

Total No. of printed pages = 3

PG/1st Sem/PFET 1122

2021

**FUNCTIONAL FOODS AND
NUTRACEUTICALS**

Full Marks – 100

Time – Three hours

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

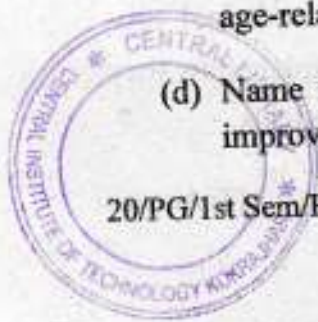
Answer any *five* questions.

1. (a) What are nutraceuticals ? Give four examples. 5
- (b) Classify nutraceuticals based on their source in detail and give two examples (nutraceutical compounds or products) for each. 8
- (c) Give any five functional or medicinal properties of nutraceuticals and explain how they are different from pharmaceuticals. 7

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2. (a) Draw the structure of lycopene and give its proper. 5
- (b) Give four sources of lycopene and name the factors that affect the absorption and bioavailability of lycopene. 5
- (c) Can processing of food effect the bioavailability of lycopene? If yes explain the effect of few processing techniques. 5
- (d) Give two functions of lycopene and mentions its use for any three diseases or health conditions. 5
3. (a) Explain the mechanisms of action of probiotics and the criteria required for the functioning of probiotics. 8
- (b) Name five nutraceuticals used in the management of obesity. 4
- (c) What is macular degeneration? Give three classes of nutraceutical components with two examples for each used in the prevention of age-related macular degeneration. 5
- (d) Name four nutraceuticals that play a role in improving endurance performance. 3



4. Briefly write about microbial production of value added nutraceuticals like polyphenolic compounds, alkaloids, terpenoids, prebiotics, polysaccharides, poly amino acids using genetically engineered cell. 20
5. (a) How free radicals are produced in our system and mention their damaging reactions? 14
- (b) What is Probiotic? How probiotic is beneficial to human gut health? 6
6. How antioxidants (like CAT, GSHPx, SOD, Vitamin E, Vitamin C, Vitamin A, Bioflavonoids, Carotenoids, Antioxidants from spices) scavenge free radicals from our system? 20
7. (a) Briefly mention adverse affects/overdose/ drug-supplements interaction of the following : 15
- (i) Vitamin and mineral supplements
- (ii) Fish oil and Omega-3 fatty acids
- (iii) Protein powder (soya protein isolate).
- (b) How antioxidant activity is evaluated by *In vitro* method?

