Questions

63. Breast feeding is recommended exclusively at least for
   a. 6 months
   b. 4 months
   c. 9 months
   d. One year

64. The most important factor to overcome protein energy malnutrition in children less than 3 years is
   a. Early supplementation of solid feeds rich in protein
   b. Treatment of anaemia
   c. Immunisation
   d. Treatment of pneumonia in children

65. The composition of breast milk, per 100 ml
   a. 67 cal, 3.5gm protein, 3.5g fat and 4.5g carbohydrates
   b. 67 cal, 1.1gm protein, 3.5g fat and 7gm carbohydrates
   c. 67 cal, 3.5gm protein, 1.1gm fat and 7gm carbohydrates
   d. 67 cal, 1.1gm protein, 3.5g fat and 3.5gm carbohydrates

66. Breast feeding is contraindicated if the mother is taking;
   a. Acyclovir
   b. Digoxin
   c. Propylthiouracil
   d. Cimetidine

67. All are complications of formulafed baby over human milkfed baby except.
   a. Necrotising enterocolitis
   b. Otitis media
   c. Hypocalcemia
   d. Vit K deficiency

68. All are seen in Breast feeding Infant except
   a. Hemorrhagic disease
   b. Brown black colour stool
   c. Evening colic
   d. Prolongation of Physiological Jaundice
69. Energy requirement of an infant per Kg body weight is
   a. 80–90 Kcal/day
   b. 100–110 Kcal/day
   c. 60–70 Kcal/day
   d. 150 Kcal/day

70. The percentage of calories to be supplied by proteins is
   a. >20%
   b. 5%
   c. 15%
   d. 60%

71. During the treatment of severe malnutrition, calories required per Kg body weight in the first day is
   a. 80 Kcal/Kg/day
   b. 120 Kcal/Kg/day
   c. 60 Kcal/Kg/day
   d. None of the above

72. The principal determinant of catch-up growth
   a. Proteins
   b. Energy
   c. Vitamins
   d. Minerals

73. Primary failure to respond to treatment in severe malnutrition are all except
   a. Failure to regain appetite by day 4
   b. Failure of disappearance of edema by day 10
   c. Weight gain of 10g/Kg/day by day 10
   d. None of the above

74. Death in PEM is mostly due to all except
   a. Hypothermia
   b. CCF
   c. Electrolyte imbalance
   d. Worms

75. ReSoMal is recommended for treatment of
   a. Iron deficiency anaemia in malnourished
   b. Respiratory infections in malnourished
   c. Dehydration in malnourished
   d. None of the above
76. The following are Age Independent Anthropometric indices
a. Dugdale’s Index
b. Kanawati index
c. Rao’s Index
d. All of the above

77. Kwashiorkor is diagnosed in growth retarded children in association with
a. Hypopigmentation and Anaemia
b. Edema and mental retardation
c. Edema and skin changes with Mental apathy
d. Hepatomegaly and anaemia

78. The term “overweight” represents BMI more than
a. 85th percentile
b. 90th percentile
c. 95th percentile
d. 80th percentile

79. The Most active form of Vitamin A is
a. Retinal
b. Retinol
c. Retinoic acid
d. Retinyl ester

80. The primary sign of Xerophthalmia in WHO classification are all except
a. Nyctalopia (XN)
b. Conjunctival xerosis (XIA)
c. Bitot spots (XI B)
d. Corneal xerosis (X2)

81. Treatment of Vitamin A deficiency in 8 month old child is to administer
a. 50,000 IU of Vit A
b. 1,00,000 IU of Vit A
c. 2,00,000 IU of Vit A
d. 25,000 IU of Vit A

82. Recommended Daily Intake of Iodine in diet for a 5 yr old child is
a. 90 µg
b. 60 µg
c. 50 µg
d. 120 µg
83. Endemic Cretinism occurs when the iodine intake is below
   a. 50 µg/day
   b. 35 µg/day
   c. 25 µg/day
   d. 10 µg/day

84. Hypogonadism, anorexia, alopecia, growth retardation and dermatitis occur in
   a. Copper deficiency
   b. Selenium deficiency
   c. Zinc deficiency
   d. Iodine deficiency

85. A 2 year old child complains of acute headache, vomiting and dizziness, bone pains following excessive medication. The drug most likely to cause this is
   a. Vit A
   b. Vit C
   c. Vit D
   d. Vit E

86. Neural tube defects can be prevented by giving
   a. Folic acid
   b. Pyridoxine
   c. Riboflavin
   d. Vit B₁₂

87. The reliable index for assessing body folate stores is
   a. Free folic acid levels
   b. Bone marrow levels
   c. Red cell folate
   d. None of the above

88. Magenta colored tongue, cheilosis, nasolabial dermatitis and circum corneal vascularisation are features of
   a. Pyridoxine deficiency
   b. Riboflavin deficiency
   c. Riboflavin excess
   d. Pyridoxine excess

89. Beri–Beri is caused due to deficiency of
   a. Thiamine
   b. Riboflavin
   c. Pyridoxine
   d. Vit A
26  Paediatrics

90. Failure to Thrive, Hyperirritability, Hyperacusis Anaemia. Seizures and peripheral neuropathy are features of deficiency of
a. Thiamine  
b. Pyridoxine  
c. Riboflavin  
d. Zinc

91. All are true regarding Biotin except
a. Avidin is necessary for its Biological function  
b. Rett’s Syndrome occurs due to Biotin deficiency  
c. Children dying from Sudden Infant Death Syndrome (SIDS) have low biotin content  
d. Maculosquamous dermatitis, myalgia and mild anaemia are features of deficiency

92. Achlorhydria is a feature of deficiency of
a. Biotin  
b. Niacin  
c. Pyridoxine  
d. Thiamine

93. Subacute combined degeneration occurs in the deficiency of
a. Vit B₆  
b. Vit B₁₂  
c. Vit C  
d. Niacin

94. All are true regarding Vit B₁₂ except;
  a. Battle’s Intrinsic factor is required for absorption  
b. Cobalt atoms are present in the cyclical structure of Vit B₁₂  
c. Megaloblastic Anaemia occurs due to deficiency  
d. None of the above

95. Follicular hyperkeratosis, Peri follicular hemorrhages, bony tenderness, delayed wound healing are manifestations of
a. Vit C deficiency  
b. Vit A deficiency  
c. Selenium deficiency  
d. Niacin deficiency

96. Wimburger’s sign occurs in
a. Rickets  
b. Osteomalacia  
c. Scurvy  
d. Psoriasis
97. Vitamin D₃ is formed, by the action of sunlight (wave length 280–305 nm) from,
   a. 7-dehydrocholecalciferol
   b. 7-dehydrocholesterol
   c. Calciferol
   d. Cholecalciferol

98. The earliest manifestation of Rickets is
   a. Craniotabes
   b. Knock knees
   c. Large AF
   d. Delayed primary dentition

99. The following are radiographic features of Rickets except
   a. Increase in width of growth plate
   b. Decreased bone density
   c. Rickety rosary
   d. Sub periosteal bleed

100. All are true regarding rickets except;
    a. Rickets is unusual below the age of 3 months
    b. Generalised hypotonia with viseroptosis
    c. Serum Phosphorous normal
    d. Serum calcium is lower or normal

101. All are features of Hyper vitaminosis D – except
    a. Irritability
    b. Vomiting
    c. Hypocalciuria
    d. Polyuria
    e. Hypotonia

102. Vit E deficiency in Preterm infants manifests as
    a. Hemolytic Anaemia
    b. Hyper Bilirubinaemia
    c. Intraventricular hemorrhage
    d. All of the above
Nutrition and Nutritional Disorders

Answers

63. (a) 6 months  
Ref: O.P.G: 97

64. (c) Immunisation  
Ref: O.P.G: 115  
Factors that can prevent PEM are  
(1) Exclusive breast feeding upto 6 months  
(2) Supplementary feeds after 6 months  
(3) Immunisation against vaccine preventable diseases  
(4) Birth spacing

65. (b) 67 cal, 1.1 g Protein, 3.5 g fat and 7 gm Carbohydrate  
Ref: O.P.G: 97 table, Nelson – 158

Composition of breast milk

Protein : 1.1 gm,  
♦ Vitamin A – 60µg  
♦ Vitamin C – 5.2µg  
♦ IgA  
♦ Lactoferrin  
Calories: 67 calories  
♦ Bilesalt stimulated lipase

Minerals

Na – 0.9 meq  
K – 1.4 meq  
Ca – 35 mg  
P – 15 mg  
Fe – 30–50 µg  
Zn – 120 µg  
♦ Macrophages
66. (d) Cimetidine

<table>
<thead>
<tr>
<th>Contraindicated</th>
<th>Probably safe and give with caution</th>
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<tbody>
<tr>
<td>1) Amphetamines</td>
<td>1) Paracetamol</td>
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<td>2) Anti Neoplasticagents</td>
<td>2) Acyclovir</td>
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<td>3) Bromocriptine</td>
<td>3) Aldonel</td>
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<td>4) Chloramphenicol</td>
<td>4) Antibiotics except</td>
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<td>5) Cimetidine</td>
<td>Tetra/Chloram</td>
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<td>6) DES</td>
<td>5) Anti epileptics</td>
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<td>7) Iodides</td>
<td>6) Anti Hypertensive/cardiac</td>
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<td>8) Lithium</td>
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<td>9) Methimazole</td>
<td>7) Chlorpromazine</td>
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<td>10) Tetracyclines</td>
<td>8) Digoxin</td>
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<td>9) Diuretics</td>
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<td>10) Halopenidol</td>
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<td>11) Propylthiourail</td>
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<td></td>
<td>12) Warfarin</td>
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67. (d) Vit K. Deficiency
Breast milk is deficient in Vit K. Hence Vitamin K deficiency is common in breast fed infants than bottle fed infants. For the same reason, it is recommended to give parenteral Vit K, 1 mg at birth to the newborn.

68. (b) Brown Black colour stool
Ref: O.P.G – 158, 171, 56; (595 – Nelson)
Hemorrhagic Disease may occur due to low Vit K. ↑unconjugated bilirubin may occur, causing prolongation of physiological jaundice.

69. (b) 100–110 Kcal/day
Ref: O.P.G. Page 93
Upto 1 year – Average 103 Kcal/Kg/day
1 – 2 years – Total – 1100 – 1200/day
2 – 3 years – 1400 Kcal/day.

70. (c) 15%
Ref: Park – 18/e 461.
Carbohydrates – 60–70% total calories
Fats – 20–30%
Proteins – 15–20%

71. (a) 80 Kcal/Kg/day
Ref: O.P.G 110
1st week – 80 Kcal/Kg/day and
30 Paediatrics

The calorie intake should not exceed 100 Kcal/Kg/day
2nd week – 150 Kcal/Kg/day.

Proteins :

1st week  – 0.7 gm/Kg/day
2nd week  – 2-3 gm/Kg/day.

Iron should not be given in the first week to avoid free radicals

generation and bacterial proliferation.

72. (b) Energy
Ref : O.P.G Page 110

73. (c) Weight gain of 10g/Kg/day by day 10
Ref : O.P.G 111

74. (d) Worms.
Ref : O.P.G 107 – 109

75. (c) Dehydration in malnourished
Ref : O.P.G 109

RESOMAL :: Rehydration Solution for severely malnourished

Component | Resomal | Standard ORS
mmol/L | mmol/L
---|---|---
1) Glucose | 125 | 111
2) Sodium | 45 | 90
3) Potassium | 40 | 20
4) Chloride | 70 | 80
5) Citrate | 7 | 10
6) Magnesium | 3 | ___
7) Zinc | 0.3 | ___
8) Copper | 0.045 | ___

76. (d) All of the above.
Ref : O.P.G 102

1. Dug dale’s Index – \( \frac{Wt. Kg}{(HTcm)^{1.6}} \times 100 \)
   Normal
   \( 0.88 – 0.97 \)

2. Rao’s Index – \( \frac{Wt. In Kg}{(HTcm)^2} \times 100 \)
   \( 0.15 – 0.16 \)

3. Kanawati Index – \( \frac{Midarm Circumference (cm)}{Head Circumference (cm)} \)
   \( 0.32 – 0.33 \)

77. (c) Edema and Skin changes with Mental apathy
Ref : Nelson – 172
The single most essential criteria in classifying a PEM child into Kwashiorkar is EDEMA. Wellcome Trust classification of PEM based on Wt. for age and Edema. Mental retardation usually denotes a congenital problem in mental (Intelligence / Performance) status. Mental apathy occurs in kwashiorkar. Hepatomegaly and anaemia with growth retardation can occur in various genetic disorders like thalassemias, Sickle cell anaemia etc.

78. (a) 85th percentile  
Ref: O.P.G 117

Body Mass Index (BMI) = \( \frac{\text{Wt. in Kg}}{\text{Ht. in M}^2} \)

- Single most useful index to screen obesity in children and adolescents.
- In adults – Waist circumference / Hip circumference is a better (or) equally good index.
- Obesity \( \rightarrow \) BMI > 95th percentile.

79. (c) Retinoic acid  
Ref: O.P.G : 121.

Naturally occurring Retenoids are Retinoic acid, Retinol (alcohol), Retinal (aldehyde) and ester. Beta–Carotene – (Pro Vitamin A) available in plants and colored fruits. Converted into active Vit A in Intestine. 
1ug of Retinol = 3.33 IU of Vit.A  
60mg of Retinol = 2 lac IU of Vit.A

80. (a) Nyctalopia (XN)  
Ref: O.P.G : 121

Primary Signs | Secondary Signs
---|---
XA – Conjunctival xerosis | XN – Night Blindness (or) Nyctalopia
XIB – Bitot spots | XF – Fundal changes
X2 – Corneal xerosis | XS – Corneal scarring
X3A – <1/3 size Corneal ulceration |  
X3B – >1/3 size Corneal ulceration

Note to Remember : Primary signs have number and alphabets (1 – 3) suffixed while secondary signs only have alphabets.

81. (b) 1,00,000 IU of Vit A  
Ref: O.P.G Page 121

The above dosage is for oral administration 
(i.e)  
0 – 6 months = 50000 IU
6 – 12 months = 1,00,000 IU
> 1 year = 2 lacks IU
Paediatrics

32 Parenteral dose :- Water soluble Vit A
1) 0 – 6 months – 37,500 IU (ie 3/4 oral dose)
2) 6 – 12 months – 50,000 IU (1/2 oral dose)

Vit A Administration for prevention of deficiency
9 months – 1 lakh units along with measles vaccine
18, 24, 30, 36 months – 2 lakh units

Recommended Daily allowance of Vit A
Infants – 300 – 400µg
Children – 400 – 600µg
Adolescents – 750µg

82. (a) 90µg
Ref : O.P.G. – 122
RDA of iodine
(1) 0 – 12 months – 50µg
(2) 1 – 6 yrs – 90µg
(3) 7 – 12 yrs – 120µg
(4) >12 yrs – 150µg
Recommended level of iodination in common salt is 1 : 25,000 to 1 : 50,000 – I2 ; salt at the consumer level.

83. (c) 25µg/day
Ref : O.P.G 122

Clinical features of Endemic Cretinism
(A) Neurological Cretinism :- Deaf mutism, Squint, proximal spasticity and rigidity of lower extremities. Gait disturbance, cerebellar signs and severe mental retardation.
(B) Myxedematous Cretinism :- Psychomotor slowing, short stature, coarse facial features with myxedema and absent DEAF-MUTISM

84. (c) Zinc deficiency
Ref : O.P.G: 123
(1) Acrodermatitis, enteropathica, Behavioural changes, infections, IUGR and neural tube defects occur.
(2) Selenium deficiency results in KESHAN DISEASE and KASHIN-BECK DISEASE, high risk of cancer, and cardiovascular and cerebral thrombosis.
(3) Copper deficiency – results in Anaemia, Neutropenia, hypopigmentation of skin & hair, Metaphyseal fraying etc.

85. (a) Vit A
Ref : O.P.G : 121
Chronic intoxication with Vit A results in anorexia, dry skin, weight loss, sparse hair, bone pain and hepatosplenomegaly, anaemia.
86. (a) Folic acid  
Ref: O.P.G: 124  
Low Maternal Folic acid levels associated with increased incidence of neural tube defects. Hence Folic acid at doses of 1–5 mg/day is recommended for mothers in the first trimester.

87. (c) Red cell folate  
Plasma folate levels vary acutely with changes in daily dietary intake and hence Red cell folate is used to assess body status of folic acid.

88. (b) Riboflavin deficiency  
Ref: O.P.G: 125  
Other manifestations include keratitis, photophobia, peripheral neuropathy with hyperaesthesia and paresthesias.

89. (a) Thiamine  
Ref: O.P.G: 125, IAP: 134  
Thiamine (other names) – 1) Aneurin  
2) Anti Beri Beri vitamin  
3) Vit B₁  
4) Cocarboxylase  
Thiamine pyrophosphate is a cofactor for many oxidative carboxylations.  
Dry Beri Beri – Neurological  
Polyneuritis, irritability, fatigue, emotional disturbances, sluggish deep tendon reflexes, cardiovascular symptoms absent.  
Wet Beri Beri – Cardiovascular  
Cardiac failure, associated with tachycardia, Dyspnoea, Oedema etc. Neurological signs absent.  
Infantile Beri Beri – Three types  
(a) Cardiovascular  (b) Aphonic  (c) Neurological

90. (b) Pyridoxine  
Ref: O.P.G 125  
Pyridoxine deficiency is rare and usually due to inborn error (or) secondary to other diseases or drugs intake (INH, Hydralazine, Penicillamine)

91. (a) Avidin is necessary for its Biological function  
Ref: 126 OPG  
AVIDIN a glycoprotein found in Egg white, inhibits the activity of Biotin.  
It (Avidin) is destroyed by complete cooking of egg.

92. (b) Niacin  
Ref: IAP: 135  
Niacin — other names — (1) Nicotinic acid, Nicotinamide
(2) Antipellagra Vitamin Deficiency: “3” Ds. Diarrhoea, Dermatitis, Dementia. Symptoms are anorexia, vomiting, achlorhydria (absence of HCl secretion in stomach), muscle weakness and loss of memory. Skin manifestations include pigmented, scaly, cracked skin in parts of the body exposed to sunlight like neck and back of hands [casal necklace].

93. (b) Vit B₂
Ref: IAP: 137
SACD is the neurological complication due to long tract demyelination in lateral and posterior columns of spinal cord.

94. (d) None of the above
Ref: IAP: 136

95. (a) Vit C deficiency
♦ Scurvy results due to severe deficiency of Vit C.
♦ Usually seen from 6 months to 8 years.
♦ Bones are tender and the child prefers characteristic frog position – pain results in non-moving of limbs → Pseudo paralysis.
♦ Palpable subperiosteal hemorrhages along bones
♦ Bleeding gums and spongy, swollen bluish gums
♦ Rosary at costochondral junctions

96. (c) Scurvy
Ref: O.P.G: 126 / IAP: 137
Radiological signs in scurvy.
(1) Wimberger’s sign – Epiphyseal centres surrounded by a thin white ring.
(2) Whiteline of Frenkel – Groundglass appearance due to osteoporosis and loss of trabeculae at epiphyseal ends with fracture zones

97. (b) 7 dehydrocholesterol
Ref: O.P.G: 127, IAP: 139.
Vitamin D₃ — Cholecalciferol
Vitamin D₂ — Calciferol
Active Vitamin D₃ — 1, 25 Dihydroxy Vit D₃.
Cholecalciferol (Vit D$_3$) Liver $\xrightarrow{(OH) \text{Lase}}$ 25 Hydroxycholecalciferol $(1\text{st} \OH \text{lase \ (Control)}$ kidney 1, 25 Dihydroxy cholecalcifer (1, 25 D$_3$)

98. (a) Craniotabes  
*Ref*: O.P.G 128/IAP : 140  
Craniotabes results due to thinning of inner table of skull due to deficient calcified osteoid (Bone).

99. (d) Subperiosteal bleed  
Radiologic findings in Rickets  
(1) Best seen in lower end of Radius and ulna  
(2) Widening and cupping of Epiphysis  
(3) Rarified diaphysis  
(4) Green stick fractures and subperiosteal thickening

100. (c) Serum Phosphorus normal  
*Ref*: IAP : 141, OPG : 129  
- Rickets is a disease of growing bones  
- Incidence - (4 – 18 months) high  
- Serum Phosphorus is always low – < 4mg/dl; except – Renal osteodystrophy $\rightarrow$ elevated.  
- Serum Ca – Low (or) Normal  
- Serum ALK PO$_4$ ase $\rightarrow$ High > 500 mg/dl.

101. (c) Hypocalciuria  
*Ref*: IAP : 140  
*Hypervitaminosis – D – Clinical features:  
Anorexia, Vomiting, Hypotonia, Polydipsia, Polyuria, hypercalcaemia and hypercalciuria, Radiological $\rightarrow$ metastatic calcification and osteoporosis of long bones.

102. (d) All of the above  
*Ref*: IAP : 141  
In general; areflexia, muscle weakness and dysarthria also occur.