There are ten questions in this part. Answer all questions.

1. a. Briefly explain the social, psychological and economical aspects of nutrition.

   Ans: Social influences on food intake refer to the impact that one or more persons has on the eating behaviour of others, either direct or indirect, either conscious or subconscious. Even when eating alone, food choice is influenced by social factors because attitudes and habits develop through the interaction with others.

   Research has shown that we eat more with our friends and family than when we eat alone and the quantity of food increases as the number of fellow diners grows.

   The relationship between low socio-economic status and poor health is complicated and is influenced by gender, age, culture, environment, social and community networks, individual lifestyle factors and health behaviours.

   Population studies show there are clear differences in social classes with regard to food and nutrient intakes. Low-income groups in particular, have a greater tendency to consume unbalanced diets and have low intakes of fruit and vegetables.

   This leads to both under-nutrition (micronutrients deficiency) and over-nutrition (energy overconsumption resulting in overweight and obesity) within the members of a community, depending on the age group, gender and level of deprivation. The disadvantaged also develop chronic diseases at an earlier age compared with higher socio-economic groups; usually identified by educational and occupational levels.

   The evidence supporting psychological determinants and food choice is limited and proposed mechanisms for the relationship are complex.

   Stress

   Stress can trigger changes in human behaviours that affect health; the effect of stress on food choice is complex and individualistic: some people consume more food and make unhealthy food choices and others consume less food. It is believed that stress induced changes may be due to changes in motivation (e.g. reduced concern for weight control), physiological (reduced appetite), changes in eating opportunities, food availability and meal preparation.

   Mood

   Food can change an individual’s temperament and mood and influences food choice. Individuals report food cravings (especially among women during the premenstrual phase) and the relationship with food for dieters mean that people may feel guilty after indulging in food or attempting to restrict food and increasing the desire for the food.

2. b. Briefly explain the digestion, absorption and utilization of protein in our body.

   Ans: Digestion is the breakdown of food into smaller particles or individual nutrients. It is accomplished through six basic processes, with the help of several body fluids—particularly digestive juices that are made up of compounds such as saliva, mucus, enzymes, hydrochloric acid, bicarbonate, and bile.

   The six processes of digestion involve:

   (1) the movement of food and liquids;

   (2) the lubrication of food with bodily secretions;

   (3) the mechanical breakdown of carbohydrates, fats, and proteins;

   (4) the reabsorption of nutrients—especially water;

   (5) the production of nutrients such as vitamin K and biotin by friendly bacteria; and

   (6) the excretion of waste products.

   Digestion begins in the mouth with the action of salivary amylase. The food material then progresses past the esophagus and into the stomach. A bolus (soft mass) of chewed food moves by muscular wave actions, called peristalsis, from the mouth to the pharynx, and then past the epiglottis that covers the larynx. The epiglottis closes off the air passage so that one doesn’t choke. The cardiac sphincter prevents reflux of stomach contents into the esophagus.

   Food mixtures leaving the stomach are called chyme, and this empties into the small intestine after about two to four hours in the stomach. The small intestine is where most digestion takes place. A pyloric sphincter controls the rate of flow of chyme from the stomach into the small intestine.

   Most digestion occurs in the upper portion of the small intestine, called the duodenum. Below the duodenum is the jejunum, and then there is the last segment, called the ileum. About 95 percent of undigested food products are broken down in the ileum.

   This is why some people can have a small part of their intestine removed and still seem to digest most foods with little problem.

   Digestion of food that enters the small intestine is usually complete after three to ten hours. Once digestion is essentially finished, waste products leave the ileum with the help of fiber, and these solids then enter the large intestine (the colon). In the colon, water is reabsorbed; some nutrients are produced by friendly bacteria (vitamin K, biotin, vitamin B 12); fibers are digested to various acids and gases; and minerals, such as potassium and sodium, are reabsorbed (when needed). Any fiber that is not broken down—and small amounts of other undigested products—are excreted in the feces.

   ABSORPTION:

   Absorption is the movement of molecules across the gastrointestinal (GI) tract into the circulatory system. Most of the end-products of digestion, along with vitamins, minerals, and water, are absorbed in the small intestinal lumen by four mechanisms for absorption: (1) active transport, (2) passive diffusion, (3) endocytosis, and (4) facilitative diffusion. Active transport requires energy.