

2021

FUNCTIONAL FOOD AND NEUTRACEUTICALS

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions.

1. a) What is nutraceutical? 2
- b) Briefly discuss food source, beneficial effects and deficiency problem (wherever applicable) of the following: 3x6=18
 - Dietary fibre
 - PUFA
 - Selenium
2. a) What is Glucose tolerance? 2.5
- b) What is glycaemic response? 2.5
- c) How Glutathione peroxidase plays significant role in our system? 2.5
- d) How probiotic is beneficial to human gut health? 2.5
- e) How free radicals cause damaging reactions in our system? 10
3. a) How antioxidants (like CAT, GSHPx, SOD, Vitamin E, Vitamin C, Vitamin A, Bioflavonoids, Carotenoids, antioxidants from spices)scavenge free radicals from 15

- our system?
- b) How antioxidant activity is evaluated by *In vitro* method? 5
4. Briefly mention adverse affects/ overdose/ drug-supplements interaction of the following: 5x4=20
- Vitamin and mineral supplements
- Fish oil and Omega-3 fatty acids
- Protein powder (soya protein isolate)
- Nutraceuticals
- Weight loss, sport supplements
5. What is polyphenols? Write name of polyphenols of tea, coffee, red wine, legumes, winged beans and their beneficial effects. How flavonoids from soy derived proteins trigger estrogen associated adverse affects in human system? 3+12+5=20
6. Briefly write about basic fermentation technology specifically mentioning upstream, fermentation with cell dynamics and downstream process. 20
7. Write microbial production of value added nutraceuticals using genetically engineered cell. 20

