



**FEDERAL PUBLIC SERVICE COMMISSION  
COMPETITIVE EXAMINATION - 2016  
FOR RECRUITMENT TO POSTS IN BS-17  
UNDER THE FEDERAL GOVERNMENT**

**Roll Number**

**GENERAL KNOWLEDGE-I  
(GENERAL SCIENCE & ABILITY)**

|                                                                                                                                                                      |                      |                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------|
| <b>TIME ALLOWED: THREE HOURS</b>                                                                                                                                     | <b>PART-I (MCQS)</b> | <b>MAXIMUM MARKS = 20</b> |
| <b>PART-I(MCQS): MAXIMUM 30 MINUTES</b>                                                                                                                              | <b>PART-II</b>       | <b>MAXIMUM MARKS = 80</b> |
| <b>NOTE: (i) Part-II is to be attempted on the separate Answer Book.</b>                                                                                             |                      |                           |
| <b>(ii) Attempt ONLY EIGHT questions from PART-II, selecting FIVE questions from SECTION-I and THREE questions from SECTION-II. ALL questions carry EQUAL marks.</b> |                      |                           |
| <b>(iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.</b>                                                  |                      |                           |
| <b>(iv) Candidate must write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.</b>                                                                 |                      |                           |
| <b>(v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.</b>                                                      |                      |                           |
| <b>(vi) Extra attempt of any question or any part of the attempted question will not be considered.</b>                                                              |                      |                           |

**PART-II  
SECTION-I**

- 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. (5)
- (b) Differentiate between Sanitary and Industrial Landfills, also describe the land selection criteria for Landfills. (5)
- Q. No. 3.** (a) Write a short note on artificial intelligence. (5)
- (b) Write short notes on: (2½ each) (5)
- (i) Fibre Optics (ii) Global Positioning System
- Q. No. 4.** (a) What are vaccines? Classify these and discuss DNA vaccines in detail. (5)
- (b) What are causative organism and vector for dengue, enlist possible ways of prevention from dengue. (5)
- Q. No. 5.** (a) Comment, 'liver is the chief chemist in human body'. (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. (5)
- Q. No. 6.** (a) What do you know about the Remote Sensing Techniques? Explain resolution and write down the names of its various types? (5)
- (b) What is hydrological cycle? Discuss its importance. (5)
- Q. No. 7.** (a) What is tsunami? How the tsunamis generated and what are their characteristics? (5)
- (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? (5)
- Q. No. 8.** (a) Explain the shape of water molecule with the help of Molecular Orbital Theory, also draw its orbital diagram. (5)
- (b) What are the gamma rays? Explain their applications. (5)
- Q. No. 9.** (a) Discuss importance of preservatives and antioxidants in food. (5)
- (b) Comment, Green House Effect is a blessing. Also discuss Enhanced Green House Effect and its relation with global warming. (5)

## GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)

### SECTION-II

- Q. No. 10.** (a) Define and draw the following: (2½ each) (5)  
(i) Rightangle triangles (ii) Equilateral triangles  
(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: (5)

- 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. (5)

| 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?  
(b) Read the following carefully and answer the questions following: (5)  
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?

- 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 (5)  
(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. (5)  
(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?

- Q. No. 13.** (a) Differentiate between primary and secondary mental abilities. How the general mental ability scales differ from IQ test. (5)  
(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. (5)



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**(GENERAL SCIENCE & ABILITY)**

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| <b>PART-I(MCQS): MAXIMUM 30 MINUTES</b>                                                                                           | <b>PART-II</b>       | <b>MAXIMUM MARKS = 80</b> |
| <b>NOTE: (i) Part-II is to be attempted on the separate Answer Book.</b>                                                          |                      |                           |
| <b>(ii) Attempt ONLY FOUR questions from PART-II, selecting TWO questions from EACH SECTION. ALL questions carry EQUAL marks.</b> |                      |                           |
| <b>(iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.</b>               |                      |                           |
| <b>(iv) Candidate must write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.</b>                              |                      |                           |
| <b>(v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.</b>                   |                      |                           |
| <b>(vi) Extra attempt of any question or any part of the attempted question will not be considered.</b>                           |                      |                           |
| <b>(vii) Use of Calculator is not allowed.</b>                                                                                    |                      |                           |

**PART-II**  
**SECTION-I**

- Q. No. 2.** (A) What are the factors responsible for environmental pollution? (5)  
(B) Briefly explain the main reasons of water-logging in Pakistan. (5)  
(C) What do you mean by Ozone depletion and how we can prevent its depletion? (5)  
(D) What is an Acid Rain and how it is produced. Briefly describe the dangers associated with it? (5)
- Q. No. 3.** (A) Explain in detail the common causes of Heart Attack. (5)  
(B) Differentiate between drug addiction and drug abuse. (5)  
(C) Draw the structure of human ear and briefly explain its functions. (5)  
(D) What is the significance of Vitamins? Describe the sources, uses and deficiency symptoms of fat soluble vitamins. (5)
- Q. No. 4.** (A) What is a mirage? Describe in detail the creation of mirage. (5)  
(B) Differentiate between the occurrence of Lunar and Solar Eclipse? (5)  
(C) Briefly explain what effects are produced due to Rotation & Revolution of Earth? (5)  
(D) Most of the household appliances utilize 'DC' then why we generate 'AC' at power stations? (5)
- Q. No. 5.** (A) Differentiate between RAM and ROM. (5)  
(B) Name three basic buses employed in a computer and explain what each is used for. (5)  
(C) Draw a basic computer block diagram and briefly explain the function of each part. (5)  
(D) Describe various types of computers classified on the basis of size, memory, capacity and speed. (5)

**SECTION-II**

- Q. No. 6.** (A) Differentiate with examples between a "Pictogram" and "Histogram". (5)  
(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 (5)
- |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| 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.
- (C) How many teachers responded to the survey? (5)  
(D) What the longest number of hours and most common number of hours are spent? (5)

**GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)**

- 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. **(5)**
- (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? **(5)**
- (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? **(5)**
- (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? **(5)**
- 
- Q. No. 8.**      **(A)**      Divide Rs.500 between Arham, Mariam and Sarim so that Arham gets  $\frac{2}{3}$  of what Mariam gets and Mariam gets  $\frac{1}{4}$  of what Sarim gets. Find the share of each. **(5)**
- (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? **(5)**
- (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? **(5)**
- (D)**      In a certain code language COMPUTER is written as RFUVQNPC. How will MEDICINE be written in that code language? **(5)**



**FEDERAL PUBLIC SERVICE COMMISSION**  
**COMPETITIVE EXAMINATION-2018**  
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**GENERAL KNOWLEDGE-I**  
**(GENERAL SCIENCE & ABILITY)**

Roll Number

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------------------|
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**PART-II**  
**SECTION-I**

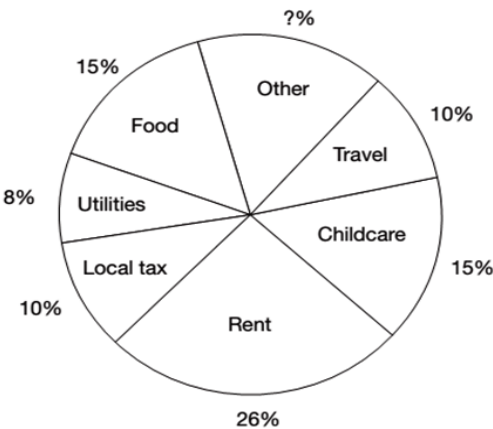
- Q. No. 2.** (A). Describe different methods to estimate the age of the Universe. (5)  
(B). Explain the formation of Lunar Eclipse. (5)  
(C). Explain the terms Dark Energy and Dark Matter. (5)  
(D). Define the term Black Hole. What's expected inside it? (5) (20)
- Q. No. 3.** (A). Describe different causes and preventions of 'Polio' (5)  
(B). Define the term 'Bio-Fuel'. How is it helpful to promote clean energy? (5)  
(C). Define 'Carbohydrates'. Describe different steps to digest these in the human body. (5)  
(D). Describe the 'Cell Structure'. Write down at least three differences between an animal cell and plant cell. (5) (20)
- Q. No. 4.** (A). What is 'Acid Rain'. Describe its causes and how it can be prevented? (5)  
(B). What is 'Water Pollution'. Discuss its causes and measurement methods. Name the countries with the highest and lowest percentage of it. (5)  
(C). Write a comprehensive note on 'Smog'. (5)  
(D). Describe different causes of 'Tsunami'. Is there any difference between a Tsunami and a tidal wave? Name the worst Tsunami ever recorded. (5) (20)
- Q. No. 5.** (A). Write a note, how data is stored on a 'Hard Disk'. (5)  
(B). How an 'Optical Fiber' is constructed? How is it helpful in transmitting the electromagnetic radiations? (5)  
(C). Write a comprehensive note on 'Balanced Diet'. (5)  
(D). What is 'Artificial Intelligence'? How is it helpful for humanity? (5) (20)

SECTION-II

- 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? (5)
- (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? (5)
- (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 9<sup>th</sup> 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. (5)
- (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. (5) (20)

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 '? (5)
- (B). Approximately what fraction of the family's monthly expenditure do 'utilities', 'rent' and 'food' represent? (5)
- (C). If the family spends Rs.11600 on utilities, how much is the family's total expenditure? (5)
- (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. (20)



- 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? (5)
- (B). Define a Histogram. How is it constructed? What information may be deduced from it? (5)
- (C). Look at this series: F2, \_\_, D8, C16, B32, What number should fill the blank? (5)
- (D). In a certain code language LANDMINE is written as PYRBQGRC. How will HOMEMADE be written in that code language? (5) (20)

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**COMPETITIVE EXAMINATION-2019**  
**FOR RECRUITMENT TO POSTS IN BS-17**  
**UNDER THE FEDERAL GOVERNMENT**  
**GENERAL KNOWLEDGE-I**  
**(GENERAL SCIENCE & ABILITY)**

Roll Number

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**PART – II**  
**SECTION - I**

**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. (5)

|        |         |        |        |        |        |
|--------|---------|--------|--------|--------|--------|
| Vit. A | Vit. B1 | Vit. C | Vit. D | Vit. E | Vit. K |
|        |         |        |        |        |        |

|                                        |                     |
|----------------------------------------|---------------------|
| Diseases caused due to lack of vitamin | Name of the vitamin |
| 1. Poor night vision                   |                     |
| 2. Bleeding gums                       |                     |
| 3. Rickets in children                 |                     |
| 4. Beri-Beri                           |                     |
| 5. Anaemia                             |                     |

**(b)** People suffering from cardiovascular disease having high level of cholesterol in their blood, this often leads to build up of fats on its internal arterial walls, suggests how this might be harmful to the heart (5)

**(c)** Why the excessive use of chemical fertilizers should be avoided? (5)

**(d)** Why are Scientists worried about the increase of CO<sub>2</sub> in atmosphere? (5)

**Q.3 (a)** Differentiate between the renewable and non-renewable sources of energy giving example of each one of them. (5)

**(b)** Give a brief account of optic fibers. What is their importance in present day telecom system? (5)

**(c)** What is the most dangerous part of hurricane and how do cyclones affect humans? (5)

**(d)** What is the difference between vaccines and Antibiotics? How do antibiotics and vaccines contribute to health? (5)

- Q.4** (a) What is the importance of forests in the economy of a country? (5)
- (b) Give a brief account of biotechnology. (5)
- (c) Do the mammals always lay eggs? If yes, where in the world do they live? Write the name some of them. (5)
- (d) How can the sun have such a strong gravitational field if its made of gases? (5)
- Q.5** (a) What does Ozone depletion mean and how can we protect the ozone layer? (5)
- (b) What are the different types of a network? Explain each briefly. (5)
- (c) Why an indiscriminate / causal use of antibiotic may prove dangerous? (5)
- (d) Why do atoms form bonds? Name three major types of chemical bonds. (5)

## **SECTION – II**

- 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 dripping every seventh seconds and a pet dog snored every 12<sup>th</sup> second. He noticed on his clock that all three things happened together on the stroke of midnight. Find after how many seconds are three things happened together (5)
- (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 to fill the pool if only slower pipe is used? (5)
- (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? (5)
- (d) What do you understand by measure central tendency? State its types. (5)
- 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? (5)
- (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? (5)
- (c) What is polygon? Describe different types of regular polygon. (5)
- (d) In a certain code computer is written as FRUVQNPC. How will MEDICINE will be written in code language? (5)
- 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 observe 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

(b)  $U = [\text{Whole number from 10 to 24}]$

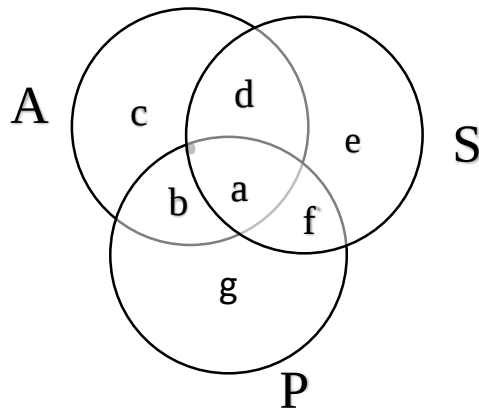
$A = [\text{Even Number}]$

$B = [\text{Number divisible by 5}]$

Write down the number elements of  $A \cap B$

(5)

(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 politicians but not Americans will be

(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? (5)



**FEDERAL PUBLIC SERVICE COMMISSION**  
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**GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)**

**Roll Number**

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**PART – II (SECTION – A)**

- Q. 2. (a)** On 7<sup>th</sup> 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? (5)
- (b)** What do you understand by Global Wind and Pressure patterns? Also explain wind and pressure features at higher altitude. (5)
- (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 deep-focus earthquakes. (5)
- (d)** Differentiate between the renewable and non renewable energy sources. Briefly explain Geothermal Energy and Hydro Electricity. (5)(20)
- Q. 3. (a)** What are Pesticides? Explain their different types; why persistent pesticides are more lethal for mankind? (5)
- (b)** What are carbohydrates? Classify and give detail of each class along with examples. (5)
- (c)** Discuss different methods of Food preservation. (5)
- (d)** Where and how Fiber Optics are used? Also write down their advantages and disadvantages. (5)(20)
- Q. 4. (a)** Briefly describe the various segments of atmosphere. How these segments are maintaining the Earth Radiation Balance? (5)
- (b)** How the organic particulate matter enters in the atmosphere. Also describe the sources? (5)
- (c)** What is natural radioactivity? How it is different from the artificial radioactivity? (5)
- (d)** What are the Fossils? Discuss the importance of paleontology. (5)(20)
- Q. 5. (a)** What do you know about Hepatitis? Describe its types and write down preventive measures. (5)
- (b)** Differentiate between Middle Latitude Cyclones and Tornadoes. (5)
- (c)** What is Open System Interconnections (OSI) and describe its layers? (5)
- (d)** What is GPS? How does it work? (5)(20)

**(SECTION – B)**

- 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? (5)
- (b)** Find the missing number to complete each sum. (5)
- (a)  $9 + 8 - 5 = 2 \times (\text{-----})$  (b)  $3 \times 9 - 14 = 24 - (\text{-----})$
- (c)  $15 \div 3 \times 12 = 41 + (\text{-----})$  (d)  $24 \div 4 + 5 = 66 \div (\text{-----})$
- (e)  $8 \times 6 - 13 + 3 = 7 \times 6 - (\text{-----})$
- (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. (5)
- (d)** How does mental ability scales differ from IQ test? (5)(20)
- 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. (5)
- (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.
- (b)** A farmer needs to build a boundary wall around his farm. If the area of farm is  $484 \text{ m}^2$ , 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? (5)
- (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: (5)
- (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.
- (d)** What are social skills? Describe four causes of weak social skills. (5)(20)
- Q. 8. (a)** What do you understand by systematic sampling? Discuss its types. (5)
- (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. (5)
- (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? (5)
- (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? (5)(20)

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**FEDERAL PUBLIC SERVICE COMMISSION**  
**COMPETITIVE EXAMINATION-2021**  
**FOR RECRUITMENT TO POSTS IN BS-17**  
**UNDER THE FEDERAL GOVERNMENT**  
**GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)**

Roll Number

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                      |                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------|
| <b>TIME ALLOWED: THREE HOURS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>PART-I (MCQS)</b> | <b>MAXIMUM MARKS = 20</b> |
| <b>PART-I(MCQS): MAXIMUM 30 MINUTES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>PART-II</b>       | <b>MAXIMUM MARKS = 80</b> |
| <b>NOTE:</b> (i) <b>Part-II</b> is to be attempted on the separate <b>Answer Book</b> .<br>(ii) Attempt <b>ONLY FOUR</b> questions from <b>PART-II</b> by selecting <b>TWO</b> questions from <b>EACH SECTION</b> . <b>ALL</b> questions carry <b>EQUAL</b> marks.<br>(iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.<br>(iv) Write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.<br>(v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.<br>(vi) Extra attempt of any question or any part of the question will not be considered.<br>(vii) <b>Use of Calculator is not allowed.</b> |                      |                           |

**PART – II**  
**(SECTION – A)**

- 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? (5)
- (b)** “Semiconductors are the Brains of Modern Electronics”. Explain in detail what this quotation means. (5)
- (c)** Briefly describe the most popular and accepted theory about the origin of the Universe. (5)
- (d)** What are the advantages and limitations of renewable energy resources? Briefly explain the prospects of non-conventional energy resources in Pakistan. (5)(20)
- Q. 3. (a)** Explain with examples the relationship between cells, tissues and organs. (5)
- (b)** Explain the differences in structure & function between a cell wall and a cell membrane. (5)
- (c)** What is meant by transpiration? Explain in detail the significance of leaf structure in the process of transpiration. (5)
- (d)** What is meant by the term double circulation? Briefly describe how the heart is adapted to keep blood flowing in a double circulation. (5)(20)
- Q. 4. (a)** What is the sequence of strata of atmosphere and on what factors does it depends? (5)
- (b)** Describe water cycle and briefly explain the major processes involved in water cycle? (5)
- (c)** What is the Difference between asthenosphere and lithosphere? Explain various components of lithosphere. (5)
- (d)** Differentiate between food contaminants and food adulterants. (5)(20)
- Q. 5. (a)** Define the term “malnutrition”. Elaborate its major causes and consequences. (5)
- (b)** Explain how a slice of bread after few days decomposes due to the growth of fungi. (5)
- (c)** What is a computer memory? Describe its units and discuss various types of memories. (5)
- (d)** Differentiate between natural and artificial satellites. Briefly describe the working of communication satellites with some applications. (5)(20)

**(SECTION – B)**

- 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? (5)
- (b)** How many tiles of  $20\text{cm}^2$  will be required to have a footpath 1m wide carried around the outside of grassy plot 24m long and 14m broad? (5)
- (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. (5)
- (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? (5)(20)

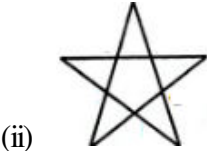
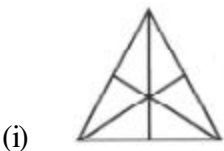
GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)

- 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. (5)
- (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 6<sup>th</sup> number. (5)
- (c) The following table shows some values of 'x' and the corresponding values of 'y' where,  $y = x^3 - 3x - 10$ . (5)

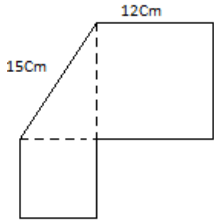
|   |     |    |    |     |   |   |   |    |
|---|-----|----|----|-----|---|---|---|----|
| x | -3  | -2 | -1 | 0   | 1 | 2 | 3 | 4  |
| y | -28 |    |    | -10 |   |   | 8 | 42 |

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  $y=10$ .

- (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. (5)(20)
- Q. 8. (a) Find out the correct word from the given jumbled spellings. (5)
- (i) UORSEIS    (ii) REGAHT    (iii) TYLEAL    (iv) RAMYR    (v) RYUHR
- (b) Find the number of triangles in the following two images. (5)



- (c) Calculate the total area and perimeter of the given shape. (5)



- (d) Find the missing numbers in the given series. (5)(20)
- (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, ?

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**FEDERAL PUBLIC SERVICE COMMISSION**  
**COMPETITIVE EXAMINATION-2022**  
**FOR RECRUITMENT TO POSTS IN BS-17**  
**UNDER THE FEDERAL GOVERNMENT**  
**GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)**

**Roll Number**

**TIME ALLOWED: THREE HOURS**  
**PART-I(MCQS): MAXIMUM 30 MINUTES**

**PART-I (MCQS)**  
**PART-II**

**MAXIMUM MARKS = 20**  
**MAXIMUM MARKS = 80**

- NOTE: (i)** Part-II is to be attempted on the separate **Answer Book**.  
**(ii)** Attempt **ONLY FOUR** questions from **PART-II** by selecting **TWO** questions from **EACH SECTION**. **ALL** questions carry **EQUAL** marks.  
**(iii)** All the parts (if any) of each Question must be attempted at one place instead of at different places.  
**(iv)** Write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.  
**(v)** No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.  
**(vi)** Extra attempt of any question or any part of the question will not be considered.  
**(vii)** **Use of Calculator is not allowed.**

**PART – II**  
**(SECTION – A)**

- Q. 2. (a)** What do you know about Volcanoes? Discuss the causes and effects of volcanic eruptions. (5)  
**(b)** Differentiate between renewable and non-renewable sources of energy. Briefly explain wind energy, solar energy and biofuels. (5)  
**(c)** What is a Tornado? How is it formed and what are the effects of tornadoes? Explain briefly. (5)  
**(d)** Discuss various factors which affect the variations in the climate of a place. (5)(20)
- Q. 3. (a)** Discuss Vaccination, types of Vaccines, their side-effects and effectiveness. (5)  
**(b)** What is Polio? Discuss its symptoms, causes of spreading, prevention and vaccine. (5)  
**(c)** What do you understand by the DNA and RNA? (5)  
**(d)** What is Solid Waste? Discuss the main issues of Solid Waste Management in our country? (5)(20)
- Q. 4. (a)** Define the term Water Pollution. What indicators are used to measure the quality of water? Write down the drinking water quality standards. (5)  
**(b)** What do you understand by the term Population Planning? Point out the different benefits of Population Planning. (5)  
**(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 climatic change? (5)  
**(d)** What is Radioactivity? Differentiate between natural and artificial radioactivity. (5)(20)
- Q. 5. (a)** What do you understand by the term Remote Sensing? Write its basic principle. Give its important applications. (5)  
**(b)** Explain the Optical Fiber. Explain how Fiber Optic Communication works? (5)  
**(c)** Briefly explain the working and structure of a Cell Phone. (5)  
**(d)** Explain Artificial Intelligence. What do you understand by the term Robotics? (5)(20)

**(SECTION – B)**

- 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? (5)  
**(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? (5)  
**(c)** What do you understand by Mental Ability Scales? Differentiate between Aptitude and Intelligence? (5)  
**(d)** Discuss the factors affecting Intelligence. (5)(20)

**GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)**

- Q. 7 (a)** The sum of three consecutive odd numbers is 273. What are the three odd numbers? (5)
- (b)** Find the missing number in the given series. (5)
- (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, 36, 108, ?
- (c)** Find out the correct word from the given jumbled spellings. (5)
- (i) THRSI      (ii) GNDREA      (iii) SCHAMOT      (iv) ONLNDO      (v) HIODALY
- (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? (5)(20)
- Q. 8. (a)** What do you understand by Sampling? Discuss Non-Probability Sampling. (5)
- (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? (5)
- (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? (5)
- (d)** If in a certain language, BROTHER is written as QDGSNQA, then in the same language, SISTER would be written as -----? (5)(20)

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**FEDERAL PUBLIC SERVICE COMMISSION**  
**COMPETITIVE EXAMINATION-2023**  
**FOR RECRUITMENT TO POSTS IN BS-17**  
**UNDER THE FEDERAL GOVERNMENT**  
**GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)**

Roll Number

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------|
| <b>TIME ALLOWED: THREE HOURS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>PART-I (MCQS)</b> | <b>MAXIMUM MARKS = 20</b> |
| <b>PART-I(MCQS): MAXIMUM 30 MINUTES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>PART-II</b>       | <b>MAXIMUM MARKS = 80</b> |
| <b>NOTE: (i) Part-II is to be attempted on the separate Answer Book.</b><br><b>(ii) Attempt ONLY FOUR questions from PART-II by selecting TWO questions from EACH SECTION. ALL questions carry EQUAL marks.</b><br><b>(iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.</b><br><b>(iv) Write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.</b><br><b>(v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.</b><br><b>(vi) Extra attempt of any question or any part of the question will not be considered.</b><br><b>(vii) Use of Calculator is not allowed.</b> |                      |                           |

**PART – II**  
**(SECTION – A)**

- Q. 2. (a)** Define ceramic and nano-ceramic materials. Why the nano-ceramics show better properties than their ceramic counterparts? Write the applications of ceramic materials. (5)
- (b)** What is ‘Black Hole’? How black holes are formed and discovered? (5)
- (c)** Write two applications of each of the following electromagnetic radiations: (5)
- (i) Ultraviolet                      (ii) Infra-red                      (iii) Microwaves
- (iv) Radio waves                      (v) X-rays.
- (d)** What is Wildfire? Explain its types, causes, spread and preventions. (5)(20)
- Q. 3. (a)** (i) Why the bat and whale are considered as mammals? (5)
- (ii) Write a note on liver juice ‘Bile’.
- (b)** How the urine is formed? Describe the role of kidney in excretion. (5)
- (c)** (i) How a bacterial cell is different from a plant cell? (5)
- (ii) What do you think cold-blooded animals are slowed down by low temperatures?
- (d)** What is hepatitis, its types, causes, prevention, and cure? (5)(20)
- Q. 4. (a)** What is the difference between fog and smog? What are the causes of smog and its effects on human health? Write short note on any one of the latest technologies to eliminate smog to avoid atmospheric pollution. (5)
- (b)** What is the role of oxygen-demanding wastes in water pollution? How it can be prevented? (5)
- (c)** What is the biosphere? Write a note on the ‘Energy Resources’ available in the biosphere. (5)
- (d)** What are the different layers of the atmosphere? On what basis these layers are classified? In which layer ‘Auroras’ are formed and where do satellites orbit? (5)(20)
- Q. 5. (a)** What are antioxidants and why are they used in foods? Write a short note on natural and synthetic antioxidants. (5)
- (b)** How the carbohydrates, proteins, and fats are digested in humans? (5)
- (c)** How does the Navstar GPS system work for different applications? (5)
- (d)** (i) Differentiate between network and internet. (5)(20)
- (ii) What is the difference among application, program and software?

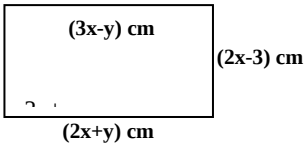
**(SECTION – B)**

- Q. 6. (a)** A telephone company charges initially Rs.0.50 and then Rs. 0.11 for every minute. Write an expression that gives the cost of a call that lasts N minutes. (5)

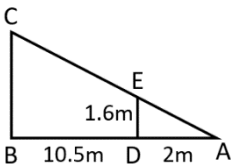
**GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)**

- (b) Find the missing number in the series below (5)
- (i) 1, 8, 4, 27, 9, ?                      (ii) 3,6,8,16,18,?                      (iii) 2, 8, 512, ?
- (iv) 81 ,9,64 ,8,?,12                      (v) 6, 11, 21, 36, 56, ?

- (c) The perimeter of the rectangle given below is 114 cm. Find the area of the rectangle. (5)



- (d) Ahmad stands at point D, 2m in front of a spotlight at point A. He is 1.6m tall and is facing the wall of a building which is 10.5m away from him. How tall (BC) is his shadow on the wall of the building. (5)(20)



- Q. 7 (a) Ali is standing 10 meters away from a tree. The distance of his eyes from his feet is 1.5 meter. Given that the distance from his eyes to the top of the tree is 15 meters, find the height of the tree. (5)
- (b) Find out the correct word from the jumbled spellings given below. (5)
- LNUGEF, CKANS, CIREFE, EERAANMOGTP, MNIKPPU.
- (c) Draw and write the total number of lines of symmetry in a regular hexagon and octagon. How many lines of symmetry are there in a circle? (5)
- (d) The height of the Egyptian pyramid is 146.6 meters and a base length is 230.6 meters. Find the volume of that pyramid. (5)(20)

- Q. 8. (a) Ali buys an oven for Rs. 36800 and sells it at a gain of 8.5%. For how much does he sell it? (5)
- (b) A card is drawn at random from a box containing 12 cards numbered 1,2,3,4,5,....,12. Find the probability of drawing (i) '8', (ii) an even number, (iii) a perfect square, (iv) a negative number and (v) a number less than 13. (5)
- (c) The scintillation nuclear radiation detector detects the alpha rays per second. When the energy of the alpha rays ( $E_\alpha$ ) in MeV increases, the number of counts ( $N_c$ ) on the detector also increases linearly as shown in the table below. (5)

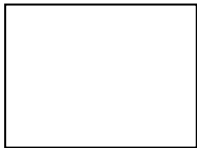
|                  |       |       |       |       |       |
|------------------|-------|-------|-------|-------|-------|
| $E_\alpha$ (MeV) | 0.25  | 0.45  | 0.65  | 1     | 1.4   |
| $N_c$            | 17500 | 23500 | 29500 | 40000 | 52000 |

Draw the graph of  $N_c$  as a function of  $E_\alpha$  (MeV) and find the energy of unknown alpha ray if the number of counts are 31600.

- (d) The  $y$  is directly proportional to  $x^2$  and  $y = m$  for a particular value of  $x$ . Find an expression for  $y$  in terms of  $m$ , when this value of  $x$  is doubled. (5)(20)
- \*\*\*\*\*



FEDERAL PUBLIC SERVICE COMMISSION  
FIVE EXAMINATION-2024 FOR RECRUITMENT TO  
IN BS-17 UNDER THE FEDERAL GOVERNMENT  
**KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)**



|                                                                                                                |               |                   |
|----------------------------------------------------------------------------------------------------------------|---------------|-------------------|
| TIME ALLOWED: THREE HOURS                                                                                      | (PART-I MCQs) | MAXIMUM MARKS: 20 |
| PART-I (MCQs) : MAXIMUM 30 MINUTES                                                                             | (PART-II)     | MAXIMUM MARKS: 80 |
| NOTE: (i) First attempt PART-I (MCQs) on separate OMR Answer Sheet which shall be taken back after 30 minutes. |               |                   |
| (ii) Overwriting/cutting of the options/answers will not be given credit.                                      |               |                   |
| (iii) There is no negative marking. All MCQs must be attempted.                                                |               |                   |

**PART-I (MCQs)(COMPULSORY)**

**Q.1. (i)** Select the best option/answer and fill in the appropriate Box ☐ on the **OMR Answer Sheet. (20x1=20)**  
**(ii)** Answers given anywhere else, other than OMR Answer Sheet, will not be considered.

- In fish liver oil there is:**  
(A) Vitamin A only (B) Vitamin D only (C) Vitamin A and vitamin E (D) Vitamin A and Vitamin D
- When day and night are equal?**  
(A) 23<sup>rd</sup> February and 21<sup>st</sup> September (B) 21<sup>st</sup> march and 23<sup>rd</sup> September  
(C) 23<sup>rd</sup> march and 21<sup>st</sup> September (D) None of these
- What are total number of combinations of 09 things taken 03 at a time?**  
(A) 18 (B) 27 (C) 48 (D) 84
- The chemical formula for alum is:**  
(A)  $KAl(SO_4)_2 \cdot 12 H_2O$  (B)  $KSi(SO_4)_2 \cdot 12 H_2O$  (C)  $KAl(SO_4)_2 \cdot 8 H_2O$  (D) None of these
- If the radius of a circle is increased three times then its area is increased:**  
(A) Three times (B) Six times (C) Nine times (D) None of these
- One degree of longitude on the equator is equal to a distance of:**  
(A) 49 miles (B) 69 miles (C) 39 miles (D) 60 miles
- The protein molecule is made of:**  
(A) Alkaloids (B) Nucleosides (C) Short range chain of amino acids (D) Long range chain of amino acids
- The minimum amount of vitamin stored in the human body is of:**  
(A) Vitamin D (B) Vitamin C (C) Vitamin E (D) Vitamin A
- The isotopes of any element contain equal number of:**  
(A) Protons (B) Neutrons (C) Both electrons and protons (D) None of these
- The pH of soil is raised using:**  
(A) Lime stone (B) Gypsum (C) Urea (D) None of these
- Which of the following is used for measuring distance?**  
(A) Coulomb (B) light year (C) Farad (D) Curie
- Which of the following contains a greater number of carbon atoms in one mole of each compound?**  
(A) Chloroform (B) Methanol (C) Water (D) Ethanol
- A pencil dipped in water appears bent due to:**  
(A) Reflection (B) Diffraction (C) Refraction (D) None of these
- Fishes die outside the water due to:**  
(A) Carbon mono oxide (B) Oxygen (C) Sun light (D) Non-absorption of oxygen
- In dementia a person:**  
(A) Loses his weight (B) Loses thinking and writing  
(C) Loses thinking, remembering, and reasoning (D) All of these
- Earthquake is measured by the instrument:**  
(A) Wave guide (B) Barometer (C) Seismograph (D) Hydrometer
- A cyclone is formed:**  
(A) When the warm air rises upward over the ocean (B) When moist air rises upward over the ocean  
(C) When moist air pressed downward over the ocean (D) When warm, moist air rises upward over the ocean
- Why red light is used in traffic signal for danger?**  
(A) Due to short wavelength (B) Due to high frequency  
(C) It has long wavelength and high frequency (D) It has long wavelength and short frequency
- The heavy water is:**  
(A) Denoted by  $D_2O$  and contains simple hydrogen (B) Denoted by  $H_2O$  and contains deuterium  
(C) Denoted by  $D_2O$  and contains deuterium (D) Denoted by  $H_2O$  and contains simple hydrogen
- The ionosphere is located within the thermosphere and extends:**  
(A) From 60-300 km above the Earth's surface (B) From 50-200 km above the Earth's surface  
(C) From 50-300 km above the Earth's surface (D) None of the above

**PART – II**

- NOTE:** (i) **Part-II** is to be attempted on the separate **Answer Book**.  
(ii) Attempt **ONLY FOUR** questions from **PART-II** by selecting **TWO** questions from **EACH SECTION**. **ALL** questions carry **EQUAL** marks.  
(iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.  
(iv) Write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.  
(v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.  
(vi) Extra attempt of any question or any part of the question will not be considered.  
(vii) **Use of Calculator is not allowed.**

**(SECTION – A)**

- Q. 2.** (a) What is the Tuberculosis and Hepatitis? Explain briefly. (5)  
(b) Explain the mechanism of Fiber Optic Cable for signal. Explain its construction. (5)  
(c) Explain the difference between Middle Latitude Cyclones and Tornadoes. (5)  
(d) What is difference between the Ionic and Covalent bonding? Give examples. (5) **(20)**
- Q. 3.** (a) What is difference between Plastics and Elastics? Explain briefly. (5)  
(b) What is role of Remote sensing and GIS in environmental Science? Discuss briefly. (5)  
(c) What are Kepler laws related to the motion of planets? (5)  
(d) What is difference between preservatives and antioxidants? Discuss briefly with examples. (5) **(20)**
- Q. 4.** (a) What is role of Carbohydrates and Vitamins in the body? Discuss briefly. (5)  
(b) Discuss the functioning of Liver and Pancreas. (5)  
(c) What are the standards of drinking water? How Heavy Metals in the water affect the living organisms? (5)  
(d) What is radioactivity? Discuss the laws of radioactivity. Name two radioactive elements. (5) **(20)**
- Q. 5.** (a) What are the Plant nutrition elements? Enumerate them. (5)  
(b) What is difference between software and hardware? Give five examples of each. (5)  
(c) What are the types of earthquake waves? Discuss them. (5)  
(d) What are longitudinal waves, electromagnetic and Gamma radiations? Discuss them. (5) **(20)**

**(SECTION – B)**

- Q. 6.** (a) If the sum of four numbers is 105. When 03 is added to a number, twice of another number, five times of third number and fourth number become equal to each other. What are these numbers in ascending order? (5)
- (b) Find out the correct word from the given jumbled spellings. (5)  
(i) UCTREUTRS      (ii) LOVONAC      (iii) CIHPROSTATAC  
(iv) YNTIAUMH      (v) NNTHORER
- (c) Find the missing numbers in the series below (5)  
(i) 121, 11, 81, 9, ?, 7      (ii) 100, 50, 25, ?, 6.25      (iii) 4, 9, 64, 125, 1296, ?  
(iv) 2, 5, 12, 24, 48, ?      (v) 44, 22, 66, 33, 132, ?
- (d) If the sum of three digit number is 15 and sum of 10<sup>th</sup> and unit digit is 12. The difference of unit digit from 10<sup>th</sup> digit is equal to 02. What is the three digit number? (5) **(20)**

**GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)**

- Q. 7** (a) A man travels over the path of a right-angle triangle having base and hypotenuse 4 and 5 kilometers, respectively. After a complete round he continues in the same direction for 6 km and then turns at 90 degree and continues for another 8 km. How long he has travelled and how far he is from his starting point? (5)
- (b) Hassan, Ali, Akbar, Nasir and Shahbaz are classmates having different pocket money. Hassan's pocket money is one third as much as of Ali and Ali has five times as much as Akbar. Akbar has thrice as much as Nasir and Shahbaz gets equal to Nasir and that of Ali. If they get Rs. 8000 then find the pocket money of each. (5)
- (c) What will be the surface area and volume of a sphere if it has a radius of 7 m? (5)
- (d) Distribute Rs. 4320 among Zain, Aslam and Ashraf in such a way that if zain gets 2 parts then Aslam gets three parts, whereas Ashraf gets seven parts. (5) (20)
- Q. 8.** (a) A man purchases a car in an amount of Rs. 2400,000 in which he pays one-fourth extra as profit. Find the original amount of car and the amount of profit. (5)
- (b) Twelve men can complete a job in twenty-four days. After four days four person quit. In how many days this job will be completed by the remaining persons. (5)
- (c) The shadow of a 10 m tall tree is falling on a high rise building and its height is 100 m. If the tree is 20 m away from the wall, at what distance from the wall is the light source? (5)
- (d) There are three cars and start moving in such a way that car A and B are moving opposite with speed 60 and 100 km/h. Car C is moving perpendicularly to both with speed 80 km/h. What is distance after 15 minutes between (i) A and B (ii ) A and C (iii) B and C? (5) (20)

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FEDERAL PUBLIC SERVICE COMMISSION  
COMPETITIVE EXAMINATION-2025 FOR RECRUITMENT TO  
POSTS IN BS-17 UNDER THE FEDERAL GOVERNMENT  
**GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)**

Roll Number

|                                                                                                                                                                                                                                                                |               |                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------|
| TIME ALLOWED: THREE HOURS                                                                                                                                                                                                                                      | (PART-I MCQs) | MAXIMUM MARKS: 20 |
| PART-I (MCQs) : MAXIMUM 30 MINUTES                                                                                                                                                                                                                             | (PART-II)     | MAXIMUM MARKS: 80 |
| NOTE: (i) First attempt PART-I (MCQs) on separate OMR Answer Sheet which shall be taken back after 30 minutes.<br>(ii) Overwriting/cutting of the options/answers will not be given credit.<br>(iii) There is no negative marking. All MCQs must be attempted. |               |                   |

**PART-I (MCQs)(COMPULSORY)**

**Q.1. (i)** Select the best option/answer and fill in the appropriate Box ☐ on the **OMR Answer Sheet. (20x1=20)**  
**(ii)** Answers given anywhere else, other than OMR Answer Sheet, will not be considered.

1. **‘Blue dwarfs’ and ‘Red giants’ respectively refer to:**

- (A) Moons of Jupiter (B) Young star and Old star (C) Old star and Young star (D) None of these

2. **Most major Tsunamis are produced by earthquakes with hypocenters less than:**

- (A) 30 km (B) 40 km (C) 50 km (D) None of these

3. **Which of the following source of energy is caused by uneven heating of earth’s surface?**

- (A) Wind (B) Solar (C) Biomass (D) None of these

4. **Global winds towards western direction are known as:**

- (A) Trade winds (B) Western winds (C) Reynolds wind (D) None of these

5. **Perinatal transmission is said to occur when a pathogen is transmitted from:**

- (A) Non-human to human (B) Infected to uninfected (C) Mother to infant (D) None of these

6. **Which of the plant group needs both land and water to complete their life cycle?**

- (A) Bryophyta (B) Tracheophyta (C) Thallophyta (D) None of these

7. **Maximum amount of carbohydrates are obtained from:**

- (A) Nuts (B) Plant oil (C) Whole grain food (D) None of these

8. **Which of the following class has the largest number of animals?**

- (A) Fishes (B) Insects (C) Mammals (D) None of these

9. **The process of preserving meat by stewing in a covered earthenware jug is called:**

- (A) Burial (B) Jugging (C) Curing (D) None of these

10. **All operating systems get their total memory initialized from:**

- (A) BIOS (B) RAM (C) ROM (D) CPU

11. **The amount of data transmitted for a given amount of time is called:**

- (A) Noise (B) Bandwidth (C) Frequency (D) None of these

12. **Which of the following products can be prepared using raw guava?**

- (A) Jam (B) Jelly (C) Both (A) and (B) (D) None of these

13. **Which of the following is used as a stabilizer in ice cream?**

- (A) Sugar (B) Milk (C) Gelatin (D) None of these

14. **In the structure of fiber, the light is guided through the core due to total internal:**

- (A) Reflection (B) Refraction (C) Diffraction (D) None of these

15. **Who is known as the inventor of Artificial Intelligence?**

- (A) Charles Babbage (B) John McCarthy (C) Alan Turing (D) None of these

16. **Which of the following is the common language for Artificial Intelligence?**

- (A) Java (B) Python (C) Lisp (D) None of these

17. **Cement factory labourer are prone to:**

- (A) Leukemia (B) Cytosilicosis (C) Bone marrow (D) None of these

18. **The fastest enzyme is:**

- (A) Pepsin (B) DNA polymerase (C) Carbonic anhydrase (D) None of these

19. **Process of adding vitamins to milk is known as:**

- (A) Flavoring (B) Fortification (C) Fermentation (D) None of these

20. **The waves which are used for line of sight (LOS) communication are called:**

- (A) Space waves (B) Cable waves (C) Antenna waves (D) None of these

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## **PART – II**

- NOTE:** (i) **Part-II** is to be attempted on the separate **Answer Book**.  
 (ii) Attempt **ONLY FOUR** questions from **PART-II** by selecting **TWO** questions from **EACH SECTION**. **ALL** questions carry **EQUAL** marks.  
 (iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.  
 (iv) Write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.  
 (v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.  
 (vi) Extra attempt of any question or any part of the question will not be considered.  
 (vii) **Use of Calculator is not allowed.**

### **(SECTION – A)**

- Q. 2.** (a) What effects are produced due to Rotation & Revolution of Earth? Explain briefly. (5)  
 (b) Describe Electromagnetic Radiations. Give its types and explain their applications. (5)  
 (c) What are Hurricanes? How they are formed and what level of damage they can produce? (5)  
 (d) Explain the advantages and disadvantages of nitrogen containing fertilizers and insecticides. (5) **(20)**
- Q. 3.** (a) Explain how temperature and light intensity affect the rate of photosynthesis in plants. (5)  
 (b) Describe the structure and functions of capillaries in the human blood circulatory system. (5)  
 (c) What is hepatitis? Give its types and briefly explain its common symptoms along with preventions. (5)  
 (d) Differentiate between biomass and biogas. Briefly explain various methods for obtaining energy from biomass. (5) **(20)**
- Q. 4.** (a) What is deforestation? State the disadvantages caused to the environment due to this. (5)  
 (b) Explain how water pollution is produced? Describe the part played by bacteria after a river has been polluted by sewage. (5)  
 (c) State some examples of pollution caused by human activity and discuss the effects of each example. (5)  
 (d) What does air pollution means? State ten serious effects of air pollution on the environment and briefly explain how they can be reduced? (5) **(20)**
- Q. 5.** (a) Differentiate between food contaminants and food adulterants. (5)  
 (b) Enlist major food groups based on nutrients, their functions and sources. (5)  
 (c) What is Artificial Intelligence and how does it differ from traditional programming? Describe the main branches of Artificial Intelligence. (5)  
 (d) What are the advantages of optical fibers in communication system? Draw basic structure of optical fiber and explain propagation of light through it. (5) **(20)**

### **(SECTION – B)**

- Q. 6.** (a) In an annual sale, Saima buys a Fridge and a Freezer. The sale offers 15% off everything and she pays a total of Rs. 57,120/-. If the price of a freezer, before the sale, is Rs. 40,000/-. What was the price of the Fridge before the sale? (5)  
 (b) Mr. Rasheed pays a deposit of Rs. 60,000/- followed by 36 equal monthly payments. The total amount that he pays is 127% of the basic price of Rs. 3,360,000/-. Calculate Rasheed's monthly payment. (5)  
 (c) Divide Rs. 600/- among A, B and C so that Rs. 40 more than  $\frac{2}{5}$  of A's share, Rs. 20 more than  $\frac{2}{7}$  of B's share and Rs. 10 more than  $\frac{9}{17}$  of C's share may be equal. (5)  
 (d) Find out the correct words from the jumbled spellings given below. (5) **(20)**  
       (i) TEANAIRM       (ii) VAGNACEXETRA       (iii) VADIELTIONC  
       (iv) PKUNYBARTC       (v) TAESROSNC

## GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)

- Q. 7**
- (a) Calculate the marked price of the sculpture if it is sold for Rs.79950/- after a discount of 18%. On another day, if 10% discount is given on the marked price of the same sculpture before it is sold at a further discount of 8%. Would the sale price still be Rs.79950/-? (5)
- (b) Majid pays a total of Rs.51520/- for his car insurance. The total is made up of a basic charge plus 15% sales tax. Calculate the amount of sales tax that Majid pays. (5)
- (c) A camp site in the shape of a rectangle has sides  $(3x+6)$  m and  $(x+1)$  m and the length of the diagonal is  $(4x+1)$  m. Find the area and the perimeter of the camp site. (5)
- (d) Arrange the following fractions in the descending order. (5) (20)
- (a)  $\frac{7}{12}, \frac{4}{7}, \frac{9}{14}, \frac{25}{42}$  (b)  $\frac{5}{8}, \frac{7}{12}, \frac{5}{9}, \frac{13}{24}$  (c)  $\frac{6}{35}, \frac{5}{21}, \frac{2}{7}, \frac{4}{15}$
- (d)  $\frac{2}{5}, \frac{6}{11}, \frac{7}{15}, \frac{9}{20}, \frac{13}{25}$  (e)  $\frac{1}{5}, \frac{2}{7}, \frac{3}{8}, \frac{4}{13}, \frac{5}{17}$
- Q. 8.**
- (a) A train in first five successive minutes from its start runs 68m, 127m, 208m, 312m and 535m and for next 5 minutes maintains an average speed of 33km/hr. Find the whole distance covered and the average speed in covering this total distance. (5)
- (b) A solid cuboid with base 10cm by 6cm is available. The height of the cuboid is 'y' centimeter and the total surface area of the cuboid is given to be  $376\text{cm}^2$ . Find the height of the cuboid. (5)
- (c) In a six member family (A, B, C, D, E and F), there are two fathers, three brothers and a mother. If C is the sister of F, B is the brother of E's husband. D is the father of A and grandfather of F. Who is E's husband? (5)
- (d) How many prime numbers are between each of the following pairs of numbers? (5) (20)
- a)  $\sqrt{3}$  and  $\sqrt{120}$
- b)  $\sqrt[2]{10}$  and  $\sqrt[2]{410}$
- c)  $\sqrt[3]{10}$  and  $\sqrt[3]{999}$
- d)  $\sqrt[3]{28}$  and  $\sqrt{120}$
- e)  $\sqrt[2]{8}$  and  $\sqrt{400}$

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**PART – II**

- NOTE:** (i) Part-II is to be attempted on the separate Answer Book.  
 (ii) Attempt **ONLY FOUR** questions from PART-II by selecting **TWO** questions from **EACH SECTION**. **ALL** questions carry **EQUAL** marks.  
 (iii) All the parts (if any) of each Question must be attempted at one place instead of at different places.  
 (iv) Write Q. No. in the Answer Book in accordance with Q. No. in the Q.Paper.  
 (v) No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.  
 (vi) Extra attempt of any question or any part of the question will not be considered.  
 (vii) Use of Calculator is not allowed.

**(SECTION – A)**

- Q. 2. (a) Evaluate the impact of excessive fertilizer use on soil chemistry and groundwater quality. (5)  
 (b) Describe the structural organization of the solar system, including terrestrial planets, gas giants, dwarf planets. (5)  
 (c) Discuss the environmental and chemical challenges associated with polymer degradation. Evaluate the effectiveness of biodegradable plastics in addressing global plastic pollution. (5)  
 (d) Identify the major causes of food deterioration (biological, chemical, physical) and give examples for each. (5) (20)
- Q. 3. (a) Explain the key phases of Disaster Risk Management: mitigation, preparedness, response, and recovery. (5)  
 (b) Describe the physical factors that trigger Avalanches in mountainous regions. Name the modern technologies used in avalanche prediction and monitoring. (5)  
 (c) Discuss the structural diversity of lipids. Evaluate how variations in fatty acid composition influence membrane fluidity and cell signalling mechanisms. (5)  
 (d) Describe the process of solar photovoltaic energy conversion. How do factors such as irradiance, panel orientation, and temperature influence solar power output? (5) (20)
- Q. 4. (a) Describe the principle of hydroelectric power generation. What environmental and geographical constraints limit the widespread development of hydropower? (5)  
 (b) Describe the hydrosphere and the major components of Earth's water. How does the water cycle maintain the distribution of freshwater? (5)  
 (c) Explain the causative agent, mode of transmission, and life cycle of the dengue virus. How does the Aedes mosquito contribute to the spread of the disease? (5)  
 (d) Discuss the role of Decision Support Systems (DSS) in organizational management and strategic planning. (5) (20)
- Q. 5. (a) Describe the working principle of cellular networks. How do mobile devices maintain connectivity while moving between cells? (5)  
 (b) Using the photoelectric effect, explain the particle nature of electromagnetic radiation. How did experimental observations challenge Classical Wave Theory and lead to the development of quantum mechanics? (5)  
 (c) List the major social media platforms used for business and communication. How do they contribute to digital marketing? Explain. (5)  
 (d) Explain how the GPS system determines the position of a receiver using satellites. (5) (20)

**(SECTION – B)**

- Q. 6. (a) A population of 120 individuals contains 45 engineers, 30 teachers, and the rest are administrators. A simple random sample of 6 individuals is selected. (5)  
 (i) What is the probability that exactly 3 engineers are included in the sample?  
 (ii) What is the probability that the sample contains no teachers?  
 (b) A researcher measures the same length five times: 12.478 m, 12.463 m, 12.481 m, 12.469 m, 12.472 m. (5)  
 Determine the absolute error between the exact average and the rounded average.

## GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY) 2026

- c) An argument claims: (5)  
"Artificial Intelligence will reduce employment because automation replaces human labor."  
Identify assumptions, evaluate the strength of the argument, and provide a logically reasoned counter-argument.
- (d) A number  $N$  leaves remainder 5 when divided by 12 and remainder 4 when divided by 7. (5) (20)  
Find the smallest positive integer  $N$  that satisfies these conditions. Then compute the remainder when  $N$  is divided by 9.

- Q. 7. (a) Five researchers (A, B, C, D, E) sit in a circle. (5)  
• A sits second to the right of C.  
• B is not a neighbour of A.  
• D sits opposite C.  
Construct a logically valid seating arrangement. Explain each step leading to your conclusion.
- (b) A mixture contains water and chemical X in the ratio 5 : 3. If 20 Liters of water are added, the ratio becomes 3 : 2. (5)  
Determine the original amount of the mixture and the initial quantities of both components.
- (c) Four machines (X, Y, Z, W) must run in sequence with constraints: (5)  
• Y cannot run before X.  
• Z must run immediately after W.  
• X cannot be last.  
Construct all valid permutations. Explain your reasoning systematically.
- (d) A doctor uses a decision tree to diagnose a disease based on symptoms S1, S2, and S3. (5) (20)  
• If S1 is present, test for S2.  
• If S2 is absent, rule out the disease.  
• If S3 is present with S2, confirm diagnosis.  
Construct the decision tree and explain the reasoning behind each branching decision.
- Q. 8. (a) Unscramble following high-level logical reasoning and research methodology terms. (5)  
i) NALYLTCAIA                      ii) EENRECNE                      iii) OCNDIUTNI  
iv) NRBTASACIOT                      v) SHTESYPHOI
- (b) Argument: (5)  
"Because many successful entrepreneurs dropped out of college, formal education is unnecessary for achieving high professional success."  
**Task:** [www.CSSEexamDesk.com](http://www.CSSEexamDesk.com)  
(i) Identify the fallacy /faulty reasoning in the statement. Explain how it affects the credibility of the argument.  
(ii) Narrate how verbal reasoning skills help detect and correct such flawed arguments.
- (c) A mechanical reasoning scale measures the ability to understand physical principles. (5)  
Consider a system where two gears (Gear A and Gear B) are interlocked. Gear A has 12 teeth, and Gear B has 36 teeth.  
(i) Determine the rotation direction of Gear B if Gear A rotates clockwise.  
(ii) Compute how many complete rotations Gear A must make for Gear B to complete exactly 2 rotations.  
(iii) Explain how mechanical reasoning scales evaluate a test-taker's ability to generalize such mechanical principles to unfamiliar problems.
- (d) The average weight of 12 students in a group is 58 kg. When one new student joins the group, the new average becomes 60 kg. (5) (20)  
Calculate the weight of the new student, showing all steps clearly.