

**Department of Govt Examinations, Chennai-6.**  
**Higher Secondary Examinations March – 2023**  
**Higher Secondary – Second year**  
**Nutrition & Dietetics**  
**Part – I**

**Answer all the questions :**

**15 x 1 = 15**

1.	(a)	Five
2.	(d)	Prolactin
3.	(b)	iron
4.	(a)	Vitamin D
5.	(a)	1 g / kg
6.	(b)	Chlorine
7.	(d)	Food service systems management Dietitian
8.	(d)	Anopheles
9.	(c)	Diarrhoea
10.	(a)	Polydipsia
11.	(b)	1
12.	(d)	Tomato
13.	(d)	plague
14.	(c)	Sodium
15.	(d)	antioxidants

**PART –II**

**Answer any six of the following questions :**

**6 x 2 = 12**

**Question No.24 is Compulsory :**

16.	❖ Work sitting at one place using only his hands and head. (ex) Teachers, tailors, clerks
17.	❖ The placenta is the principal site of production for several hormones responsible for regulation of foetal growth and development of maternal support tissues. ❖ It is also involved for exchange of nutrients, oxygen and waste products.
18.	❖ The packed lunch is packed in a tiffin box to be eaten by the child while away from home. ❖ Carrying food from home is less expensive, more convenient, hygienic and meets the individual requirements. Eating in the middle of the day, several hours after breakfast reenergizes the body.
19.	Tube feeding is when a special liquid food mixture containing the necessary nutrients like protein, carbohydrates, fats, vitamins and minerals is given through a tube into the stomach or duodenum.

20.	<p style="text-align: center;"><b>Obesity</b></p> <p>1. An increase of more than 20% of the desirable body weight.</p> <p>2. WHO defines obesity as abnormal or excessive fat accumulation that may impair health.</p>	<p style="text-align: center;"><b>Under weight</b></p> <p>1. Underweight is defined as people with a body mass index (BMI) of less than 18.5 or Body weight 15% to 20% below the normal for their age and height</p> <p>2. Underweight results when the energy balance is negative.</p>
21.	<p>Functions of Liver</p> <ul style="list-style-type: none"> <li>* Metabolism of carbohydrates, protein and fats.</li> <li>* The liver plays a major role in storage, activation and transport of many vitamins and minerals.</li> <li>* It helps in the formation and excretion of bile, conversion of ammonia to urea and metabolism of steroids.</li> <li>* The liver converts carotene to retinol, a form of vitamin A.</li> <li>* It synthesizes heparin which prevents coagulation of the blood.</li> </ul>	
22.	<ul style="list-style-type: none"> <li>* Ketosis or ketoacidosis is accumulation of ketone bodies in the blood as a result of increased lipolysis.</li> <li>* Breathing may be deep and rapid and the breath has acetone smell.</li> <li>* Ketosis, if not controlled may lead to coma and finally death.</li> </ul>	
23.	<ul style="list-style-type: none"> <li>❖ streptococcal infection</li> <li>❖ Renal infarction</li> <li>❖ acute pyelonephritis and metallic poisoning</li> <li>❖ Primary kidney diseases such as IgA nephropathy</li> <li>❖ hereditary nephritis</li> <li>❖ Systemic Lupus erythematosus.</li> </ul>	
24.	<ul style="list-style-type: none"> <li>❖ Mother's blood brings extra glucose to the fetus.</li> <li>❖ Fetus make more insulin to handle the extra glucose.</li> <li>❖ Extra glucose gets stored as fat and fetus becomes larger than normal.</li> </ul>	

### Part – III

**Answer any six of the following questions :**

**6 x 3 = 18**

**Question No.33 is Compulsory :**

25.	<ul style="list-style-type: none"> <li>❖ Meets nutritional requirements (Any 4 points = 3 Marks)</li> <li>❖ Prevents degenerative diseases</li> <li>❖ improves longevity</li> <li>❖ Prolongs productive life</li> <li>❖ improves immunity</li> <li>❖ increases endurance level</li> <li>❖ develops cognitive ability</li> <li>❖ helps in coping up with stress</li> </ul>
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26.	<p><b>I. Liquid supplements</b></p> <p>(i) Milk – 225 ml of cow’s milk per feed in an ideal replacement.</p> <p>(ii) Juice of fresh fruits - small quantities of fruits juices can be given in the 3<sup>rd</sup> and 4<sup>th</sup> months.</p> <p>(iii) Soup from green leafy vegetables - strained soups can be given.</p> <p><b>II. Solid supplements</b></p> <p>(i) Cereal and starchy gruels – well cooked and mashed rice, ragi, etc.,</p> <p>(ii) Vegetables – cooked &amp; mashed potato, carrot, etc.,</p> <p>(iii) Fruits – All fruits except banana is mashed and stewed for 1 year baby</p> <p>(iv) Non vegetarian foods – Hard boiled egg yolk and soft custards can be given.</p>
27.	<p><b>PMS;</b> Definition – 2marks</p> <p>Symptoms – 1mark</p> <p>Pre-menstrual Syndrome is a cluster of symptoms including both physical and emotional pain, that some girls experience prior to and during menstruation.</p> <p>Symptoms:</p> <p>Cramps, &amp; aches in the abdomen, back pain, headache, acne, swelling of face, abnormal thirst, diarrhoea.</p>
28.	<p>When more physical activity increases, the amount of calories spend by our body for energy also increases. The burning of calories through physical activity combined with reducing the amount of calories we eat creates a calorie deficit and that results weight less.</p> <p>Types of exercise to loose weight</p> <ul style="list-style-type: none"> <li>• walking</li> <li>• cycling</li> <li>• dancing</li> <li>• swimming</li> <li>• hiking</li> <li>• active recreation</li> </ul>
29.	<ul style="list-style-type: none"> <li>• Good ventilation</li> <li>• Avoidance of crowded place</li> <li>• cover patient’s faces with handkerchiefs while sneezing or coughing</li> <li>• Staying at home</li> <li>• Immunization with influenza vaccines</li> </ul>
30.	<p>(i) General mortality and morbidity</p> <p>(ii) cardiovascular disease and stroke</p> <p>(iii) Type II diabetes</p> <p>(iv) Gall Bladder disease</p> <p>(v) Cancer</p> <p>(vi) Infertility</p> <p>(vii) Sleep disorder</p>

	(viii) Back pain and Arthritis (ix) Psychological problems
31.	A zoonotic disease is a disease which is transmitted between animals and human. A fever caused by the organism which is spread from animals to humans is called as zoonotic fever. (Eg) Swine flu, Leptospirosis and Nipahvirus infections.
32.	(i) Lack of fiber in diet (any six points) (ii) Insufficient intake of fluids (iii) poor elimination habits (iv) Ignoring the urge to defecated (v) side effects of medications (vi) Lack of exercise (vii) pregnancy (viii) Hypothyroidism (ix) other causes like celiac disease, duodenal ulcer, gastric cancer anal fissures and hemorrhoids. (x) Over use of laxatives.
33.	Monounsaturated fatty acids and polyunsaturated fatty acids (PUFA) are good fats. Omega 3 and Omega 6 are the two main classes of PUFA. Health benefits <ul style="list-style-type: none"> <li>• Provides essential fats our body needs.</li> <li>• lowers bad cholesterol level</li> <li>• keeping the heart healthy, lower risk of heart disease and stroke.</li> </ul> Food Sources <ul style="list-style-type: none"> <li>• Plant – based olive, peanut, sunflower and sesameseeds</li> <li>• fattyfish – tuna, salmon, mackerel</li> <li>• Nuts and seeds – flax seed, walnuts and almonds.</li> </ul>

<b>PART – IV</b>	
<b>Answer all the questions :</b>	
<b>5 x 5 = 25</b>	
<b>34 (a)</b>	<b>Responsibilities of a dietitian (any 10 points)</b>
	(i) Be listened to and treated with respect and consideration (ii) Services without exploitation (iii) safe and high quality services (iv) Be included within decisions and choices about their treatment or care (v) Receive sufficient information about their condition and treatment (vi) Be referred to another specialist service (vii) Grant, with hold or withdraw consent to treatment during a course of treatment (viii) Raise any concerns and have these addressed (ix) Have information relating to them kept confidential (x) Have a copy of their records (xi) Complain without fear of any repercussions. (xii) Access a formal complaints process if an issue cannot be resolved.



<b>36 (a)</b>	<p><b>Diet Therapy for Cirrhosis :</b></p> <p>A high calorie, with carbohydrate, adequate protein and low fat, low fluid, and restricted sodium (in case of ascites), adequate fibre and high vitamins and minerals.</p> <p><b>Energy :</b> 35-40kcal/kg body weight. 2000 to 3000 kcal / day is given to prevent protein breakdown.</p> <p><b>Protein :</b> 1gm / kg body weight / day is given to achieve positive nutrition balance.</p> <p><b>Carbohydrate :</b> High Carbohydrate 300 – 400 gm / day is given.</p> <p><b>Vitamins and Minerals :</b> Supplementation of vitamins is needed to repair tissue damage. Restriction of sodium upto 500mg / day is seen with ascites.</p> <p><b>Fibre :</b> In case of cirrhosis low fibre is given.</p> <p><b>Fluid :</b> Restricted fluid is given if ascites is present.</p>
<b>36 (b)</b>	<p><b>Metabolic changes in diabetic patients :</b></p> <p>Carbohydrate metabolism</p> <p>i. Fat metabolism</p> <p>ii. Protein metabolism</p> <p>Explanation 5 Marks</p>
<b>37 (a)</b>	<p><b>Dietary Management of glomerulonephritis :</b></p> <p><b>Energy :</b></p> <ul style="list-style-type: none"> <li>❖ 80 kcal / kg body weight of 10% for infection is suggested.</li> <li>❖ Calories are given without increase of protein by means of sugar, honey, glucose, sago and arrowroot.</li> </ul> <p><b>Protein :</b></p> <ul style="list-style-type: none"> <li>❖ 0.5gm of protein / kg of body weight.</li> <li>❖ Low protein diet is recommended to give rest to the kidneys.</li> <li>❖ Complete protein like milk, fish can be given and second quality proteins like pulses are restricted.</li> </ul> <p><b>Fluids :</b></p> <ul style="list-style-type: none"> <li>❖ Daily fluid replacement should be 500ml + daily amounts excreted in urine.</li> </ul> <p><b>Sodium :</b></p> <ul style="list-style-type: none"> <li>❖ Na is restricted from 500 to 1000mg / day baked products, papads, pickles, salted nuts and chips should be restricted.</li> </ul> <p><b>Potassium :</b> Potassium content can be reduced in vegetables by working excess water and then discarding the water. This is called leaching.</p> <p><b>Phosphorus :</b></p> <ul style="list-style-type: none"> <li>❖ Eating phosphorus rich foods will raise the phosphorus level in blood and cause calcium to be pulled from bones.</li> <li>❖ This will make the bones weak and to break easily.</li> </ul>
<b>37 (b)</b>	<p>i. <b>Antioxidants :</b></p> <ul style="list-style-type: none"> <li>❖ A number of free radicals are constantly produced in our body.</li> </ul>

	<ul style="list-style-type: none"> <li>❖ These free radicals are highly reactive and can damage cellular components such as the cell membrane and DNA.</li> <li>❖ Antioxidants play a role in cancer prevention by scavenging these free radicals.</li> <li>❖ Antioxidants are compounds present in fruits and vegetables which help protect tissues from being damaged by the attack of free radicals.</li> <li>❖ (Ex) Vitamin C, E and A</li> <li>❖ The body cannot synthesize these vitamins and therefore they need to be provided in the diet.</li> </ul> <p>ii. Phytonutrients :</p> <ul style="list-style-type: none"> <li>❖ Phytonutrients are natural compounds found in plant based foods that give plants their rich pigment as well as their distinctive taste and smell.</li> <li>❖ These pigments have several protective compounds that exhibit cancer fighting and immune-boosting power.</li> </ul>			
<b>38 (a)</b>	<p>Physical, Physiological and Psycrological changes during adolescence :</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> <li>i. Body composition</li> <li>ii. Sexual maturity</li> <li>iii. Psycho social changes</li> </ul> </td> <td style="width: 5%; text-align: center; vertical-align: middle;">} </td> <td style="width: 45%; vertical-align: middle;">Explanation 5 Marks</td> </tr> </table>	<ul style="list-style-type: none"> <li>i. Body composition</li> <li>ii. Sexual maturity</li> <li>iii. Psycho social changes</li> </ul>	}	Explanation 5 Marks
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<b>38 (b)</b>	<p>Nutritional related problems of grandma :</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> <li>i. Obesity</li> <li>ii. Osteoporosis</li> <li>iii. Neurological dysfunction</li> <li>iv. Anaemia</li> <li>v. Drug related malnutrition</li> <li>vi. Food induced malnutrition.</li> <li>vii. Immunity</li> <li>viii. Cardiovascular disease</li> </ul> </td> <td style="width: 5%; text-align: center; vertical-align: middle;">} </td> <td style="width: 45%; vertical-align: middle;">Explanation 4 Marks</td> </tr> </table> <p>Suggestions to prevent - 1 Mark.</p>	<ul style="list-style-type: none"> <li>i. Obesity</li> <li>ii. Osteoporosis</li> <li>iii. Neurological dysfunction</li> <li>iv. Anaemia</li> <li>v. Drug related malnutrition</li> <li>vi. Food induced malnutrition.</li> <li>vii. Immunity</li> <li>viii. Cardiovascular disease</li> </ul>	}	Explanation 4 Marks
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