

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.

- '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
- Most major Tsunamis are produced by earthquakes with hypocenters less than:**
 (A) 30 km (B) 40 km (C) 50 km (D) None of these
- 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
- Global winds towards western direction are known as:**
 (A) Trade winds (B) Western winds (C) Reynolds wind (D) None of these
- 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
- 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
- Maximum amount of carbohydrates are obtained from:**
 (A) Nuts (B) Plant oil (C) Whole grain food (D) None of these
- Which of the following class has the largest number of animals?**
 (A) Fishes (B) Insects (C) Mammals (D) None of these
- The process of preserving meat by stewing in a covered earthenware jug is called:**
 (A) Burial (B) Jugging (C) Curing (D) None of these
- All operating systems get their total memory initialized from:**
 (A) BIOS (B) RAM (C) ROM (D) CPU
- The amount of data transmitted for a given amount of time is called:**
 (A) Noise (B) Bandwidth (C) Frequency (D) None of these
- Which of the following products can be prepared using raw guava?**
 (A) Jam (B) Jelly (C) Both (A) and (B) (D) None of these
- Which of the following is used as a stabilizer in ice cream?**
 (A) Sugar (B) Milk (C) Gelatin (D) None of these
- 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
- Who is known as the inventor of Artificial Intelligence?**
 (A) Charles Babbage (B) John McCarthy (C) Alan Turing (D) None of these
- Which of the following is the common language for Artificial Intelligence?**
 (A) Java (B) Python (C) Lisp (D) None of these
- Cement factory labourer are prone to:**
 (A) Leukemia (B) Cytosilicosis (C) Bone marrow (D) None of these
- The fastest enzyme is:**
 (A) Pepsin (B) DNA polymerase (C) Carbonic anhydrase (D) None of these
- Process of adding vitamins to milk is known as:**
 (A) Flavoring (B) Fortification (C) Fermentation (D) None of these
- 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

- (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 376cm^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 $\sqrt{400}$
