d) In a certain code computer is written as FRUVQNPC. How will MEDICINE will be written in code language? (2019)

Q. 8. (d) If in a certain language, BROTHER is written as QDGSNQA, then in the same language, SISTER would be written as ——? (2022)

Series

Q. No. 8. (C). Look at this series: F2, __, D8, C16, B32, What number should fill the blank? (2018)

Percentage

Q. No. 6. (A). It takes 3 liters of paint to cover an area of 24 square meters. What percentage increase in the quantity of paint would be required to cover an area of 50.4 square meters? (2018)

Q. 6. (b) The income of a company decreased by 10% and 15% in two successive years. What is the percentage of decrease in income after two years? (2022)

Q. No.7. (A) A man buys 5kg of meat at Rs.500 per kg. In addition, for every kilogram of meat purchased, he has to pay a consumption tax of 6% on the selling price. Calculate the total amount of money that he has to pay. (2017)

Q. 8. (c) During a sale a clerk was putting new price tags on each item. On one sweater, he accidentally raised the price by 20%, instead of lowering the price by 20%. As a result the price on the tag was Rs. 80 too high. What was the original price of the sweater? (2022)

Q. No. 11. (a) A distribution company provides households to departmental stores within a 50 kilometers radius. The table below shows how far each departmental store is from the godown of the distribution company. Distance from the godown of the distribution company Number of Stores 10

kilometers or less 03 11 to 20 kilometers 15 21 to 30 kilometers 26 31 to 40 kilometers 20 41 to 50 kilometers 16

(i) How many stores does the distribution company serve?

(ii) What is the most common distance of stores from the company's godown?

(iii) How many stores are 35 Km or more from the godown?

(iv) What percentage of stores are 31 Km or more from the godown? (2016)

Q. 6. (c) Mr. Faheem has dinner with his family at a restaurant which offers a 10% discount on food. The marked price of the food that they order was Rs.15000/-. Given that there was a service charges of 10% and GST is 17%, calculate the total amount of money he has to pay. (2021)

Histogram or Sampling or Statistics

Q. No. 6. (B) The teachers of a certain school were asked to indicate the average number of hours they spend on marking students assignments each day. The following set of data was obtained 6 4 3 1 2 2 3 1 4 1 2 5 3 4 5 2 2 3 3 1 2 2 3 1 4 2 Construct a frequency table and draw a Histogram illustrating the results. (2017)

Q. No. 6. (C) How many teachers responded to the survey? (2017)

Q. No. 6. (D) What the longest number of hours and most common number of hours are spent? (2017)

Probability

Q. No. 12. (a) Classification of blood groups is based on the presence or absence of inherited antigenic substances on the surface of red blood cells. In a survey of British population the blood group distribution among 1000 people was as follows: 300 had blood group A, 325 had blood group B, 250 had O and 125 AB. Out of this group a person was selected at random, calculate his probability of having blood group AB (2016)

Q. 8. (b) Blood groups of inhabitants of a village were checked. It was found that 600 people possessed blood group A, 650 possessed blood group B, 550 had blood group AB and 200 have blood group O. Calculate the probability of having blood group B. (ii) Calculate the probability of having blood group O. (2020)

Heigth, Weight, Shorter, Longer, Heavier, Lighter

Q. No. 11. (b) Read the following carefully and answer the questions following: Ahmad, Ali, Akbar, Nasir and Shehbaz are students of a college having different heights and weights. Ahmad weighs thrice as much as Ali and Ali weighs 5 times as much as Akbar. Akbar weighs half as much as Nasir and Nasir weighs half as much as Shehbaz.

(i) Who is the heaviest in weight?

(ii) Who is the is the lightest in weight?

(iii) Shehbaz is lighter in weight than which of the two students?

(iv) Shehbaz is heavier than which of the two students?

(v) Show the descending order of weights of the students? (2016)

Q. 7 (a) Mushtaq, Pervaiz, Ehsan, Umair and Saleem are friends having different heights and weights. Mushtaq weighs four times as much as Pervaiz and Pervaiz weighs double than Ehsan, Ehsan weighs half as much as Umair and Umair weighs half as much as Saleem. (i) Who is the heaviest among five friends? (ii) Who is the second heaviest? (iii) Who has lowest weight? (iv) Who are equal in weight? (v) Mention the descending order. (2020)

Order And Sequence

Q. No. 12. (b) Five friends Ahmad, Ali, Akbar, Nasir and Shehbaz went on summer vacation to five cities namely V, W, X, Y and Z by five different modes of transport, that is by bus, train, aeroplane, car and boat from point A. Akbar went to Y by car and Ali went to X by air. Nasir travelled by boat whereas Shehbaz went by train. For X and W there is no bus service. The person who went to X did not use boat to travel. Now answer the following questions.

(i) How did Ahmad travel and where did he go?

(ii) Which mode of transport was used by the person who travelled to X city? (2016)

Q.8 (a) Seven Piano Students T U V W X Y & Z are given a recital and their instructor is deciding the order in which they will perform, each student will play exactly one piece, a piano solo. In deciding the order of performance the instructor must observer following restrictions. (i) X cannot play first or second W cannot have played until X has played Neither T nor Y can play Seventh Either Y & Z must play immediately after W V must play immediately after, or immediately U Played (ii) If V play first, which one of the following must be true T plays sixth X plays third Z plays seventh T plays after immediately after Y W Plays immediately After X (2019)

Q. 7 (c) Five girls A,B,C,D,E and four boys W,X,Y,Z have to go to a trip in three cars, car-1,car-2 and car-3. The following restrictions for seating in car are to be observed: (i) Only three persons can sit in one car

(ii) At least one boy and one girl must be in each car (iii) A and D should remain together (iv) Z cannot sit with B or C in the same car Distribute boys and girls in three cars. (2020)

Basic Question or Equations

Q. No. 8. (A). Police officers are in pursuit of a stolen vehicle. Officer Baker is directly behind the stolen car. Officer Lopez is behind Baker; Officer O'Malley is behind Lopez. Officer Reinhart is ahead of the stolen car and coming from the opposite direction. Officer Reinhart makes a U-turn and joins the pursuit. He pulls in behind Officer Lopez. Officer Baker pulls up on the driver's side of the stolen vehicle and Officer Lopez pulls up on the other side. Which officer is directly behind the vehicle? (2018)

Q.7 (b) A farmer keeps hens and rabbits on his farm. One day he counted the total of 70 heads and 196 legs. How many more hens than rabbits does he have? (2019)

Q.8 (d) Each packet of washing powder carries a token and 4 token can be exchanged for free packet, How many free packets will I receive if I buy sixty four packets? (2019)

Q. No.7. (C) Two bus tickets from Rawalpindi to Islamabad and three tickets from Rawalpindi to Murree cost Rs.770 but three tickets from Rawalpindi to Islamabad and two tickets from Rawalpindi to Murree cost Rs.730. What are the fares for cities Islamabad and Murree from Rawalpindi? (2017)
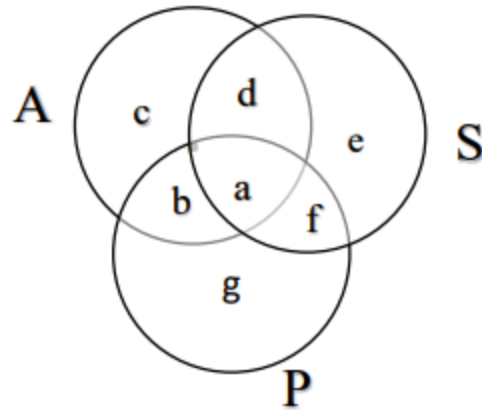
Distance

Q. 6. (d) Mr. Khawaja walked for 45 minutes at the rate of 3km/h and then ran for half an hour at a certain speed. At the end of that time he was 6km away from the starting point. How fast did he run? (2021)

Set

Q.8 (b) U = [Whole number from 10 to 24] A = [Even Number] B = [Number divisible by 5] Write down the number elements of A∩B (2019)

Q.8 (c) in the following diagram A represent American, S represent scientist and P represents politicians

(i) American those are politicians but not scientists will be. (ii) Scientists which are politicisms but not Americans will be (2019)

Cost and Sell Problems

Q.6 (c) The cost of hiring a car for 2 days in 2018 was Rs.264 which was 20% more than in 2013. What was the cost of hiring a car in 2013? (2019)

Q. 8. (b) Aslam is willing to use the stylish ceramics tiles in the lounge of his under-construction house. The shape of the tile is a right triangle, having the lengths of two legs of 12 cm and 4 cm. Each tile costs Rs. 15. How much will it cost to fill the lounge of 8 meters length and 6 meters width with these tiles? (2022)

Calculate Time

Q. No.7. (B) It takes Ali 30 minutes to mark a paper. Aslam only needs 25 minutes to mark a paper. If they both start marking papers at 10:00 AM, at what time they will finish marking at the same time? (2017)

Q.6 (a) Moiz was trying to sleep at one night but there was too much noise around him. His clock ticked every 5 seconds; a tap was dipping every seventh seconds and a pet dog snored every 12th second. He noticed on his clock that all three things happened together on the stroke of midnight. Find after how may seconds are three things happened together (2019)

Age Comparison

Q. 6. (a) A man is now 3 times as old as his son. In ten (10) years time, the sum of their ages will be 76. How old was the man when his son was born? (2021)

Q. 7. (d) Sara's mother is 6 times older than Sara, where as her brother Ali is twice as old as Sara. In three years' time the sum of their ages will be 72. How old are Sara, Ali and their mother now? (2022)

Chain Rule or Direct and Indirect Proportion

Q. No. 8. (B) A school has enough provision of food for 52 days. After 20 days a group of 400 students arrives and the food would have last for 24 days only. How many students are there in the school actually? (2017)

Q.6 (b) One pipe can fill a pool 1.25 times as fast as second pipe. When both pipes are opened they can fill the pool in five hours. How long it will take the fill the pool if only slower pipe is used? (2019)

Q. 8. (c) A group of 50 men can construct 20 kilometer road in 40 days. How long will 70 men take to complete same length of road? (2020)

Q. 6. (a) Tariq can do a tailoring job in 6 hours. Sajid does the same job in 4 hours. Irfan does it in 8 hours. Tariq and Sajid start doing the work. Sajid leaves after two hours and Irfan replaces him. How long would it take to complete the work? (2020)
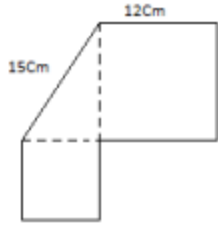
Average

Q. 7 (b) The average of 11 numbers is 63, that of the first 6 numbers are 60 and that of the last 6 numbers are 65. Find the 6th number. (2021)

Area and Perimeter

Q. 7 (b) A farmer needs to build a boundary wall around his farm. If the area of farm is 484 m2 , what will be the total area of the wall if it is two meters high on three sides and three meters high on one side? (2020)

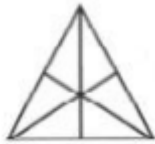Q. 6. (b) How many tiles of 20cm2 will be required to have a footpath 1m wide carried around the outside of grassy plot 24m long and 14m broad? (2021)

Q. 8. (c) Calculate the total area and perimeter of the given shape. (2021)

Find Number of Triangles

Q. 8. (b) Find the number of triangles in the following two images. (2021)

(i)

(ii)

Straigth Line or X and Y Relations

Q. No. 13. (b) Y = mX + C is an equation of straight line. Draw a graph showing relationship between X and Y and relate the equation to the slope and intercept on the graph. (2016)

Q. 7 (c) The following table shows some values of 'x' and the corresponding values of 'y' where, y = x3 – 3x – 10. x -3 -2 -1 0 1 2 3 4 y -28 -10 8 42 Complete the table and draw a graph between 'x' and 'y' to find the value of 'y' when x=1.8 and value of 'x' when y=10. (2021)
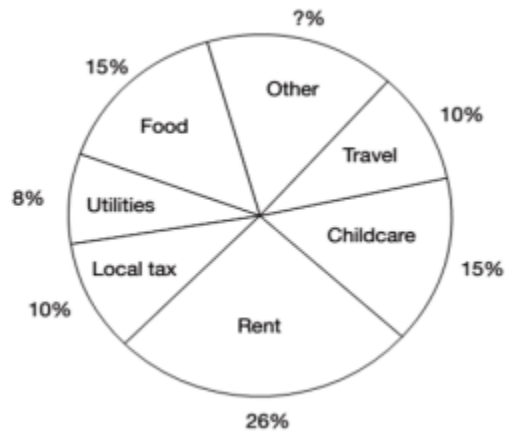
Interest

Q. 7 (d) Mr. Raheel invests Rs.60000/- in an account that earns simple interest. At the end of 5 years, the investment is worth Rs.85000/-. Calculate the rate of simple interest per year. (2021)

Consecutive numbers

Q. 7. (a) The sum of three consecutive odd numbers is 273. That are the three odd numbers? (2022)

Mixture of Different types

Q. No. 7. The breakdown of average monthly expenditure for a family is given in the following Figure:

(A). Calculate from the figure what percentage of the family's expenditure is on 'other '? (2018)

Q. No. 7. (B). Approximately what fraction of the family's monthly expenditure do' 'utilities', 'rent' and 'food' represent? (2018)

Q. No. 7. (C).If the family spends Rs.11600 on utilities, how much is the family's total expenditure? (2018)

Q. No. 7. (D).'Other' expenditure comprises savings, entertainment and luxury items, which are spent in the ratio 3 : 4 : 1. Calculate how much the family saves each month if monthly income is Rs.24,000. (2018)