1) Write a short note on the followings

i) Role of protein in our body
Ans: Protein can be found in animal sources like meat and dairy products, or plant sources like beans, nuts and seeds. According to the USDA, 10 to 35 percent of your calorie intake should come from protein. Every cell in your body contains protein, so meeting your protein requirement is essential for your health.

ii) Source, function, food sources and deficiency of vitamin A
Ans: Vitamin A is a fat-soluble vitamin that is necessary for the function of photoreceptors in the retina. It also helps keep the epithelium of the skin, lungs, intestine, and urinary tract healthy and protects against infections. (1) Vitamin A is also known as retinol. Vitamin A is necessary for both low-light (scotopic vision) and color vision. (2) Vitamin A is an antioxidant. (3)

Functions: In food, vitamin A typically occurs as a fat compound called retinyl palmitate. The body converts retinyl palmitate to retinol in the small intestine. The retinol functions as a storage form of the vitamin, and can be converted to its visually active form, retinal. The associated acid (retinoic acid), a metabolite that can be irreversibly synthesized from vitamin A, has only partial vitamin A activity, and does not function in the retina for the visual cycle. (2,4)

Food Sources: While retinol, or preformed vitamin A, occurs only in foods of animal origin, fruits and vegetables that contain certain carotenoids also provide vitamin A activity. Carotenoids are plant pigments, responsible for the red, orange, and yellow color of fruits and vegetables. (4) Carotenoids are available as alpha-carotene, beta-carotene, gamma-carotene, and the xanthophyll beta-cryptoxanthin. (2)

Once consumed, carotenoids are slowly converted to vitamin A in the body. Carotenoids are best absorbed from cooked or homogenized vegetables served with some fat or oil. (1). However it has been found that vegetarian foods contain much less of vitamin A a

Recommended daily allowance: 0-8 years = 4-8mcg/d, 9-18 years = 600-700mcg/d, Boys 18-24 years = 900mcg/d)

Deficiency: Vitamin A deficiency is estimated to affect approximately one third of children under the age of five around the world. (2) Vitamin A deficiency can occur due to poor intake of vitamin A rich foods, due to malabsorption or due to liver disease. Vitamin A deficiency impairs immunity, the vision and affects the epidermal growth. It leads to night blindness and xerosis of cornea and conjunctiva and even keratomalacia which may ultimately lead to permanent blindness. Keratinization of the skin and of the mucous membranes in the respiratory, GI, and urinary tracts can occur. Drying, scaling, and follicular thickening of the skin and respiratory infections can result. Serum vitamin A levels will be low. Normal range of serum retinol levels are 28 to 67 ng/dl. (1) Treatment consists of vitamin A. Oral vitamin A is administered in a dose of 50,000, 1 lakh and 2 lakh international units (IU) in children aged <6 months, 6-12 months and 2 years respectively. The same dose is repeated next day and 4 weeks later. Parenteral doses are recommended in persistent vomiting and severe malabsorption.

i) Moist heat method of cooking and nutrient losses occur in these
Ans: MOIST HEAT METHOD are the methods in which we use the heat generated by water in some form or the other. The methods include boiling, steaming, pressure-cooking, and stewing.

(1) Boiling
In this method the foodstuffs are cooked in boiling water. Thus, the food comes in direct contact with water. In this the foodstuffs are immersed in water in a suitable container, covered with a lid and the heat is applied. Once a vigorous boil starts the heat can be reduced and cooking continued till the food is tender. Food may be boiled in any liquid, which is bubbling at the surface such as stock, milk, juices or syrups. Foods that are cooked by boiling are rice, eggs, dal, potatoes, meat, and sago and beetroot. Boiling can be done with excess of water (eggs) or with sufficient water (dal, upma). Food cooked by this method is always recommended for patients.

Disadvantages of boiling
1. It is time consuming. It takes time and fuel may get wasted.