

**M.Sc. 1st Semester Examination, 2024**  
**CLINICAL NUTRITION AND DIETETICS**

**PAPER—CND-103**

*Full Marks : 50*

*Time : 2 hours*

**Answer all questions**

*The figures in the right hand margin indicate marks*

*Candidates are required to give their answers in  
their own words as far as practicable*

**GROUP – A**

**Answer any four questions from the following :**

1. Define Bioavailability. 2 × 4
2. State the demerits of metallic nanoparticles for biological applications.
3. Differentiate pharmaceuticals and nutraceuticals.

*( Turn Over )*

( 2 )

4. Define gut dysbiosis and name two prebiotics.
5. Name two probiotics of fungal origin.
6. Name each of one polar and non-polar bioactive molecule of plants.

**GROUP – B**

Answer any **four** questions from the following :

4 × 4

7. What is nanoemulsion ? State briefly about the nutraceutical or drug delivery system developed by nanoliposome and nanoniosome. 2 + 2
8. Why NLCs (Nanostructured Lipid Carriers) are generally considered of greater advantage than SLNs (Solid Lipid Nanoparticles) ? What do you mean by controlled release of nanoparticle ? 2 + 2

9. Define green synthesis of nanoparticles. Discuss briefly about green synthesis technique of any one nanonutraceutical. 1 + 3
10. What is supercritical solvent technique of nutraceutical extraction ? Why enzymatic nutraceutical extraction combined with sonication and microwave technique has greater advantages ? 2 + 2
11. Discuss the role of nanoencapsulated curcumin regarding oxidative stress and inflammatory response management. 4
12. 'Resveratrol as cardioprotective nutraceutical' – Justify. 4

GROUP – C

Answer any two questions from the following :

8 × 2

13. Discuss the role of nutraceuticals extracted

from *Vitex negundo* seed in the management of PCOS with special reference to the interaction of cinnamic acid, plumbagin and negundin B. What is NR3C4 gene and mention its function ? 6 + 2

14. How do you prepare crude extract and perform fractionation of bioactive components or nutraceuticals using different solvents ? Briefly discuss about maceration, decoction and percolation technique in nutraceutical extraction. 5 + 3

15. Define Postbiotic. Discuss different factors affecting micro-ecosystem of intestine. Discuss the role of probiotics from the angle of pathogenic bacteria killing with special reference to immunomodulation in the gut. 1 + 2 + 5

16. What is amylase inhibitor ? "Nutraceuticals are diabetic therapeutic agent from the view-point of amylase inhibition" – Justify the statement. State the efficacy testing of amylase inhibitor.

2 + 4 + 2

[ Internal Assessment – 10 Marks ]

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