

R
21

Roll Number _____ (Total Number of Questions: 13) (Total number of Printed Pages: 01)

Programme	B. Pharmacy
Semester	5 th
Subject	Pharmacognosy and Phytochemistry-II
Subject Code	BP504T
Paper ID	76789
Time	3 Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

*Section A consists of Ten parts of 2 marks each (Objective Type); Attempt **ALL**.

Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO.

*** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section A

(10 X 2 = 20)

1. Give very short answers to the followings (2 marks each):

i.	Give significance of Shikimic acid pathway.
ii.	Write biological source and chemical constituents of Vinca.
iii.	Give chemical structure and uses of Digitoxin.
iv.	Write in brief role of UV spectroscopy in identification of natural products.
v.	Write down principle of Microwave-assisted extraction technique.
vi.	Give chemical structure and test for identification of Caffeine.
vii.	What are Lignans? Give any two examples of lignan containing drugs.
viii.	Give utilization of Forskolin.
ix.	Give chemical structure and uses of Artemisinin.
x.	Write biological source and uses of Benzoin.

Section B

(2 X 10 = 20)

2.	Give detailed pharmacognostic accounts of Opium and Senna.
3.	Describe Acetate Mevalonate pathway in biosynthesis of various secondary metabolites.
4.	Explain method of isolation, identification and analysis of Curcumin.

Section C

(7 X 5 = 35)

5.	Explain the method of industrial production and utilization of Taxol.
6.	Give a detailed pharmacognostic account on Cinnamon.
7.	Discuss the significance of HPTLC in identification and analysis of phytoconstituents.
8.	Write biological sources, chemical constituents and uses of Asafoetida.
9.	Describe method of estimation and utilization of Diosgenin.
10.	Write a detailed note on Gel electrophoresis.
11.	Explain method of isolation and identification of Atropine.
12.	Write principle, merits, demerits and applications of Supercritical fluid extraction.
13.	Explain method of industrial production and estimation of Podophyllotoxin.

Note: Making request for passing on any page of answer-sheet will lead to UMC against the candidate.

06/12/21

Roll Number ----- (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	5 th
Subject	Pharmacognosy and Phytochemistry-II
Subject Code	BP504T
Paper ID	76789
Time	3Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.
 *Section A consists of Ten parts of 2 marks each (Objective Type); Attempt **ALL**.
 Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO.
 *** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section A (10 X 2 = 20)

1. Give very short answers to the followings (2 marks each):

i.	Define Phytochemistry.
ii.	Write biological source of Curcumin.
iii.	Write an identification test for Quinine.
iv.	Give steps in industrial production of Digoxin.
v.	Write structure and uses of Caffeine.
vi.	Give principle of Electrophoresis.
vii.	Write biological source and uses of Gentian.
viii.	Write biological source and commercial applications of Dioscorea.
ix.	Give principle and applications of IR Spectroscopy.
x.	Write an estimation method of Vinblastine and Vincristine.

Section B (2 X 10 = 20)

2.	Write Pharmacognostic account of Liquorice in detail.
3.	Discuss industrial production, estimation and utilization of Atropine.
4.	What are Tracer Techniques? Discuss role of radioactive isotopes in biogenetic study.

Section C (7 X 5 = 35)

5.	Write biological source, chemical constituents and therapeutic uses of Rauwolfia.
6.	Discuss briefly isolation, identification and analysis of Menthol.
7.	Give principle, working and applications of Microwave Assisted Extraction.
8.	Explain briefly applications of chromatographic methods in isolation and purification of Herbals.
9.	Give biological source, chemical constituents and uses of Cinnamon bark.
10.	Write industrial production and utilization of Artemisinin.
11.	Discuss briefly isolation, identification and analysis of Podophyllotoxin.
12.	Give biological source, chemical constituents and uses of Ginger.
13.	Explain briefly secondary metabolites produced by Shikimic Acid Pathway.

Note: Disclosure of identity by writing mobile number or making request for passing on any page of answer-sheet will lead to UMC against the candidate.

11/7/22M

Roll Number ----- (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	5 th
Subject	Pharmacognosy and Phytochemistry-II
Subject Code	BP504T
Paper ID	76789
Time	3Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

*Section A consists of Ten parts of 2 marks each (Objective Type); Attempt **ALL**.

Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO.

*** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section A

(10 X 2 = 20)

1. Give very short answers to the followings (2 marks each):

i.	Write a short note on Chemical tests for Resins.
ii.	What are the applications of Amino acid Pathway?
iii.	Give chemical constituents and therapeutic uses of Gentian.
iv.	Give utilization of Vincristine and Vinblastine.
v.	Discuss method for estimation of Sennosides.
vi.	Enlist general chemical test for Terpenoids.
vii.	Explain the Principle of Droplet Counter Current Chromatography (DCCC).
viii.	Write the biological source and uses of Ruta.
ix.	Write chemical test for the identification of Glycyrrhetic acid.
x.	Write applications of chromatography in the identification of crude drugs?

Section B

(2 X 10 = 20)

2.	Discuss in detail about isolation, identification and analysis of Menthol and Reserpine.
3.	Discuss about industrial production, estimation and utilization of Caffeine and Forskolin
4.	Write about application of Chromatographic techniques in the isolation, purification and identification of crude drugs.

Section C

(7 X 5 = 35)

5.	Discuss chemistry and applications of Lignans.
6.	Write a detailed note on Shikimic acid pathway.
7.	Discuss about isolation of Rutin.
8.	Write down the biological source and uses of Colophony.
9.	Write composition, chemical class and therapeutic uses of Pterocarpus.
10.	Give a detailed pharmacognostic account on Digitalis.
11.	Write a detailed note on Carotenoids
12.	Describe industrial production and estimation of Artemisinin
13.	Describe method of estimation and uses of Atropine.

Note: Disclosure of identity by writing mobile number or making request for passing on any page of answer-sheet will lead to UMC against the candidate.

231222

Roll Number _____ (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	5 th
Subject	Pharmacognosy and Phytochemistry-II
Subject Code	BP504T
Paper ID	76789
Time	3 Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

*Section A consists of Ten parts of 2 marks each (Objective Type); Attempt **ALL**.

Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO.

*** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section- A**(10X2=20)**

1.	Give very short answers to the followings:
i.	Write commercial applications of carotenoids.
ii.	Enumerate the latest techniques of chromatography for isolation and purification of crude drugs.
iii.	Give two examples of resin drugs with their uses.
iv.	Write the identification tests for Alkaloids.
v.	Which secondary metabolites are biosynthesized from Acetate pathway?
vi.	Give source for isolation of Glycyrrhetic acid and Artemisinin.
vii.	Write any two examples of spectroscopy applications for identification of crude drugs.
viii.	Write about utilization of Vincristine and Vinblastine.
ix.	What are Sennosides?
x.	Write the source and utilization of Forskolin.

Section- B**(2X10=20)**

2.	Discuss industrial production, estimation and utilization of Digoxin and Caffeine.
3.	Write a descriptive note on various modern methods of extraction.
4.	Write about source, chemistry, therapeutic uses and commercial applications of Catechu and Opium.

Section- C**(7X5=35)**

5.	Illustrate Shikimic acid pathway.
6.	How will you identify and analyze Menthol?
7.	Discuss applications of Electrophoresis in isolation, purification and identification of crude drugs.
8.	Write a short note on volatile oil containing drugs.
9.	Explain industrial production of Diosgenin.
10.	Give isolation and identification of Curcumin.
11.	Give industrial production, estimation and utilization of Taxol.
12.	Write a note on utilization of radioactive isotopes in investigation of biogenetic studies.
13.	Write about source, chemistry, therapeutic uses and commercial applications of Rauwolfia.

Note: Disclosure of identity by writing mobile number or making request for passing on any page of answer-sheet will lead to UMC against the candidate.

22 JUN 2023

Roll Number (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	5 th
Subject	Pharmacognosy and Phytochemistry-II
Subject Code	BP504T
Paper ID	76789
Time	3Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

*Section A consists of Ten parts of 2 marks each (Objective Type); Attempt **ALL**.

Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO.

*** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section- A

(10 X 2 = 20)

1.	Give very short answers to the followings-
i.	Define Tannins and Glycosides with examples.
ii.	Which types of amino acids are obtained from shikimic acid pathway?
iii.	Outline the sources and uses of Artemisia and Turmeric.
iv.	Mention the source and constituents of Myrobalan.
v.	Enlist general chemical test for Terpenoids.
vi.	Write botanical source and uses of Digitalis.
vii.	Write the biological source and uses of Ruta.
viii.	Discuss method for estimation of Sennosides.
ix.	What are the applications of Amino acid Pathway?
x.	Give chemical constituents and therapeutic uses of Curcuma.

Section- B

(2 X 10 = 20)

2.	Write about application of Chromatographic techniques in the isolation, purification and identification of crude drugs.
3.	Explain in detail the sources, cultivation, collection, microscopy, constituents, uses, substitutes and adulterants of senna.
4.	Give a brief study of basic metabolic pathway and formation of different secondary metabolites through Shikimic acid pathway.

Section- C

(7 X 5 = 35)

5.	Discuss about industrial production, estimation and utilization of Caffeine and Forskolin.
6.	Explain the Principle of Droplet Counter Current Chromatography (DCCC).
7.	Write the isolation and estimation of Glycyrrhetic acid.
8.	State the constituents of Vinca and Taxol and draw the structure of anyone.
9.	Write a detailed note on Carotenoids.
10.	Describe method of estimation and uses of Atropine.
11.	Write down the biological source and uses of Colophony.
12.	Give utilization of Vincristine and Vinblastine.
13.	Write composition, chemical class and therapeutic uses of Pterocarpus.

Note: Disclosure of identity by writing mobile number or making request for passing on any page of answer-sheet will lead to UMC against the candidate.

(freeing)
07 12 23

Roll Number ----- (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	5 th
Subject	Pharmacognosy and Phytochemistry-II
Subject Code	BP504T
Paper ID	76789
Time	3Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

*Section A consists of ten parts of 2 marks each (Objective Type); Attempt **ALL**.

Section B consists of three questions carrying 10 marks each (Long Answer); attempt any **TWO.

*** Section C consists of nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section A

(10 X 2 = 20)

1.	Give very short answers to the following:
i.	Define Tracer Technique.
ii.	Which method is used for the isolation of Citral?
iii.	Write biological sources and uses of Coriander.
iv.	Name plant source and uses of Artemisinin.
v.	What is the principle of Pressurised Liquid Extraction?
vi.	Write a method of estimation of Caffeine.
vii.	Give an identification test for Quinine.
viii.	Write utilization of Podophyllotoxin.
ix.	Define Carotenoids.
x.	Give a chemical test differentiating Sumatra benzoin from Siam benzoin.

Section B

(2 X 10 = 20)

2.	What are Metabolic Pathways? Discuss the role of the Acetate-Mevalonate Pathway in the production of secondary metabolites.
3.	Discuss industrial production, estimation and utilization of Sennosides.
4.	Discuss the role of Chromatographic techniques in the isolation, purification and identification of crude drugs.

Section C

(7 X 5 = 35)

5.	Write isolation, identification and analysis of Glycyrrhithinic acid.
6.	Give an account of black Catechu.
7.	Write biological sources, chemical constituents and uses of Clove.
8.	Write isolation, identification and analysis of Menthol.
9.	Write a note on the Amino Acid Pathway.
10.	Write a method of industrial production and estimation of Digitoxin.
11.	Write biological source, chemical constituents and uses of Belladonna.
12.	Write a note on the role of IR and NMR in phytochemistry.
13.	Write a note on Guggal.

Note: Disclosure of identity by writing mobile number or making request for passing on any page of answer-sheet will lead to UMC against the candidate.

(Morning)
110324

Roll Number _____ (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	5 th
Subject	Pharmacognosy and Phytochemistry-II
Subject Code	BP504T
Paper ID	76789
Time	3Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

*Section A consists of Ten parts of 2 marks each (Objective Type); Attempt **ALL**.

Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO.

***Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section- A (10X2=20)

1.	Give a very short answers to the followings:
i.	Give the chemical constituents of rauwolfia.
ii.	Mention the identification test of atropine.
iii.	What is the utilization of diosgenin?
iv.	Give applications of electrophoresis.
v.	Write principle of paper chromatography.
vi.	Give the chemical class and uses of aloe.
vii.	What are carotenoids?
viii.	How will you analyze caffeine?
ix.	Write biological source and uses of benzoin.
x.	Outline isolation procedure of citral.

Section- B (2X10=20)

2.	discuss shikimic acid pathway. List the secondary metabolites formed via this pathway.
3.	Describe the principle, instrumentation and applications of HPLC.
4.	Explain industrial production, estimation and utilization of podophyllotoxin.

Section- C (7X5=35)

5.	Compare pale and black catechu.
6.	Write a detailed note on flavonoids.
7.	Write biosource, chemistry and therapeutic uses of fennel.
8.	Explain pharmacognostic characters of digitalis.
9.	List out various modern methods of extractions. Summarize the principle and methodology of supercritical fluid extraction.
10.	Write isolation, identification test and analysis glycyrrhetic acid.
11.	Assess the principle and applications of IR and UV spectroscopy in identification of herbal drugs.
12.	Write a note on steps involved in the utilization of radioactive isotopes for the investigation of biogenic studies.
13.	Explain industrial production and utilization of artemisinin.

Note: Disclosure of identity by writing mobile number or making request for passing on any page of answer-sheet will lead to UMC against the candidate.

221124

(Marking)

Roll Number ----- (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	5 th
Subject	Pharmacognosy and Phytochemistry-II
Subject Code	BP504T
Paper ID	76789
Time	3Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

*Section A consists of Ten parts of 2 marks each (Very Short Answer); Attempt **ALL**.

Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO.

*** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section- A (10 X 2 = 20)

1.	Give very short answers to the followings:
i.	Write a short note on chemical tests for resins.
ii.	What are the applications of amino acid pathway?
iii.	Give chemical constituents and therapeutic uses of gentian.
iv.	Give utilization of vincristine and vinblastine.
v.	Discuss method for estimation of sennosides.
vi.	Enlist general chemical test for terpenoids.
vii.	Explain the principle of droplet counter current chromatography.
viii.	Write the biological source and uses of ruta.
ix.	Write chemical test for the identification of glycyrrhetic acid.
x.	Write applications of chromatography in the identification of crude drugs?

Section- B (2 X 10 = 20)

2.	Discuss in detail about isolation, identification and analysis of menthol and reserpine.
3.	Discuss about industrial production, estimation and utilization of caffeine and forskolin.
4.	How are chromatographic techniques applied in the isolation, purification, and identification of crude drugs?

Section- C (7 X 5 = 35)

5.	Discuss chemistry and applications of lignans.
6.	Write a detailed note on shikimic acid pathway.
7.	Discuss about isolation of rutin.
8.	Write down the biological source and uses of colophony.
9.	Write composition, chemical class and therapeutic uses of pterocarpus.
10.	Give a detailed pharmacognostic account on digitalis.
11.	Describe industrial production and estimation of artemisinin.
12.	Write a detailed note on carotenoids.
13.	Describe method of estimation and uses of atropine.

Note: Disclosure of identity by writing mobile number or making request for passing on any page of answer-sheet will lead to UMC against the candidate.

(Morning)
190625

Roll Number ----- (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	5 th
Subject	Pharmacognosy and Phytochemistry-II
Subject Code	BP504T
Paper ID	76789
Time	3Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

***Section- A** consists of **ten questions**, each carrying **2 marks** (Very Short Answer Type); **Attempt all.**

****Section- B** consists of **three questions**, each carrying **10 marks** (Long Answer Type); **Attempt any two.**

*****Section- C** consists of **nine questions**, each carrying **5 marks** (Short Answer Type); **Attempt any seven.**

Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	What is the role of the shikimic acid pathway in secondary metabolite formation?
ii.	Name any two radioactive isotopes used in biogenetic studies.
iii.	Give two commercial applications of volatile oils.
iv.	What are tannins? Give two examples.
v.	Give two therapeutic applications of opium alkaloids.
vi.	Write the main constituent of artemisinin and its use.
vii.	Give the biological source of caffeine and its uses.
viii.	What is the biological source and what are the uses of podophyllotoxin?
ix.	Give two different modern and conventional extraction methods.
x.	Name any two chromatographic methods used in pharmacognosy.

Section- B (2X10=20)

2.	Discuss the industrial production, estimation, and therapeutic applications of digoxin, atropine, and vincristine.
3.	Classify secondary metabolites. Write detailed notes on alkaloids (vinca, rauwolfia) and volatile oils (fennel, clove).
4.	Highlight the role of chromatography and spectroscopy in phytochemical identification.

Section- C (7X5=35)

5.	Write a short note on the utilization of radioactive isotopes in the investigation of biogenetic pathways.
6.	Mention the biological source, therapeutic use, and chemical nature of diosgenin.
7.	Outline the isolation and analysis processes of citral and artemisinin.
8.	Write a short note on the amino acid pathway and its contribution to alkaloid synthesis.
9.	Write a note on the chemistry and therapeutic uses of <i>Dioscorea</i> and <i>Digitalis</i> .
10.	How does the acetate pathway play a role in the production of secondary metabolites?
11.	Mention the steps involved in the isolation and analysis of rutin.
12.	Write a note on industrial estimation and uses of sennosides and taxol.
13.	Mention the various methods of extraction used in pharmacognosy.

Note: Disclosure of identity by writing mobile number or making request for passing on any page of answer-sheet will lead to UMC against the candidate.

15 12 25
(Evening)

Roll Number -----(Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	5 th
Subject	Pharmacognosy and Phytochemistry-II
Subject Code	BP504T
Paper ID	76789
Time	3Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

*Section -A consists of Ten parts of 2 marks each (Very Short Answer); Attempt ALL.

**Section- B consists of Three questions carrying 10 marks each (Long Answer); attempt any TWO.

***Section -C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.

Section- A (10X2=20)

1.	Give very short answers to the following:
i.	Explain chemical tests to identify Cardiac glycosides.
ii.	Distinguish between primary and secondary metabolites with examples.
iii.	Define radio-tracer technique. List various detectors used in the tracer techniques.
iv.	What are the applications of IR spectroscopy in the characterization of phytoconstituents?
v.	Explain in brief – estimation of Sennosides.
vi.	Write a biological source and the uses of Artemisinin.
vii.	Write a specific identification test for caffeine.
viii.	Explain the types of Benzoin.
ix.	What is Stas – Otto method of extraction?
x.	Write in brief about the isolation of Curcumin.

Section- B (2X10=20)

2.	'Modern techniques of Chromatography – Important tool for herbal research'. Comment on.
3.	Write in detail about the Shikimic acid pathway. Give its significance.
4.	Explain in detail about industrial production, estimation and utilization of - (a) Diosgenin (b) Taxol

Section- C (7X5=35)

5.	Give one Iridoid-glycoside-containing plant and briefly describe its source, uses, and commercial applications.
6.	Write a note on Mevalonic acid pathway.
7.	Add a note on industrial production and commercial utilization of Vincristine and Vinblastine.
8.	Explain isolation, identification and analysis of Reserpine.
9.	How the technique of electrophoresis is helpful in isolation, purification, and identification of crude drugs?
10.	Explain in detail the modern methods of extraction of crude drugs.
11.	What are Lignans? Write in detail about chemistry, therapeutic uses and commercial applications of Lignans.
12.	Explain in detail industrial production, estimation and utilization of Forskolin.
13.	Write in brief about the techniques of isolation, identification, and analysis of Glycyrrhetic acid.

Note: Disclosure of identity by writing mobile number or making request for passing on any page of answer-sheet will lead to UMC against the candidate.