| **TIME ALLOWED: THREE HOURS** | **PART-I (MCQS)** | **MAXIMUM MARKS = 20** |
|---|---|---|
| **PART-I(MCQS): MAXIMUM 30 INUTES** | **PART-II** | **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.
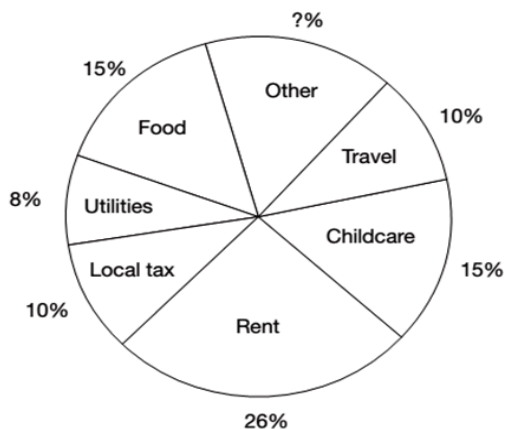
## PART-II

### SECTION-I

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

   **(B).** Explain the formation of Sun Eclipse.

   **(C).** Define Tsunami and Avalanche. Explain its formation.

   **(D).** What is a Galaxy. Explain Astronomical System of Units?

**Q. No. 3.**   **(A).** Describe different causes and preventions of Malaria.

   **(B).** Define the Concept of Producing BIO Fuel and various Method of its formations. How is it helpful to promote clean energy?

   **(C).** Define 'Protein,'. Describe different steps to digest these in the human body.

   **(D).** Describe the 'Cell Structure'. Write down the functions of at least three Subcellular Organelles.

**Q. No. 4.**   **(A).** What is 'Ozone Depletion**.** Describe its causes and how it can be prevented?

   **(B).** What is 'Land Pollution'. Discuss various methods of Solid waste management and its disposal.

   **(C).** Write a comprehensive note on 'Water Cycle,'.

   **(D).** Define earthquake. How it is measured. Name the worst earthquake ever recorded.

**Q. No. 5.**   **(A).** Write a note on Networking & Internet Standards.

   **(B).** How is an 'Optical Fiber' constructed? How is it helpful in transmitting the electromagnetic radiations?

   **(C).** Write a comprehensive note on 'Bioavailability of Nutrients.

   **(D).** What is 'Artificial Intelligence'? Write its pros and cons.

**Q. No. 6.**    **(A).** It takes 6 liters of paint to cover an area of 48 square meters. What percentage increase in the quantity of paint would be required to cover an area of 100.8 square meters?

**(B).** A car travels 6 km towards south, 8 km towards west, 10 km towards north and 4 km towards south-east. How far is it from its starting position?

**(C).** Akram started a business with a capital of Rs. 30,000. After 7 months Umar also joined him with an investment of Rs. 60,000. At the start of $9^{TH}$ month, Usman joined them by investing Rs. 90,000. At the end of the year they earned a profit of Rs. 812,000. Find the share of each one.

**(D).** 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?

**Q. No. 7.**    The breakdown of  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'?

**(B).** Approximately what fraction of the family's monthly expenditure do 'childcare', 'travel' and 'food' represent?
**(C).** If the family spends Rs.5800 on Local Taxes, how much is the family's total expenditure?
**(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.48,000.



**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?

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

**(C).** Look at this series: 53, 53, 40, 40, 27, 27, ... What number should come next?

**(D).** In certain code 'FROZEN' is written as 'OFAPSG'. Then how would 'MOLTEN' be written in that code?