ACADEMIC YEAR:

2019-20

DR. B. C. ROY COLLEGE OF PHARMACY AND AHS
DR. MEGNAD SAHA SARANI, BIDHANNAGAR, DURGAPUR-713206

TIME TABLE OF B.PHARM 1ST YR 2ND SEMESTER, 2020

EFFECTIVE FROM 14TH JANUARY, 2020

Doc. No.: RTN/B/2020/8/EVEN

DAY	10:00-1:00	1:00-2:00	Section	2:00-2:50	2:50-3:40	3:40-3:50	3:50-4:40	4:40-5:30	5:30-6:30	COURSE NAME WITH CODE
TUE	PT-296 (Gr.A) PM, PT-297 (Gr.B) SKM,	L	A	PT215 SsM	PT213 SK	B	PT214 PSP	PT216 DC	T	1. PT215 Human Anatomy and Physiology -II
	PTC-293(Gr.C) SB , LIB(Gr.D)		B	PT214 PSP	PT216 DC		PT213 SK	PT215 SsM	U	2. PT213 Pharmaceutical Organic Chemistry - I
WED	PT-297(Gr.A) SKM, PT-298(Gr.D) SnM,	U	A	PT215 SsM	PT213 SK	R	PT214 PSP	PT216 AC	T	3. PT214 Biochemistry
	PTC-293(Gr.B) SB, LIB(Gr.C)		B	PT214 PSP	216 AC		PT213 SK	PT215 SsM	O	4. PT216 Pathophysiology
THU	PT-296(Gr.B) PM, PT-297(Gr.D) PSP,	N	A	PT215 DC	PT213 SK	E	PT214 PM	HU282 SnM	R	5. HU282 Environmental sciences
	PT-298(Gr.C) SNM, PTC-293(Gr.A) SB		B	PT214 PM	HU282 SnM		PT213 SK	PT215 DC	I	6. PTC 203 Computer Applications In Pharmacy
FRI	PT-296(Gr.C) SK, PT-298(Gr.A) MD,	C	A	PT215 DC	PTC203 SB	A	PT214 PM	PT216 AC	A	PRACTICAL 7. PT298 Human Anatomy and Physiology - II
	PTC-293(Gr.D) SB, LIB(Gr.B)		B	PT214 PM	PT216 AC		PT215 DC	PTC203 SB	L	8. PT296 Pharmaceutical Organic Chemistry -I
SAT	PT-296(Gr.D) SK, PT-297(Gr.C) PSP,	H	A	HU282 SnM	PT213 PM	K	PT216 DC	PTC 203 SB		9. PT297 Biochemistry
	PT-298 (Gr.B) MD, LIB(Gr.A)		B	PT216 DC	PTC203 SB		HU282 SnM	PT213 PM		10. PTC 293 Computer Applications In Pharmacy

PM (Miss Puja Mishra) **SKM** (Dr. Sudip Kumar Mondal) **SB** (Mr. Soumen Banerjee) **SK** (Mr. Sonjoy Konar) **MD** (Miss Manami Dhibar)
SsM (Saroj Singhmurah) **DC** (Mr. Dipesh Chakraborty) **PSP** (Dr. Partha Sarathi Parda) **SnM** (Miss Sanchari Mondal) **AC** (Dr. Avijit Chatterjee)

ISSUE NO: 1

REVISION NO: 0

Workload for PSP = 4h
" " PM = 4h

Prepared By
Mr. Sonjoy Konar
(Assistant Professor)
07/12/19

Approved By
Dr. Subhabrata Ray
(Principal)
10/12/19

PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206

DR. B. C. ROY COLLEGE OF PHARMACY AND AHS

DR. MEGNAD SAHA SARANI, BIDHANNAGAR, DURGAPUR-713206

EFFECTIVE FROM 24TH MARCH, 2020

VIRTUAL TIME TABLE OF B.PHARM 1ST YR 2ND SEMESTER, 2020

DAY	10:00-11:00	11:00-12:00	12:00-1:00	1:00-2:00	COURSE NAME WITH CODE
TUE	PT 213, PM	PT 216, DC	HU 282, SNM	PT 215, DC	1. **PT215** Human Anatomy and Physiology -II
WED	PT 214, PSP	PT 213, SK	PT 216, AC	PTC 203, SB	2. **PT213** Pharmaceutical Organic Chemistry - I
THU	PT 215, DC	PT 214, PSP	PT 213, SK	PT 214, PM	3. **PT214** Biochemistry
FRI	PT 216, DC	PT 215, SSM	PT 214, PM	PT 216, AC	4. **PT216** Pathophysiology
SAT	HU 282, SNM	PTC 203, SB	PT 215, SSM	PT 213, SK	5. **HU282** Environmental sciences
					6. **PTC 203** Computer Applications In Pharmacy

PREPARED BY:

20/3/20 workload for PSP = 2h
" " PM = 2h

MR. SONJOY KONAR (ASST. PROF.)

APPROVED BY:

20/3/20

DR. SUBHARATA RAY (PRINCIPAL)

PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206

Dr. B .C. ROY COLLEGE OF PHARMACY & A.H.S
DR. MEGHANAD SAHA SARANI, BIDHANNAGAR,
DURGAPUR-06
B. PHARM. 1ST YEAR 2ND SEMESTER 2020

PAPER- BIOCHEMISTRY (THEORY) **PAPER CODE- PT-214**

ASSIGNMENTS

SL NO	ROLL NO.	NAME	TOPICS ASSIGNED	MAPPING WITH CO
1	18901918022	SYED ABDUL AMEEN		
2	18901919001	ANIRBAN GHOSH		
3	18901919002	SOHAM DUTTA		
4	18901919003	DEBAM RAY		
5	18901919004	SUCHETA KARMAKAR		
6	18901919005	ANITA KUMBHAKAR		
7	18901919006	ARNAB PAL		
8	18901919007	PRODIPTO DAS		
9	18901919008	NIKITA DUTTA		
10	18901919009	SWARAJ NAYEK		
11	18901919010	MEHEDI HASAN		
12	18901919011	SUDIN NAYEK		
13	18901919012	DEBABRATA CHATTOPADHYAY		
14	18901919013	DIPEN RANA		
15	18901919014	SUMAN MONDAL		
16	18901919015	DEBARGHYA KARFORMA		
17	18901919016	ARYADIPTO DASGUPTA		
[redacted]	18901919017	ABHISHIKTA SARKAR		
[redacted]	18901919018	ANKIT DAS		
20	18901919019	ABDUR RAHAMAN		
21	18901919020	ANGANA CHAKRABORTY		
22	18901919021	ABHIJIT GOSWAMI		
23	18901919022	ARIJIT DEY		
24	18901919023	APURBA PANDIT		
25	18901919025	SOUMYADIP SAHA		
26	18901919026	ANIRBAN DALUI		
27	18901919027	GOPENDRA KRISHNA ROY		
28	18901919028	SUBHANKAR NAG		
29	18901919029	HAREKRISHNA SAHA		
30	18901919030	SOUMYADEEP MAJHI		
31	18901919031	SRINJANI MITRA		
32	18901919032	HIRAK BHOWMIK		
33	18901919033	RUDRA DAS		
34	18901919034	ANKITA KARMAKAR		
35	18901919035	SOUVIK KOWER		
36	18901919036	AVAS PAL		
37	18901919037	GOURAB MANNA		
38	18901919038	ADARSHA GANGULY		
39	18901919039	AVIJIT RUIDAS		
40	18901919040	ANIKET DAS		
41	18901919041	SPURTIKA JANA		
42	18901919042	DEBANWITA LAHA		
43	18901919043	SUBHADIP MANNA		
[redacted]	18901919044	DEBAPRIYA DEY		
[redacted]	18901919045	SOUVIK GHOSH		
46	18901919046	SNEHASISH KONER		
47	18901919047	DINESH PRADHAN		

20/12/20

Dr. B .C. ROY COLLEGE OF PHARMACY & A.H.S
DR. MEGHANAD SAHA SARANI, BIDHANNAGAR,
DURGAPUR-06
B. PHARM. 1ST YEAR 2ND SEMESTER 2020

PAPER- BIOCHEMISTRY (THEORY)

PAPER CODE- PT-214

ASSIGNMENTS

SL NO	ROLL NO.	NAME	TOPICS ASSIGNED	MAPPING WITH CO
48	18901919048	SK DILSHAD ANWAR	The Biochemical Basis of Disease	CO.PT-214.2 and CO.PT-214.4
49	18901919049	ARNAB DEY		
50	18901919050	SOURAV PAUL		
51	18901919051	SATADRU MALLIK		
52	18901919052	SRABONA KONAR		
53	18901919053	SUMAN DAS		
54	18901919054	ARKAPRAVA PAUL		
55	18901919055	SOVAN GIRI		
56	18901919056	SUDARSHINI DUTTA		
57	18901919057	SOURAV GORAI		
58	18901919058	SWAPNAMOY GAYEN		
59	18901919059	SURYAKANTA DOLUI		
60	18901919060	SOURAV PATRA		
61	18901919061	TAMAN DAS		
62	18901919062	SOUMEN LAHARI		
63	18901919063	SWAGATA ROY		
64	18901919064	SWARUP CHATTERJEE		
[illegible]	18901919065	PRIYANKA PANDIT		
[illegible]	18901919066	SOURAV GHOSH		
67	18901919067	WASHIM AKTAR		
68	18901919068	TRIDIB NAYEK		
69	18901919069	KRISHNENDU BHOWMICK		
70	18901919070	MD SAHIDUJJAMAN		
71	18901919071	SAYED ANOWAR		
72	18901919072	SOMNATH SINGHA		
73	18901919073	SUMANA PAL		
74	18901919074	MOHITOSH PATRA		
75	18901919075	RAJ ALI		
76	18901919076	SUSOVAN DAS		
77	18901919077	SARMISTHA MONDAL		
78	18901919078	SUDIP MONDAL		
79	18901919079	SUBHANKAR PAL		
80	18901919080	KOUSHIK DAS		
81	18901919081	ISHIKA DEY		
82	18901919082	SUDIP MAJI		
83	18901919083	RAHUL MALLICK		
84	18901919084	RITAM PATRA		
85	18901919085	SAYANTA SINGHA		
86	18901919087	PRIYANGI GHOSAL		
87	18901919088	ROHIT CHATTERJEE		
88	18901919089	JAGADISH SHIL		
89	18901919090	MANOJ MANA		
90	18901919091	SAHADEV DAS		
[illegible]	18901919092	JAYITA PAL		
[illegible]	18901919093	SHREYA DATTA		
93	18901919094	PRIYAM KUMAR GIRI		
94	18901919095	RAJAT SAMAI		
95	18901919096	HIRAK DYUTI GANGULY		
96	18901919097	INDRAJIT PAL		
97	18901919098	SANGRAM RAKSHIT		
98	18901919099	RAJAT DANDAPAT		
99	18901919100	MAINUL HASAN		
100	18901919101	NIRUPAM PATTANAYAK		
101	18901919102	MD MAINUL HASSAN		

08/02/21

DR. B. C. ROY COLLEGE OF PHARMACY AND ALLIED HEALTH SCIENCES, DURGAPUR – 713206

B. PHARM. 1st YEAR 2nd SEMESTER CLASS EXAMINATION 2020

PAPER: BIOCHEMISTRY CODE: PT-214

SET- A

Full Mark: 25

Question No	Question	Mapping CO
1	Predict the conformer of the given structure of D-Mannose: A) 2S, 3S, 4R, 5R B) 2R, 3S, 4S, 5R C) 2R, 3R, 4S, 5S D) 2R, 3R, 4S, 5R	CO.PT 214.1
2	Glucose and Galactose differs fror conformation A) Change in conformation at C2 at C4 C) Change in conformation at C3; D) Change in conformation at C5	CO.PT 214.1
3	Formula for monosaccharide is $(CH_2O)_n$ B) C_nH_{2n} Both A and B D_ none of above	CO.PT 214.1
4	A nucleoside is composed of: A) The phosphate group and the pentose sugar B) The pentose sugar and the nitrogenous base C) The Phosphate group, the pentose sugar and the nitrogenous base D) The nitrogenous base and the phosphate group	CO.PT 214.1
5	The initial product of purine biosynthesis A) AMP B) GMP C) IMP D) UMP	CO.PT 214.2

DR. B. C. ROY COLLEGE OF PHARMACY AND ALLIED HEALTH SCIENCES, DURGAPUR – 713206

B. PHARM. 1st YEAR 2nd SEMESTER CLASS EXAMINATION 2020

PAPER: BIOCHEMISTRY CODE: PT-214

SET- B

Full Mark: 25

Question No	Question	Mapping CO
1	The structure given below is: A) β-D-Glucose B) L-Glucose C) Galactose D) α-D-Glucose	CO.PT 21
2	When L-Glucose is written in open	C(

	chain form A) Three OH groups are on the right and one OH group is on the left. B) One OH groups are on the right and three OH group is on the left. C) Two OH groups are on the right and two OH groups are on the left. D) Four OH groups are on the right.	214.1
3	How many kinds of nitrogenous bases are found in nucleic acids? A) One B) Three C) Five D) Seven	CO.PT 214.1
4	Which of the following statement state a difference in the compositions of a deoxyribonucleotide and a ribonucleotide? A) DNA monomer has a deoxyribose, whereas RNA monomer has a ribose B) DNA monomer does not have uracil, whereas RNA monomer does not have thymine C) DNA usually exists as double helix, whereas RNA usually exists as a single strand D) All of the above	CO.PT 214.1
5	The amino acids required for the biosynthesis of purines A) Glycine, Glutamine and Aspartate B) Glycine, Glutamate and Aspartate C) Glycine and Glutamine D) Aspartate and Glutamine	CO.PT 214.2

CO No. of Ques Marks.
CO.PT.214.1 4 20
214.2 1 5
Total 5 25

11/03/20

PT-214 (Biochemistry) 2.04.2020

COPT214.3 &
COPT214.4

COPT214.3

COPT214.2

COPT214.3

9. Single Strand Binding Proteins maintains the DNA template in the single strand form in order to

Check all that apply

- [ ] prevent the dsDNA formation
- [ ] protect the vulnerable ssDNA from nucleases
- [ ] relieve torsional strain resulting from helicase induced unwinding
- [ ] form phosphodiester bonds

COPT214.3

10. Which of the following enzymes adds DNA to the ends of chromosomes to avoid loss of genetic material with duplication?

Check all that apply

- [ ] Helicase
- [ ] Telomerase
- [ ] Polymerase
- [ ] Primase

COPT214.3 &
COPT214.4

11. Which of the following enzymes act as nick sealing enzyme in DNA replication?

Check all that apply

- [ ] Primase
- [ ] Telomerase
- [ ] DNA ligase
- [ ] DNA Topoisomerases

COPT214.3 &
COPT214.4

12. The enzyme that (during replication) proceeds along one of the strands of a DNA molecule adding deoxy-nucleotide-triphosphates to hydrogen bond with their appropriate complementary dNTP on the other single strand and to form a covalent phosphodiester bond with the previous nucleotide of the same strand is called:

Check all that apply

- [ ] DNA Polymerase I
- [ ] DNA Polymerase II
- [ ] DNA Polymerase III
- [ ] Primase

COPT214.3 &
COPT214.4

13. Which of the following compounds inhibit human topoisomerases are used as anticancer drugs?

Check all that apply

- [ ] Etoposide
- [ ] Doxorubicin
- [ ] 6-Mercaptopurine
- [ ] 5-Fluorouracil

COPT214.4

14. What is the role of topoisomerases in eukaryotic DNA replication?

Check all that apply

- [ ] Topoisomerise enzymes cut, uncoil and reseal the double stranded DNA
- [ ] Topoisomerise enzymes bind to the origin of replication sites within double stranded DNA
- [ ] Topoisomerise enzymes open up the double stranded DNA at the replication fork
- [ ] Topoisomerise enzymes join the Okazaki fragments together with phosphodietster bonds

COPT214.3 &
COPT214.4

15. True replication of DNA is possible due to

Check all that apply

- [ ] Hydrogen bonding
- [ ] Phosphate backbone
- [ ] Complementary base pairing rule
- [ ] None of the above

COPT214.3

16. EC 1.2.1.4 refers to the type of enzyme which belongs to

Check all that apply

- [ ] Oxidoreductases which acts on alcohol groups and NAD+ is used as acceptor
- [ ] Oxidoreductases which acts on aldehyde groups and O2 is used as an acceptor
- [ ] Oxidoreductases which acts on aldehyde groups and NAD+ is used as acceptor
- [ ] None of the above

COPT214.4

17. What is the ratio of Vo/Vmax when [S]=5Km ?

Check all that apply

- [ ] 1/5
- [ ] 5/6
- [ ] 4/5
- [ ] 1/2

COPT214.4

[signature] 27/07/16

18. Given an enzyme with Km of 0.5 mM. At what substrate concentration will the velocity of the enzyme reach 1/4 of the Vmax?

Check all that apply

- [ ] 0.20 mM
- [ ] 0.12 mM
- [ ] 0.17 mM
- [ ] 0.5 mM

COPT214.4

19. The __ of a double reciprocal plot equals __ and the __ equals __.

Check all that apply

- [ ] slope, VMAX, y-intercept, KM
- [ ] slope, KM, y-intercept, 1/VMAX
- [ ] slope, KM/VMAX, y-intercept, 1/VMAX
- [ ] slope, KM/VMAX, y-intercept, VMAX

COPT214.4

20. The __ of a double reciprocal plot equals __ and the __ equals __

Check all that apply

- [ ] slope, VMAX, y-intercept, KM
- [ ] slope, KM, y-intercept, 1/VMAX
- [ ] slope, KM/VMAX, y-intercept, 1/VMAX
- [ ] slope, KM/VMAX, y-intercept, VMAX

COPT214.4

21. When (S) is equal to Km, which of the following conditions exist?

Check all that apply

- [ ] Half the enzyme molecules are bound to substrate.
- [ ] The velocity of the reaction is equal to Vmax.
- [ ] The velocity of the reaction is independent of substrate concentration.
- [ ] Enzyme is completely saturated with substrate.

CO PT 214.4

22. Match the enzyme with its corresponding activity

Check all that apply

	Synthesize primers using free NTPs as the substrate and the ssDNA as the template	Catalyses the conversion of an aldose sugar to a ketose sugar	Form a phosphodiester bond between the 3'-OH of one Okazaki fragment and the 5'-phosphate of the next on the lagging strand	Replaces the nucleotides of the RNA primer with the appropriate DNA nucleotides	Unwind the double helix, locally opening up the DNA to allow replication to occur
DNA ligase	[ ]	[ ]	[ ]	[ ]	[ ]
DNA Polymerase II	[ ]	[ ]	[ ]	[ ]	[ ]
DNA Helicase	[ ]	[ ]	[ ]	[ ]	[ ]
Primase	[ ]	[ ]	[ ]	[ ]	[ ]
Isomerases	[ ]	[ ]	[ ]	[ ]	[ ]

CO PT 214.3 &
CO PT 214.4

23. Which of the following reactions is required for proofreading during DNA replication by DNA polymerase III?

Check all that apply

- [ ] 5' to 3' exonuclease activity
- [ ] 3' to 5' exonuclease activity
- [ ] 3' to 5' endonuclease activity
- [ ] 5' to 3' endonuclease activity

CO PT 214.3 &
CO PT 214.4

24. The Michaelis-Menten hypothesis:

Check all that apply

- [ ] Postulates the formation of an enzyme substrate complex
- [ ] Enables us to calculate the isoelectric point of an enzyme
- [ ] States that the rate of a chemical reaction may be independent of substrate concentration
- [ ] States that the reaction rate is proportional to substrate concentration

CO PT 214.4

25. Mode of DNA replication in E. coli is

Check all that apply

- [ ] Conservative
- [ ] Semiconservative
- [ ] Unidirectional
- [ ] Bidirectional

CO PT 214.3

CO	No. of Questions	Marks
CO PT 214.1	0	0
PT 214.2	0	0
PT 214.3	13	17
PT 214.4	15	19

[signature] 21/09/20

Subject- Biochemistry (Theory) Google Form Response Sheet Paper Code → PT-214

Timestamp	Email Address	Score	FULL NAME
4-27-2020 16:26:49	arnabpal799@gmail.com	5 / 25	Arnab pal
4-27-2020 16:38:12	shreyadatta777@gmail.co	10 / 25	Shreya Datta
4-27-2020 16:40:18	arijitdgp191@gmail.com	9 / 25	ARIJIT DEY
4-27-2020 16:43:50	hirakganguly.123@gmail.c	2 / 25	Hirakdyuti Ganguly
4-27-2020 16:45:30	swapnamoygayen2001@g	11 / 25	Swapnamoy Gayen
4-27-2020 16:45:41	imdsahid2000@gmail.com	9 / 25	Md Sahidujjaman
4-27-2020 16:46:41	arnabdey9382@gmail.com	2 / 25	Arnab dey
4-27-2020 16:46:49	anganachakraborty2001@	10 / 25	Angana chakraborty
4-27-2020 16:47:02	abdurjesun07@gmail.com	9 / 25	Abdur Rahaman
4-27-2020 16:48:45	ssaha0915@gmail.com	11 / 25	soumyadip saha
4-27-2020 16:48:54	ghosalpriyangi@gmail.com	20 / 25	Priyangi Ghosal
4-27-2020 16:49:04	majhisoumyadeep@gmail.	13 / 25	Soumyadeep Majhi
4-27-2020 16:49:15	souravpapai98@gmail.con	19 / 25	SOURAV PAUL
4-27-2020 16:49:21	duttan383@gmail.com	19 / 25	Nikita Dutta
4-27-2020 16:49:26	tridib.bhai2001@gmail.con	19 / 25	TRIDIB NAYEK
4-27-2020 16:50:01	rohitchatterjee8016@gmai	15 / 25	Rohit Chatterjee
4-27-2020 16:50:27	pritiroy0310@gmail.com	11 / 25	Swagata Roy
4-27-2020 16:50:55	ankitdas86884@gmail.con	11 / 25	Ankit das
4-27-2020 16:51:52	dilshad3062000@gmail.co	13 / 25	SK DILSHAD ANWAR
4-27-2020 16:52:08	souvikkower12345@gmail	0 / 25	SOUVIK KOWER
4-27-2020 16:53:56	pindrajit799@gmail.com	19 / 25	Indrajit Pal
4-27-2020 16:55:03	swarupchatterjee784@gm	15 / 25	Swarup Chatterjee
4-27-2020 16:56:23	kumbhakaranita2001@gm	12 / 25	ANITA KUMBHAKAR
4-27-2020 16:57:08	sahebchatterjee567@gma	3 / 25	Debabrata Chattopadh
4-27-2020 16:57:30	msudip422@gmail.com	17 / 25	SUDIP Mondal
4-27-2020 16:57:33	ritampatra69@gmail.com	8 / 25	Ritam patra
4-27-2020 16:57:36	majisudip883@gmail.com	7 / 25	Sudip Maji
4-27-2020 16:57:36	imsayed2016@gmail.com	15 / 25	SAYED ANOWAR
4-27-2020 16:58:06	koushikdas78650@gmail.c	11 / 25	Koushik Das
4-27-2020 16:58:06	srinjanimitra8257@gmail.c	14 / 25	Srinjani Mitra
4-27-2020 16:58:31	priyamkumar8292@gmail.	13 / 25	Priyam Kumar Giri
4-27-2020 16:58:38	subhankaramarpur@gmail	13 / 25	Subhankar pal
4-27-2020 16:58:51	suryakantadolui@gmail.co	13 / 25	Suryakanta Dolui
4-27-2020 16:59:12	souravpatra992@gmail.co	11 / 25	Sourav Patra
4-27-2020 16:59:19	srobonakonar39@gmail.cc	17 / 25	Srabona Konar
4-27-2020 16:59:36	abhijit.ag0876@gmail.com	7 / 25	Abhijit Goswami
4-27-2020 16:59:39	sumanasinha721@gmail.c	18 / 25	Sumana Pal
4-27-2020 16:59:46	sahadevdas558@gmail.co	17 / 25	Sahadev Das
4-27-2020 16:59:59	susovandas06@gamil.com	20 / 25	Susovan Das
4-27-2020 17:00:04	pal441268@gmail.com	17 / 25	Sourav Gorai
4-27-2020 17:00:16	sarmistham124@gmail.co	9 / 25	Sarmistha Mondal
4-27-2020 17:00:17	sudinnayek2000@gmail.cc	16 / 25	SUDIN NAYEK
4-27-2020 17:00:18	avaspal9@gmail.com	12 / 25	Avas Pal
4-27-2020 17:00:21	suchetakarmakar11@gma	17 / 25	Sucheta Karmakar

UNIVERSITY ROLL	Subject Code	Which of the following e	When DNA replication star	During the replication of DI	The elongation of the leadi
18901919006	PT 214	DNA polymerase II	The hydrogen bonds betwe	Kornberg fragments	Progress away from the re
18901919093	PT 214	DNA polymerase III	The leading strand produc	Okazaki fragments	Occur in 3'-5' direction
18901919022	PT 214	DNA polymerase I, DNA	The hydrogen bonds betwe	Okazaki fragments	Occur in 3'-5' direction, Prc
18901919096	PT 214			Okazaki fragments	
18901919058	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Progress away from the re
18901919070	PT 214	DNA polymerase III	The bonds between the nit	Okazaki fragments	Progress away from the re
18901919049	PT 214	DNA polymerase I	The leading strand produc	Satellite fragments	Occur in 3'-5' direction
18901919020	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	
18901919019	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	
18901919025	PT 214	DNA polymerase III	The phosphodiester bonds	Satellite fragments	Occur in 3'-5' direction, De
18901919087	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919030	PT 214	DNA polymerase III	The hydrogen bonds between	the nucleotides of two s	Depend on the action of DI
18901919050	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919008	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919068	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919088	PT 214	DNA polymerase III	The hydrogen bonds betwe	Double helix fragments	Depend on the action of DI
18901919063	PT 214	DNA polymerase III	The hydrogen bonds betwe	Double helix fragments	Depend on the action of DI
18901919018	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Occur in 3'-5' direction
18901919048	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919035	PT 214	DNA polymerase I, DNA	The phosphodiester bonds	Satellite fragments, Double	Progress away from the re
18901919097	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Produce Okazaki fragment
18901919064	PT 214	DNA polymerase II	The hydrogen bonds betwe	Okazaki fragments	
18901919005	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Produce Okazaki fragment
18901919012	PT 214	DNA polymerase alpha	The bonds between the nit	Kornberg fragments	Produce Okazaki fragment
18901919078	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Occur in 3'-5' direction
18901919084	PT 214	DNA polymerase alpha	The phosphodiester bonds	Okazaki fragments	Occur in 3'-5' direction
18901919082	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919071	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Progress away from the re
18901919080	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	
18901919031	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919094	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919079	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919059	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919060	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Progress away from the re
18901919052	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919021	PT 214	DNA polymerase I	The hydrogen bonds betwe	Kornberg fragments	
18901919073	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Produce Okazaki fragment
18901919091	PT 214	DNA polymerase III	The leading strand produc	Okazaki fragments	Depend on the action of DI
18901919076	PT 214	DNA polymerase III	The leading strand produc	Okazaki fragments	Depend on the action of DI
18901919057	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Produce Okazaki fragment
18901919077	PT 214	DNA polymerase III	The phosphodiester bonds	Okazaki fragments	Occur in 3'-5' direction
18901919011	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919036	PT 214	DNA polymerase II	The hydrogen bonds betwe	Okazaki fragments	Depend on the action of DI
18901919004	PT 214	DNA polymerase III	The hydrogen bonds betwe	Okazaki fragments	Progress away from the re

4-27-2020 17:00:24	ishikaday24@gmail.com	16 / 25	Ishika dey	18901919081	PT 214	DNA polymerase III	The phosphodiester bonds Okazaki fragments	Occur in 3'-5' direction
4-27-2020 17:00:29	somnathsingha2001@gma	13 / 25	Somnath Singha	18901919072	PT 214	DNA polymerase II	The hydrogen bonds betwe Okazaki fragments	Produce Okazaki fragment
4-27-2020 17:00:33	sohamdutta072000@gmai	15 / 25	SOHAM DUTTA	18901919002	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:00:43	roygopendrakrishna@gma	14 / 25	Gopendra krishna Roy	18901919027	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Progress away from the rej
4-27-2020 17:00:43	amirahulmallick@gmail.co	6 / 25	Rahul Mallick	18901919083	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	
4-27-2020 17:00:46	swarajnayek1998@gmail.c	14 / 25	Swaraj Nayek	18901919009	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:00:48	washimmondal427@gmail	10 / 25	Washim Aktar	18901919067	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:00:50	ruidasavijit3@gmail.com	11 / 25	Avijit Ruidas	18901919039	PT 214	DNA polymerase III	Okazaki fragments	Depend on the action of DI
4-27-2020 17:00:53	sudarshinidutta99@gmail.(	17 / 25	Sudarshini Dutta	18901919056	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Produce Okazaki fragment
4-27-2020 17:01:07	aryadiptdasgupta28@gma	15 / 25	Aryadipto Dasgupta	18901919016	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:01:45	sangramrakshit852@gmai	17 / 25	SANGRAM RAKSHIT	18901919098	PT 214	DNA polymerase III	The leading strand produc Okazaki fragments	Produce Okazaki fragment
4-27-2020 17:01:47	sayantasingha727@gmail.	4 / 25	Sayanta Singha	18901919085	PT 214	DNA polymerase alpha	The phosphodiester bonds Satellite fragments	Produce Okazaki fragment
4-27-2020 17:01:50	gourabmanna344@gmail.(	16 / 25	Gourab Manna	18901919037	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Produce Okazaki fragment
4-27-2020 17:01:51	dasaniket645@gmail.com	15 / 25	Aniket Das	18901919040	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:01:56	prodiptodas374@gmail.co	17 / 25	Prodipto Das	18901919007	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:01:56	girisovan2864@gmail.com	4 / 25	Sovan Giri	18901919055	PT 214	DNA polymerase III	The leading strand produces Okazaki fragments	Progress away from the rej
4-27-2020 17:01:57	ib.debanwitalaha@gmail.c	16 / 25	Debanwita Laha	18901919042	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Produce Okazaki fragment
4-27-2020 17:02:05	rudradiganta@gmail.com	11 / 25	Rudra das	18901919033	PT 214	DNA polymerase III	Okazaki fragments	Occur in 3'-5' direction
4-27-2020 17:02:36	anirbandalui15@gmail.con	10 / 25	Anirban dalui	18901919026	PT 214	DNA polymerase III	The hydrogen bonds betwe Kornberg fragments	Depend on the action of DI
4-27-2020 17:02:47	rajat.agaya@gmail.com	10 / 25	Rajat Dandapat	18901919099	PT 214	DNA polymerase III	The phosphodiester bonds Okazaki fragments	Occur in 3'-5' direction
4-27-2020 17:02:59	pattanayakcottu@gmail.co	13 / 25	Nirupam Pattanayak	18901919101	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Produce Okazaki fragment
4-27-2020 17:03:10	mohitoshp76@gmail.com	12 / 25	Mohitosh patra	18901919074	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Occur in 3'-5' direction
4-27-2020 17:03:43	jayitapal1027@gmail.com	12 / 25	Jayita Pal	18901919092	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:05:53	adarshaganguly303@gma	3 / 25	Adarsha Ganguly	18901919038	PT 214	DNA polymerase III	The leading strand produc Okazaki fragments	Produce Okazaki fragment
4-27-2020 17:07:10	dp810346@gmail.com	10 / 25	Dinesh Pradhan	18901919047	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Produce Okazaki fragment
4-27-2020 17:07:27	abhishiktasarkar2001@gm	15 / 25	Abhishikta sarkar	18901919017	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:08:44	ranadipen0@gmail.com	14 / 25	Dipen Rana	18901919013	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:09:34	karmakarankita2000@gma	14 / 25	Ankita Karmakar	18901919034	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Occur in 3'-5' direction
4-27-2020 17:09:47	soumenlahari2000@gmail.	10 / 25	Soumen Lahari	18901919062	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:09:47	krishnendubhowmick77@g	11 / 25	Krishnendu Bhowmick	18901919069	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:10:02	shreyajana20@gmail.com	16 / 25	Spurtika Jana	18901919041	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI
4-27-2020 17:10:47	subhadipmanna2001@gm	12 / 25	Subhadip Manna	18901919043	PT 214	DNA polymerase III	The hydrogen bonds betwe Okazaki fragments	Depend on the action of DI

Single Strand Binding Prot	Which of the following	The enzyme that (du	Which of the follov	What is the role of topoisor	True replication of DNA is	EC 1.2.1.4 refers to the ty	What is th	Given an en	The __ of a double recipro
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Doxorubicin	Topoisomerise enzymes jc	Complementary base pairi	Oxidoreductases which act	1/5	0.5 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA ligase	DNA Polymerase I	Etoposide	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	4/5	0.20 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase II	5-Fluorouracil	Topoisomerise enzymes oj	Complementary base pairi	Oxidoreductases which act	1/5	0.17 mM	slope, KM/VMAX, y-interce
	Telomerase			6-Mercaptopurine	Topoisomerise enzymes jc	Hydrogen bonding		1/2		
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III			Complementary base pairi	Oxidoreductases which acts on aldeh		0.17 mM	slope, KM/VMAX, y-interce
form phosphodiester bond	Telomerase	DNA ligase	Primase	Etoposide		Complementary base pairi	Oxidoreductases which act	5/6	0.5 mM	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Primase	DNA Topoisomerases	DNA Polymerase III	5-Fluorouracil	Topoisomerise enzymes oj	Phosphate backbone	Oxidoreductases which act	5/6	0.20 mM	slope, KM, y-intercept, 1/VI
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases				Complementary base pairing rule			0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Polymerase	DNA Topoisomerases				Complementary base pairi	Oxidoreductases which acts on aldeh		0.17 mM	
prevent the dsDNA formati	Telomerase	DNA ligase		6-Mercaptopurine	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase	DNA ligase				Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jc	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase	DNA ligase	DNA Polymerase III	Doxorubicin	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase	DNA ligase				Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM, y-intercept, 1/VI
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	Primase	Doxorubicin	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	1/5	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	Telomerase	DNA Polymerase III	Etoposide	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	5/6	0.12 mM	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Helicase, Telon	Primase, Telomerase	DNA Polymerase I, I	Etoposide, Doxorı	Topoisomerise enzymes ci	Hydrogen bonding, Phosph	Oxidoreductases which act	1/5, 5/6, 4	0.20 mM, 0.	slope, VMAX, y-intercept, I
prevent the dsDNA formati	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	Telomerase	DNA Polymerase III	Etoposide	Topoisomerise enzymes oj	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes oj	Complementary base pairi	Oxidoreductases which act	5/6		slope, KM/VMAX, y-interce
relieve torsional strain resulting from helicase induced unwinding			DNA Polymerase II, I	Etoposide	Topoisomerise enzymes jc	Hydrogen bonding	Oxidoreductases which acts on aldeh		0.20 mM	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase	DNA Topoisomerases	DNA Polymerase III	Doxorubicin	Topoisomerise enzymes jc	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase	DNA Topoisomerases	DNA Polymerase II	Etoposide	Topoisomerise enzymes ci	Hydrogen bonding	Oxidoreductases which act	5/6	0.5 mM	slope, KM, y-intercept, 1/VI
protect the vulnerable ssDNA from nucleas		Telomerase	DNA Polymerase III	Etoposide			Oxidoreductases which act	5/6	0.17 mM	slope, KM, y-intercept, 1/VI
relieve torsional strain resu	Telomerase	DNA ligase	DNA Polymerase III	Doxorubicin	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM, y-intercept, 1/VI
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	Primase		Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which acts on aldeh		0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jc	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	Telomerase	DNA Polymerase III	Etoposide	Topoisomerise enzymes oj	Complementary base pairi	Oxidoreductases which act	5/6	0.5 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	Telomerase	DNA Polymerase III	Etoposide	Topoisomerise enzymes jc	Hydrogen bonding	Oxidoreductases which act	1/5	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	Telomerase	DNA Polymerase III	Etoposide	Topoisomerise enzymes jc	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
relieve torsional strain resu	Telomerase	DNA ligase		Doxorubicin	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, VMAX, y-intercept, I
protect the vulnerable ssDI	Telomerase	DNA ligase, DNA Top	DNA Polymerase III	Etoposide, Doxorı	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	1/2	0.17 mM	
	Telomerase		DNA Polymerase III	Etoposide	Topoisomerise enzymes oj	None of the above	Oxidoreductases which act	5/6		slope, VMAX, y-intercept, I
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA ligase	Primase	Doxorubicin	Topoisomerise enzymes oj	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Doxorubicin	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase	DNA Topoisomerases	Primase	Etoposide	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.20 mM	slope, KM/VMAX, y-interce
form phosphodiester bond	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide, Doxorı	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	1/2	0.5 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jc	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jc	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA ligase	DNA Polymerase III	Etoposide	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM	slope, KM/VMAX, y-interce

protect the vulnerable ssDI	Telomerase Helicase	DNA ligase, DNA Top	DNA Polymerase III	Etoposide, Doxoru	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	1/2	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase Polymerase	DNA Topoisomerases Telomerase	DNA Polymerase III	Etoposide	Topoisomerise enzymes bi	Complementary base pairi Hydrogen bonding	Oxidoreductases which act	5/6 1/5	0.17 mM slope, KM, y-intercept, 1/M 0.17 mM slope, KM, y-intercept, 1/M
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III		Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
NA polymerase	Telomerase	Telomerase	Primase	Etoposide	Topoisomerise enzymes bind to the origin of replicatio		Oxidoreductases which act	5/6	slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase		DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes bi	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase	DNA Topoisomerases	Primase	Etoposide	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	5/6	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Helicase	DNA ligase	DNA Polymerase II	5-Fluorouracil	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	1/2	0.20 mM slope, VMAX, y-intercept, K
prevent the dsDNA formati	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
plication fork	Telomerase				Topoisomerise enzymes cut, uncoil and reseal the double stranded DNA			5/6	slope, KM/VMAX, y-interce
prevent the dsDNA formati	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDNA from nucleas		Primase, DNA ligase	Primase	Etoposide	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Polymerase		DNA Polymerase II	6-Mercaptopurine	Topoisomerise enzymes bi	Hydrogen bonding	Oxidoreductases which act	5/6	0.17 mM
form phosphodiester bond:	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide, Doxoru	Topoisomerise enzymes ci	Complementary base pairi	Oxidoreductases which act	1/2	0.17 mM slope, KM, y-intercept, 1/M
protect the vulnerable ssDI	Telomerase	DNA ligase	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	None of the above	Oxidoreductases which act	5/6	0.17 mM slope, VMAX, y-intercept, K
relieve torsional strain resu	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
NA polymerase	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide		Complementary base pairing rule		5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Helicase	DNA ligase	DNA Polymerase I	Doxorubicin	Topoisomerise enzymes bi	Hydrogen bonding	Oxidoreductases which act	4/5	0.12 mM slope, KM, y-intercept, 1/M
prevent the dsDNA formati	Helicase	Telomerase	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	None of the above	5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	Telomerase	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
NA polymerase	Telomerase	Telomerase	DNA Polymerase III	Doxorubicin	Topoisomerise enzymes jo	Phosphate backbone	None of the above	5/6	0.17 mM slope, KM, y-intercept, 1/M
NA polymerase		DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
protect the vulnerable ssDI	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce
relieve torsional strain resu	Telomerase	DNA Topoisomerases	DNA Polymerase III	Etoposide	Topoisomerise enzymes jo	Complementary base pairi	Oxidoreductases which act	5/6	0.17 mM slope, KM/VMAX, y-interce

The __ of a double recipro	When (S) is equal to Km, v	Match the enzyme with its	Match the enzym	Match the enzyme	Match the enzyme wi	Match the enzyme v	Which of the following reac	The Michaehis-Menter	Mode of DNA replication in
slope, KM/VMAX, y-interce	The velocity of the reaction is equal to Vmax.		Synthesize primers using free NTPs as the substrate and the ssDNA as the ter				3' to 5' exonuclease activit	States that the rate of	Bidirectional
slope, KM/VMAX, y-interce	The velocity of the reaction	Form a phosphodiester boı	Catalyses the coı	Unwind the double	Synthesize primers u:	Unwind the double t	3' to 5' exonuclease activit	Postulates the formati	Bidirectional
slope, KM/VMAX, y-interce	The velocity of the reaction	Replaces the nucleotides	Synthesize prime	Form a phosphodi	Unwind the double he	Catalyses the conve	5' to 3' exonuclease activit	Postulates the formati	Semiconservative, Unidirec
	Enzyme is completely saturated with substrate.							Enables us to calculat	Semiconservative
slope, KM/VMAX, y-intercept, 1/VMAX							3' to 5' exonuclease activity		Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules	Catalyses the conversion c	Synthesize primers using free NTPs as the substrate and			Form a phosphodie	3' to 5' exonuclease activity		Semiconservative
slope, KM, y-intercept, 1/V	The velocity of the reaction is independent of substrat		Catalyses the conversion of an aldose sugar to a ketose sugar				3' to 5' endonuclease activ	States that the rate of	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.						3' to 5' exonuclease activity		Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.						3' to 5' exonuclease activity		Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.						3' to 5' exonuclease activit	Postulates the formati	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.						3' to 5' exonuclease activit	Postulates the formati	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Synthesize primers using fi	Synthesize prime	Synthesize primers	Synthesize primers u:	Synthesize primers	3' to 5' exonuclease activit	Postulates the formati	Bidirectional
slope, KM, y-intercept, 1/M	Half the enzyme molecules are bound to substrate.						3' to 5' exonuclease activit	Postulates the formati	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.				Synthesize primers using free NTPs as th		3' to 5' exonuclease activit	States that the reactio	Bidirectional
slope, KM/VMAX, y-interce	Enzyme is completely satu	Synthesize primers using fi	Catalyses the coı	Synthesize primers	Catalyses the conver:	Synthesize primers	3' to 5' exonuclease activit	Postulates the formati	Semiconservative
slope, VMAX, y-intercept, I	Half the enzyme molecules	Synthesize primers using fi	Synthesize prime	Synthesize primers	Synthesize primers u:	Synthesize primers	5' to 3' exonuclease activit	Postulates the formati	Conservative, Semiconsen
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester bond between the 3'-OH of one Okazak			Synthesize primers using free NTPs as th		3' to 5' exonuclease activit	Postulates the formati	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nucleotides of the RN		Unwind the double he	Synthesize primers	3' to 5' exonuclease activit	States that the reactio	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.			Synthesize primers using free NTPs as the substrate and the			5' to 3' endonuclease activity		Conservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Form a phosphoı	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	Postulates the formati	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.						3' to 5' endonuclease activ	Postulates the formati	Semiconservative
MAX, slope, KM/VMAX, y-intercept, 1/VMAX									Bidirectional
slope, KM/VMAX, y-interce	The velocity of the reaction	Form a phosphodiester boı	Replaces the nu	Form a phosphodiı	Synthesize primers u:	Catalyses the conve	5' to 3' endonuclease activ	States that the rate of	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.						3' to 5' exonuclease activity		Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.				Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Enzyme is completely saturated with substrate.		Catalyses the conversion of an aldose sugar to a ketose sugar				3' to 5' exonuclease activit	Postulates the formati	Bidirectional
slope, KM/VMAX, y-intercept, VMAX					Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative, Bidirecti
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester bond between the 3'-OH of one Okazak			Synthesize primers using free NTPs as th		3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	The velocity of the reaction	Catalyses the conversion c	Form a phosphoı	Replaces the nucl	Synthesize primers u:	Unwind the double t	5' to 3' exonuclease activit	States that the rate of	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.				Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Bidirectional
KM					Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the rate of	Unidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	Postulates the formati	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
pt, VMAX	The velocity of the reaction	Replaces the nucleotides	Replaces the nu	Replaces the nucl	Unwind the double he	Unwind the double t	5' to 3' exonuclease activit	States that the reactio	Unidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.				Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	Enables us to calculat	Semiconservative
slope, KM/VMAX, y-intercept, 1/VMAX					Synthesize primers u:	Catalyses the conve	3' to 5' endonuclease activ	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester boı	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative

slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.		Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Unidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.		Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.	Form a phosphodiester bond betwe	Synthesize primers using free NTPs as th		3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.		Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the rate of	Bidirectional
VMAX	Half the enzyme molecules are bound to substrate.				3' to 5' endonuclease activity		Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.		Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activity		Semiconservative
slope, KM/VMAX, y-intercept, 1/VMAX		Synthesize primers using free NTPs	Synthesize primers using free NTPs as th		3' to 5' exonuclease activit	States that the reactio	Semiconservative
			Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activity		
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester bo	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules	Catalyses the conversion c	Form a phosphodiester bond betwe		Synthesize primers u:	Unwind the double h	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester bo	Replaces the nu	Unwind the double	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
;M	Half the enzyme molecules are bound to substrate.					Catalyses the conver	Synthesize primers	3' to 5' exonuclease activit	States that the rate of	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Unwind the double helix, lc	Form a phospho	Replaces the nucl	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the rate of	Semiconservative
slope, KM/VMAX, y-interce	The velocity of the reaction is independent of substrate concentration.						Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Replaces the nucleotides	Replaces the nu	Form a phosphodi	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
pt, VMAX							Synthesize primers using free NTPs as the substrate and the ssDNA as the template., Catal			Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules	Unwind the double helix, lc	Form a phospho	Replaces the nucl	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules are bound to substrate.					Catalyses the conversion of an aldose s	Form a phosphodies	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-intercept, 1/VMAX							Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	The velocity of the reaction	Form a phosphodiester bo	Synthesize prime	Synthesize primers	Unwind the double he	Replaces the nucle	5' to 3' exonuclease activit	States that the reactio	Unidirectional
slope, VMAX, y-intercept, I	Half the enzyme molecules are bound to substrate.						Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	Postulates the formati	Semiconservative
slope, KM/VMAX, y-interce	The velocity of the reaction is independent of substrate concentration.							Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Bidirectional
slope, KM/VMAX, y-intercept, VMAX							Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	Postulates the formati	Semiconservative
slope, KM/VMAX, y-intercept, VMAX			Synthesize primers using free NTPs as the substrate and the ssDNA as the ter				5' to 3' endonuclease activ	Postulates the formati	Bidirectional
slope, KM/VMAX, y-interce	Half the enzyme molecules	Form a phosphodiester bo	Catalyses the conversion of an aldo		Synthesize primers using free NTPs as th		3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM, y-intercept, 1/VI	Half the enzyme molecules are bound to substrate.						Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Unwind the double helix, lc	Form a phosphodiester bond betwe		Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Unwind the double helix, lc	Form a phospho	Replaces the nucl	Synthesize primers u:	Catalyses the conve	3' to 5' endonuclease activ	States that the reactio	Semiconservative
slope, KM, y-intercept, 1/VI	Enzyme is completely satu	Synthesize primers using f	Form a phosphodiester bond betwe		Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-intercept, 1/VMAX		Replaces the nucleotides	Synthesize primers using free NTPs as the substrate and the ssDNA as the ter				3' to 5' endonuclease activ	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	Half the enzyme molecules	Unwind the double helix, lc	Form a phospho	Replaces the nucl	Synthesize primers u:	Catalyses the conve	3' to 5' exonuclease activit	States that the reactio	Semiconservative
slope, KM/VMAX, y-interce	The velocity of the reaction	Replaces the nucleotides of the RNA primer with the appropria					Synthesize primers u:	Form a phosphodies	3' to 5' exonuclease activit	States that the rate of	Bidirectional

Dr. B. C. Roy College of Pharmacy and AHS, Durgapur - 713206

B. Pharm. 1st Year 2nd Semester, 2020

PAPER: BIOCHEMISTRY

CODE: PT214

Sl. No.	UNIV. ROLL NO	Name	CA 1	CA 2	CA 3	CA 4
			25	25	25	25
1	18901919001	ANIRBAN GHOSH	18	23	23	20
2	18901919002	SOHAM DUTTA	18	25	25	22
3	18901919003	DEBAM RAY	18	20	18	16
4	18901919004	SUCHETA KARMAKAR	18	25	23	21
5	18901919005	ANITA KUMBHAKAR	18	25	24	20
6	18901919006	ARNAB PAL	25	20	20	10
7	18901919007	PRODIPTO DAS	18	23	21	22
8	18901919008	NIKITA DUTTA	18	25	25	22
9	18901919009	SWARAJ NAYEK	18	23	25	18
10	18901919010	MEHEDI HASAN	18	20	0	A
11	18901919011	SUDIN NAYEK	18	20	25	19
12	18901919012	DEBABRATA CHATTOPADHYAY	4	20	21	15
13	18901919013	DIPEN RANA	18	25	25	18
14	18901919014	SUMAN MONDAL	18	20	17	A
15	18901919015	DEBARGHYA KARFORMA	18	21	24	17
16	18901919016	ARYADIPTO DASGUPTA	18	24	18	17
17	18901919017	ABHISHIKTA SARKAR	18	24	25	22
18	18901919018	ANKIT DAS	18	24	24	22
19	18901919019	ABDUR RAHAMAN	18	22	23	22
20	18901919020	ANGANA CHAKRABORTY	18	22	24	23
21	18901919021	ABHIJIT GOSWAMI	18	23	24	20
22	18901919022	ARIJIT DEY	18	21	19	14
23	18901919023	APURBA PANDIT	A	A	0	A
24	18901919025	SOUMYADIP SAHA	18	21	24	21
25	18901919026	ANIRBAN DALUI	25	22	24	21
26	18901919027	GOPENDRA KRISHNA ROY	18	23	25	21
27	18901919028	SUBHANKAR NAG	25	20	24	20
28	18901919029	HAREKRISHNA SAHA	25	20	25	22
29	18901919030	SOUMYADEEP MAJHI	25	20	23	21
30	18901919031	SRINJANI MITRA	18	24	23	18
31	18901919032	HIRAK BHOWMIK	25	24	25	17
32	18901919033	RUDRA DAS	18	21	24	18
33	18901919034	ANKITA KARMAKAR	25	25	25	21
34	18901919035	SOUVIK KOWER	25	20	24	19
35	18901919036	AVAS PAL	25	24	24	19
36	18901919037	GOURAB MANNA	25	25	24	23
37	18901919038	ADARSHA GANGULY	25	22	23	15
38	18901919039	AVIJIT RUIDAS	25	24	25	19
39	18901919040	ANIKET DAS	18	22	23	20
40	18901919041	SPURTIKA JANA	25	25	25	21
41	18901919042	DEBANWITA LAHA	18	25	24	23
42	18901919043	SUBHADIP MANNA	25	24	24	18
43	18901919044	DEBAPRIYA DEY	25	21	23	A
44	18901919045	SOUVIK GHOSH	25	23	24	18
45	18901919046	SNEHASISH KONER	18	21	25	20
46	18901919047	DINESH PRADHAN	25	23	25	18
47	18901919048	SK DILSHAD ANWAR	25	20	24	20
48	18901919049	ARNAB DEY	25	24	24	18
49	18901919050	SOURAV PAUL	18	25	25	22

04/11/20

50	18901919051	SATADRU MALLIK	18	23	25	20
51	18901919052	SRABONA KONAR	25	24	25	23
52	18901919053	SUMAN DAS	25	22	23	14
53	18901919054	ARKAPRAVA PAUL	25	25	25	22
54	18901919055	SOVAN GIRI	25	24	23	21
55	18901919056	SUDARSHINI DUTTA	25	25	23	21
56	18901919057	SOURAV GORAI	25	24	25	19
57	18901919058	SWAPNAMOY GAYEN	18	25	23	22
58	18901919059	SURYAKANTA DOLUI	25	24	25	19
59	18901919060	SOURAV PATRA	25	24	23	20
60	18901919061	TAMAN DAS	25	20	0	A
61	18901919062	SOUMEN LAHARI	25	24	24	18
62	18901919063	SWAGATA ROY	25	24	24	22
63	18901919064	SWARUP CHATTERJEE	18	24	24	22
64	18901919065	PRIYANKA PANDIT	A	A	0	A
65	18901919066	SOURAV GHOSH	25	20	12	A
66	18901919067	WASHIM AKTAR	25	25	24	17
67	18901919068	TRIDIB NAYEK	25	25	25	22
68	18901919069	KRISHNENDU BHOWMICK	18	24	24	19
69	18901919070	MD SAHIDUJJAMAN	25	20	15	18
70	18901919071	SAYED ANOWAR	25	23	25	20
71	18901919072	SOMNATH SINGHA	25	25	22	18
72	18901919073	SUMANA PAL	25	25	25	21
73	18901919074	MOHITOSH PATRA	18	23	24	21
74	18901919075	RAJ ALI	25	23	23	14
75	18901919076	SUSOVAN DAS	25	24	24	20
76	18901919077	SARMISTHA MONDAL	18	22	22	20
77	18901919078	SUDIP MONDAL	25	25	24	20
78	18901919079	SUBHANKAR PAL	25	24	24	17
79	18901919080	KOUSHIK DAS	18	23	24	21
80	18901919081	ISHIKA DEY	25	25	25	21
81	18901919082	SUDIP MAJI	18	24	23	18
82	18901919083	RAHUL MALLICK	18	23	24	22
83	18901919084	RITAM PATRA	18	23	15	15
84	18901919085	SAYANTA SINGHA	A	20	15	10
85	18901919087	PRIYANGI GHOSAL	25	25	25	21
86	18901919088	ROHIT CHATTERJEE	25	23	25	22
87	18901919089	JAGADISH SHIL	25	20	24	22
88	18901919090	MANOJ MANA	18	24	23	13
89	18901919091	SAHADEV DAS	25	23	25	20
90	18901919092	JAYITA PAL	25	25	25	17
91	18901919093	SHREYA DATTA	18	23	0	10
92	18901919094	PRIYAM KUMAR GIRI	25	20	25	18
93	18901919095	RAJAT SAMAI	25	20	23	13
94	18901919096	HIRAK DYUTI GANGULY	18	23	22	22
95	18901919097	INDRAJIT PAL	25	23	24	22
96	18901919098	SANGRAM RAKSHIT	25	22	25	19
97	18901919099	RAJAT DANDAPAT	25	22	23	20
98	18901919100	MAINUL HASAN	25	23	20	18
99	18901919101	NIRUPAM PATTANAYAK	25	24	18	13
100	18901919102	MD MAINUL HASSAN	25	24	21	13

2/11/22

Dr. B. C. Roy College of Pharmacy & AHS, Durgapur
College Code – 189

Course Completion Status

Academic Year: 2019 – 2020

Course Name: Biochemistry (Theory) **Course code:** PT – 214

Taught by:
1. Dr. Parthasarathi Panda
2. Miss Puja Mishra
3.

Date	Proposed number of units to be covered on date as per lesson plan	Units Completed	% of Completion	Reason for incompletion	Signature of Faculty(s)	Signature of Principal/ Director
12.02.2020	2	Unit I & II	40%.		2/11/2020 Puja 2/11/2020	
08.04.2020	2	Unit III & V	40%.		2/11/2020 Puja 2/11/2020	
20.05.2020	1	Unit IV	20%.		2/11/202 Puja 02/11/2020	

Total = 100%

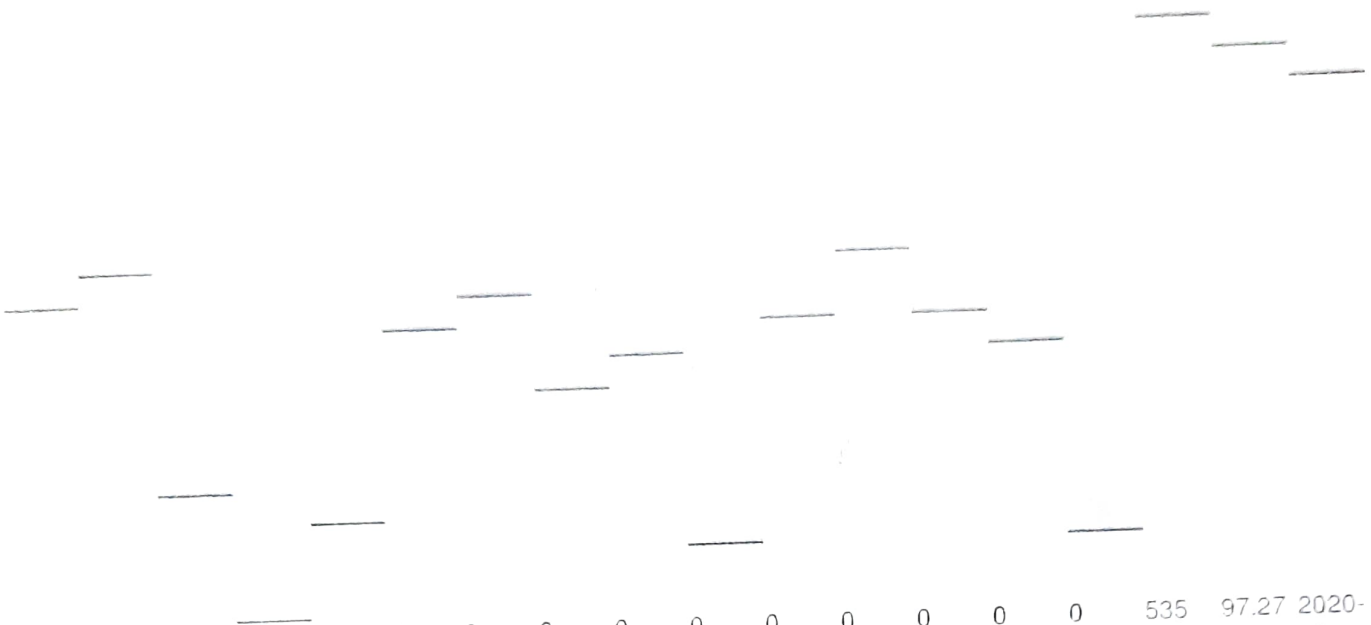
PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206

GRADES	PT215	PT213	PT214	PT216	PT298	PT296	PT297	HU282	PTC203	PTC293
O	82	78	76	91	81	52	69	89	50	0
E	9	16	15	2	8	32	19	2	24	80
A	3	1	4	2	1	8	5	1	9	9
B	2	2	0	1	4	3	2	5	5	4
C	1	0	2	1	3	2	1	0	9	3
D	0	0	0	0	0	0	1	0	0	1
F	0	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0	0
TOTAL	97	97	97	97	97	97	97	97	97	97
TOTAL NO. OF STUDENTS GOT C & ABOVE	97	97	97	97	97	97	96	97	97	96
PERCETN ATTAINMENT	100%	100%	100%	100%	100%	100%	99%	100%	100%	99%
ATTAINMENT	3	3	3	3	3	3	3	3	3	3

2/11/2020
(Indra Sarma)
BCRCD

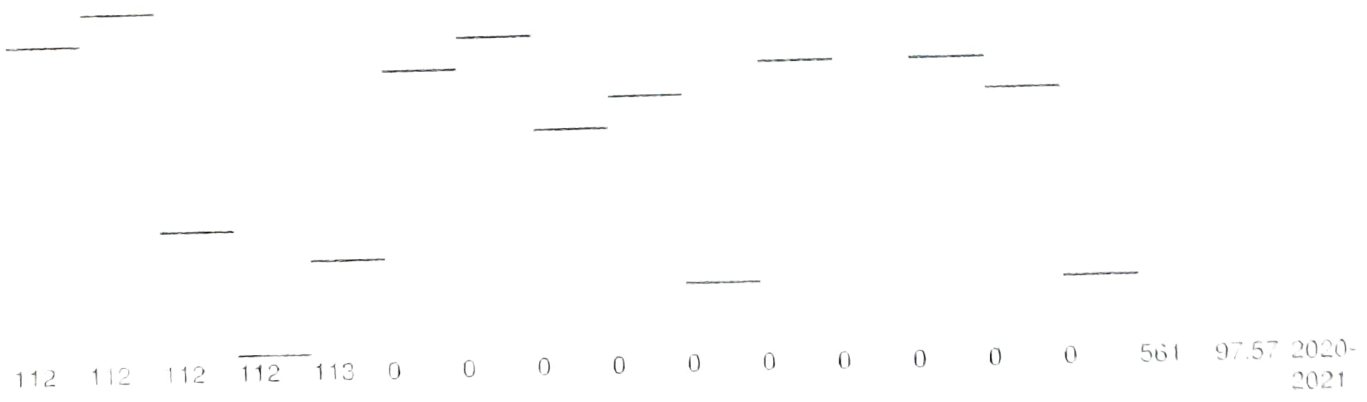
Course Feedback (Summary)

Sub Code PT 213
Sub Type T



106	107	107	107	108	0	0	0	0	0	0	0	0	0	535	97.27	2020-2021

Sub Code PT 214
Sub Type T



112	112	112	112	113	0	0	0	0	0	0	0	0	0	561	97.57	2020-2021

PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206

ACADEMIC YEAR:

2018-19

DR.B.C.ROY COLLEGE OF PHARMACY AND AHS
DR.MEGHNAD SAHA SARANI,BIDHANNAGAR
DURGAPUR-06

B.PHARM 1ST YEAR 2ND SEMESTER SECTION (A) & (B) ROUTINE — RTN/B/EVEN/2019/2ND SEM

EFFECTIVE FROM 10TH JANUARY, 2019

DAY	SEC	10.00-11.00	11.00-2.00	2.00-2.30	2.30-3.30	3.30-4.30	4.30-5.30	5.30-6.30
TUE	A	PT-216,AC	PTC-293GA,PT-296GB,PT-297GC,PT-298GD,LIB_INTGE	RECESS	PT-214,PSP	PT-215,SSM	PTC-203,SB	TUTORIAL
	B	PT-215,SSM	SB(AS), PM(AB), SK(PSP), SSM(MD)		PTC-203,SB	PT-216,AC	PT-214,PSP	
WED	A	PT-213,PM	PTC-293GB,PT-296GC,PT-297GD,PT-298GE,LIB_INTGA		HU-282,SNM	PT-216,AC	HU-282,JM	TUTORIAL
	B	PT-216,AC	SB(AS), AB(PM), PSP(SK), SNM(SSM)		HU-282,JM	PT-213,PM	HU-282,SNM	
THUR	A	PT-215,SSM	PTC-293GC,PT-296GD,PT-297GE,PT-298GA,LIB_INTGB		PT-216,DC	PT-214,PSP	PT-213,PM	TUTORIAL
	B	PT-214,PSP	SB(AS), PM(AB), PSP(SK), MD(SSM)		PT-213,PM	PT-215,SSM	PT-216,DC	
FRI	A	PTC-203,SB	PTC-293GD,PT-296GE,PT-297GA,PT-298GB,LIB_INTGC		PT-214,PSP	HU-282,AS	PT-215,SSM	TUTORIAL
	B	HU-282,AS	AS(SB), AB(PM), SK(PSP), SSM(SNM)		PT-215,SSM	PTC-203,SB	E-CELL	
SAT	A	PTC-203,SB	PTC-293GE,PT-296GA,PT-297GB,PT-298GC,LIB_INTGD		PT-213,PM	LIB/INT	E-CELL	TUTORIAL
	B	PT-213,PM	AS(SB), PM(AB), PSP(SK), SSM(MD)		PTC-203,SB	PT-214,PSP	LIB/INT	

SB-MR.SOUMEN BANNERJEE,SSM-MR.SAROJ SINGHMURA,AB-MR.AALOK BASU,MD-MS.MANAMI DHIBAR,AC-DR.AVIJIT CHATTERJEE,AS-MR.ARINDAM SARKAR
SNM-MS.SANCHAREE MONDAL,PSP-DR.PARTHASARATHI PANDA,PM-MS.PUJA MISHRA,DC-MR.DIPESH CHAKRABORTY,SK-MR.SANJOY KONAR

SL.NO=1
REV.NO=0

PREPARED BY
MR.S.BOSE
(ASST.PROF,BCRCP)

Workload for PSP = 6h

APPROVED BY
4/1/18
DR.S.RAY
(PRINCIPAL,BCRCP)
PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206

Dr. B. C. Roy College of Pharmacy and Allied Health Sciences
Durgapur - 713206

B. Pharm. 1st Year 2nd Semester (NEW) Theory 2019

LIST OF ASSIGNMENTS

Paper: BIOCHEMISTRY (THEORY)

SL NO	ROLL NO.	NAME	TOPICS ASSIGNED	PT-214 MAPPING WITH CO
1	18901918016	UMME SALMA	Electron Transport Chain	CO.PT 214.2
2	18901918017	TUSHAR KANTI DHARA		
3	18901918018	TUNIR SAHOO		
4	18901918019	TIYAS BARICK		
5	18901918020	TATHAGATA KHANRA		
6	18901918021	TAMAL PAL		
7	18901918023	SWADHIN MANDAL		
8	18901918024	SUVASISH MITRA		
9	18901918025	SUVAJIT HAZRA		
10	18901918026	SURYADEEP BOSE		
11	18901918027	SUMIT MUKHERJEE	Diabetes Mellitus	CO.PT 214.2
12	18901918028	SUMAN TANTI		
13	18901918029	SUMAN PAINE		
14	18901918030	SUMAN MODAK		
15	18901918031	SUMAN GHOSH		
16	18901918032	SUDIPTA HAIT		
17	18901918033	SUBHAM MONDAL		
18	18901918034	SRIJITA CHATTERJEE		
19	18901918035	SOUVIK SINGHA		
20	18901918036	SOUTIK DUTTA		
21	18901918037	SOURAV MONDAL	Enzyme Inhibitors and their clinical significance	CO.PT 214.4
22	18901918038	SOURAV MANDAL		
23	18901918039	SOURAV MAHATA		
24	18901918040	SOUMITRA SAHOO		
25	18901918041	SOUMAJIT BANERJEE		
26	18901918042	SOMEN GORAI		
27	18901918043	SNEHA BHATTACHARJEE		
28	18901918044	SK NAYIM ALI		
29	18901918045	SHUBHASHREE MONDAL		
30	18901918046	SHUBHAM KOLAY		
31	18901918047	SHRUTI DAS	Disorder of Lipid Metabolism	CO.PT 214.3
32	18901918048	SHREYA MAJI		
33	18901918049	SAYANTAN DAS		
34	18901918050	SATYAJIT ROY		
35	18901918051	SANJOY KUMAR BASU		
36	18901918052	SANGRAMJIT ROY		
37	18901918053	SAHEB ADAK		
38	18901918054	RIYA DEY		
39	18901918055	RITAM MONDAL		
40	18901918056	REHAN ALI MONDAL		
41	18901918057	RATNADIP SAIN	Biosynthesis and catabolism of nucleotide and its metabolic disorder	CO.PT 214.5
42	18901918058	RAKESH DEY		
43	18901918059	RAJSHEKHAR GHORAI		
44	18901918060	RAJIB DE		
45	18901918061	RAJESH SK		
46	18901918062	RAJDEEP KARMAKAR		
47	18901918063	RAHUL MAITY		
48	18901918064	RAHUL KARMAKAR		
49	18901918065	PYEORIMA MAJI		
50	18901918066	PUSPITA CHAL		
51	18901918067	PRIYAM PAL	Cholesterol and its important role in biological system	CO.PT 214.1
52	18901918068	PRIYA RAY		
53	18901918069	PRIYA BHAGAT		
54	18901918070	PRITIKAR DAS		
55	18901918071	PRATIK BARIK		
56	18901918072	PRAKARSHA DE		
57	18901918073	PRADIP MAL		
58	18901918076	MOUMITA DAS		
59	18901918077	MD SAMIM SARDAR		

21/02/19

Signature of the Examiner(s) with Date

Dr. B. C. Roy College of Pharmacy and Allied Health Sciences
Durgapur - 713206

B. Pharm. 1st Year 2nd Semester (NEW) Theory 2019

LIST OF ASSIGNMENTS

Paper: BIOCHEMISTRY (THEORY) PT-214

SL NO	ROLL NO.	NAME	TOPICS ASSIGNED	MAPPING WITH CO
60	18901918078	MD BELAL HOSSAIN		
61	18901918079	MD ASHRAF ALI	Disorder of Protein metabolism	CO.PT 214.2
62	18901918080	KUSHAL SENI		
63	18901918081	KASHMIRI DUTTA		
64	18901918082	KALYANI KUMARI		
65	18901918083	KALPATARU MITRA		
66	18901918084	JISHA BARIK		
67	18901918085	JEET BANERJEE		
68	18901918086	JAYANTA MAHALI		
69	18901918087	IRFAN MALLIK		
70	18901918088	IMZAZUL RAHAMAN		
71	18901918089	HIRONMOY DAS	Genetic code and its biological significance	CO.PT 214.3
72	18901918090	HABIBUR RAHAMAN MOMIN		
73	18901918093	DONA ADAK		
74	18901918094	DIPAN KUNDU		
75	18901918095	DIBYENDU NANDI		
76	18901918096	DIBYENDU MAJI		
77	18901918097	DEBOJYOTI SARKAR		
78	18901918098	DEBARGHYA PRAMANIK		
79	18901918099	DEBAPRIYA KOLEY		
80	18901918100	CHANDAN DAS		
81	18901918101	BISWARUP DUTTA	Adenosine Triphosphate (ATP)	CO.PT 214.2
82	18901918102	BIPLAB DAS		
83	18901918103	BAZRADEEP MONDAL		
84	18901918104	AYAN MAJUMDER		
85	18901918105	AVISHEK SARKAR		
86	18901918106	ASLAM ANSARI		
87	18901918107	ASISH JANA		
88	18901918108	ARUP KOLEY		
89	18901918109	ARUN BAIDYA		
90	18901918110	ARITRA LAHIRI		
91	18901918111	ARITRA CHOWDHURY	Jaundice	CO.PT 214.2
92	18901918112	ANUSKA CHATTERJEE		
93	18901918113	ANKIT CHATTERJEE		
94	18901918114	ANIRBAN DAS		
95	18901918115	ANIRBAN BANERJEE		
96	18901918116	AKASH SAHA		
97	18901918117	AKASH MONDAL		
98	18901918118	AISHIKA BARMAN		
99	18901918119	ADWITIYA ROY		
100	18901918120	ABHISHEK GHOSH		
101	18901918075	NADIM MONDAL	Therapeutic and diagnostic applications of enzymes	CO.PT 214.4
102	18901918091	GOPAL SARKAR		
103	18901918074	PARTHA PRATIM BEZ		
104	18901918092	DORA SAMANTA		
105	18901917048	SOUMITA GHARA		

21/09/15

DR. B. C. ROY COLLEGE OF PHARMACY AND ALLIED HEALTH SCIENCES, DURGAPUR – 713206

B. PHARM. 1ST YEAR 2ND SEMESTER 1st SESSIONAL EXAMINATION 2019

PAPER: Biochemistry

CODE: PT 214

TIME: 1HOUR

FM: 20

GROUP – A [Multiple Choice Type Questions]

Choose the correct alternatives for all of the following: 5 X 1 = 5

1. Which of the following statements best describes lactose?

a) It is monosaccharide and reducing sugar. b) It is disaccharide and reducing sugar.

c) It is disaccharide and non-reducing sugar. d) It consists of D-glucose and D-fructose units.

2. DNA, RNA and ATP are all composed of

a) nucleotides b) purines

c) pentose sugar d) pyrimidines

3. ATP synthesis is carried out by the mitochondrial enzyme complex

a) I b) III

c) IV d) V

4. Which of the following statement is true for von Gierke's disease (Type I glycogenosis)

a) It is one type of glycogen storage disease.

b) It occurs due to the defect in the enzyme glucose 6-phosphatase.

c) It is characterized by fasting hypoglycaemia, lactic acidemia, hyperlipidemia, ketosis, etc.

d) All of the above

5. Deficiency of Glucose 6-phosphate dehydrogenase leads to

a) Haemolytic anaemia b) Pernicious anaemia

c) Aplastic anaemia d) None of the above

GROUP – B [Short Answer Type: Answer any two) 2 X 2.5 = 5

6. Explain high energy compounds with examples [2.5]

7. Write down the energetics of glycolysis cycle. Classify diabetes mellitus. [2.5]

8. Differentiate between the Pasteur effect and Crabtree effect. [2.5]

GROUP – C

Answer any *one* of the following 1X 10 = 10

9. a) What is Gibb's free energy? Deduce the relationship between free energy and equilibrium constant of a biochemical reaction system.

b) Write a note on inhibitors of Electron Transport Chain. [5 + 5 = 10]

10. a) Define the following term:

i) Glycolysis, ii) Gluconeogenesis, iii) Glycogenesis, iv) Glycogenolysis, and v) Hexose Monophosphate Shunt

b) Show the Krebs cycle pathway schematically. [5 + 5]

09/03/19

Mapping between the QPs of 1st Sessional Examination 2019 of PT-214 and Course Outcomes (CO)

Question No	CO.PT 214.1	CO.PT 214.2	CO.PT 214.3	CO.PT 214.4
1	1			
2	1			
3		1		
4		1		
5		1		
6		2.5		
7		2.5		
8		2.5		
9		10		
10		10		
Total	2	30.5		

09/08/19

DR. B. C. ROY COLLEGE OF PHARMACY AND ALLIED HEALTH SCIENCES, DURGAPUR – 713206

B. PHARM. 1ST YEAR 2ND SEMESTER 2ND SESSIONAL EXAMINATION 2019

PAPER: Biochemistry CODE: PT 214

TIME: 1HOUR FM: 20

GROUP – A [Multiple Choice Type Questions]

Choose the correct alternatives for all of the following: 5 x 1 = 5

1. An enzyme that catalyses the conversion of an aldose sugar to a ketose sugar would be classified as one of the:

a) Transferases b) Isomerases

c) Oxidoreductases d) Hydrolases

2. When (S) is equal to K_m, which of the following conditions exist?

a) Half the enzyme molecules are bound to substrate

b) The velocity of the reaction is equal to V_{max}

c) The velocity of the reaction is independent of substrate concentration

d) Enzyme is completely saturated with substrate

3. All of the following are sulfur containing amino acids found in proteins except:

a) Cysteine b) Threonine

c) Cystine d) Methionine

4. The two nitrogen atoms in urea arise from:

a) Ammonia and glutamine b) Glutamine and aspartic acid

c) Glutamine and glutamic acid d) Ammonia and aspartic acid

5. Which of the following enzyme catalyses reactions in the biosynthesis of both catecholamines and 5-OH tryptamine (serotonin)?

a) Tryptophan hydroxylase b) Dopamine-β-hydroxylase

c) Aromatic amino acid decarboxylase d) Phenyl ethanolamine N-methyl transferase

GROUP – B [Short Answer Type: Answer any two) 2 x 2.5 = 5

6. Mention the various factors affecting the enzyme activity. [2.5]

7. Distinguish between the competitive and non-competitive inhibitions [2.5]

8. Define protein and classify it with proper example. [2.5]

GROUP – C

Answer any *one* of the following 1X 10 = 10

9. a) What do you mean by E.C. number of an enzyme?

b) Derive Michaelis Menten equation and describe enzyme kinetics briefly with proper plots.

c) Briefly discuss about the enzyme and isoenzyme used in clinical diagnosis. [2 + 6 + 2 = 10]

10. a) Illustrate biosynthesis and significance of adrenaline.

b) What do you mean by protein denaturation? Explain it with example. [5 + 5]

23/04/19

Mapping between the QPs of 2nd Sessional Examination 2019 of PT-214 and Course Outcomes (CO)

Question No	CO.PT 214.1	CO.PT 214.2	CO.PT 214.3	CO.PT 214.4
1				1
2				1
3	1			
4		1		
5		1		
6				2.5
7				2.5
8	2.5			
9				10
10		10		
Total	3.5	12		17

23/04/19

C c xDR. B. C. ROY COLLEGE OF PHARMACY AND ALLIED HEALTH SCIENCES, DURGAPUR – 713206

B. PHARM. 1ST YEAR 2ND SEMESTER 2019

QUIZ QUESTIONS

PAPER- BIOCHEMISTRY (THEORY) **PAPER CODE- PT-214**

1. The glycosidic bonds in DNA and RNA

a) connect the sugar to the base. b) stabilize Watson-Crick H-bonds.

Answer: a

2) Which of the following vitamins of not a component of electron transport chain?

a) Nicotinamide b) Ubiquinone

c) Biotin d) Riboflavin

Answer: c

3 All of the following compounds are intermediates of TCA cycle except:

a) Malate b) Pyruvate

c) Oxaloacetate d) Fumarate

Answer: b

4. High Km enzyme:

a) has high affinity to its substrate. b) has low affinity to its substrate.

Answer: b

5. Prosthetic group is:

a) firmly attached to enzyme. b) loosely attached to the enzyme.

Answer: a

6. The catalytic activity of an enzyme is restricted to its small portion called

a) Active site. b) Allosteric site.

Answer: a

7. An activated enzyme made of polypeptide chain and a co-factor is

a) Apoenzyme b) Holoenzyme

Answer: b

8. D & L enantiomer of glucose is determined by

a) C4 b) C5

Answer: b

9. Inulin is a homopolysaccharide of

a) Fructose b) Glucose

Answer: a

10. An example of non-reducing disaccharide

a) Sucrose b) Lactose

Answer: a

11/05/19

Mapping between the Quiz Questions and course outcomes (CO)

Question No	CO.PT 214.1	CO.PT 214.2	CO.PT 214.3	CO.PT 214.4
1			1	
2		1		
3		1		
4				1
5				1
6				1
7				1
8	1			
9	1			
10	1			
Total	3	2	1	4

11/08/13

Maulana Abul Kalam Azad University of Technology, West Bengal

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : PT-214 (N)

BIO-CHEMISTRY

Time Allotted : 3 Hours | *Full Marks* : 70

The figures in the margin indicate full marks.

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

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

   i) Activation of fatty acid occurs in the
      a) Cytosol b) Mitochondria
      c) Stomach d) Membrane.

   ii) Cytochrome *C*-oxidase is inhibited by
      a) Succinate b) Pyruvate
      c) Malate d) Cyanide.

   iii) α-helix is stabilized by
      a) hydrogen bonding
      b) salt bond
      c) disulphide bond
      d) non-polar bond.

iv) In Gluconeogenesis process which is the major substrate ?
a) Amino acid b) Glycogen
c) Sucrose d) Maltose.

v) Epimer of α-*D*-glucose is
a) α-*D*-galactose b) α-*d*-Mannose
c) both (a) and (b) d) none of these.

vi) Enzymes that catalyze transfer of moieties are
a) Lyase b) Oxidoreductase
c) Transferase d) Ligase.

vii) Dipeptide contains how many amino acids ?
a) Three b) Two
c) Four d) None of these.

viii) Amino acids required in the biosynthesis of purine bases are
a) glycine and glutamate
b) glycine, glutamate, aspartate
c) glycine, glutamine and aspartate
d) glutamine and aspartate.

ix) Lipase is a class of enzyme
a) Oxidoreductase b) Hydrolase
c) Transferase d) Lyase.

x) 5-fluorouracil, a potent anti-cancer drug hinders the nucleotide synthesis by inhibiting the enzyme thymidylate synthase through converting into fluorodeoxyuridylate. This phenomenon is an example of
a) Allosteric inhibition
b) Reversible inhibition
c) Feedback inhibition
d) Suicide inhibition.

xi) Which of the following vitamins is not a component of electron transport chain ?
a) Nicotinamide b) Ubiquinone
c) Biotin d) Riboflavin.

xii) Biliverdin reductase reduces the methenyl bridge between Pyrrole III and Pyrrole IV of biliverdin to a methylene group to produce
a) Bilirubin b) Urobilin
c) Stercobilin d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Define carbohydrates and classify them with proper example.
3. What is genetic code ? What are start condons and stop condons ? Is there a universal start condon ? If yes, name and state the function of it. 1 + 2 + 2
4. Write the pathway of catabolism of phenylalanine.
5. Define apoenzyme, holoenzyme, coenzyme, isoenzyme and lysozyme with examples.
6. What is the role of allopurinol in management of gouty arthritis ? What is the full form of PRPP ? What is the first produced purine nucleotide base ? Write down the structure of the end product of purine metabolism.

2 + 1 + 1 + 1

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) What is Gibbs' free energy concept ? Explain how Gibbs' free energy is correlated with the enthalpy and entropy of a reaction system.

   b) Deduce the relationship between free energy change and equilibrium constant of a biochemical reaction system at equilibrium.

   c) Write down about high energy compounds.

   d) Distinguish between anomer and epimer.

3 + 3 + 5 + 4

8. a) Derive Michaelis-Menten equation for ES-complex formation.

   b) Write the biological significance of cholesterol.

   c) Write a note on inhibitors of electron transport chain, (ETC). 7 + 3 + 5

9. a) Define amino acid and protein with examples. Classify protein.

   b) What do you mean by protein denaturation ? Explain it with example.

   c) Write down about jaundice. 5 + 5 + 5

10. a) What are gene and genome ?

    b) Why is DNA replication called as semiconservative process ? Discuss about different types of enzymes involved in DNA replication.

    c) Write down about the inhibitors of protein synthesis. 2 + 7 + 6

11. Differentiate between saturated, mono-unsaturated and poly-unsaturated fatty acids. What are omega 6 and omega 3 fatty acids ? Which are beneficial to us and why ? Write down the chain elongation process of even number of carbon containing fatty acids. What are triglycerides ? What is the result of hydrogenation of triglycerides ? Write in brief about the β-oxidation of fatty acids. 3 + 2 + 1 + 2 + 2 + 5

Dr. B. C. Roy College of Pharmacy and AHS

Quiz Assessment Rubrics

Academic Year: 2018-19

Subject Code: PT-214

No. of Student Present: 95

Question Number	CO	% Correct	% Incorrect	Total
Q1	CO.PT 214.1 & 214.3	94.7	5.3	100
Q2	CO.PT 214.2	93.6	6.4	100
Q3	CO.PT 214.2	87.2	12.8	100
Q4	CO.PT 214.1	62.8	37.2	100
Q5	CO.PT 214.4	68.1	31.9	100
Q6	CO.PT 214.4	86.2	13.8	100
Q7	CO.PT 214.4	66	34	100
Q8	CO.PT 214.1	79.8	20.2	100
Q9	CO.PT 214.1	85.1	14.9	100
Q10	CO.PT 214.1	91.5	8.5	100
	Average	81.5	18.5	**Attainment**
				3

Attainment Level	Score
60%≤X<70%	1
70%≤X<80%	2
80%≤X≤100%	3

11/05/19

Dr. B. C. Roy College of Pharmacy and Allied Health Sciences
Durgapur - 713206

B. Pharm. 1st Year 2nd Semester (NEW) Backlog Theory Examination' 2019

Tabulation Sheet

Paper: BIOCHEMISTRY **Code:** PT 214

Sl. No.	University Roll No.	Name	1st Sess (20)	1st Sess (50)	2nd Sess (20)	2nd Sess (50)	3rd sess (20)	3rd sess (50)	Best of Three (50)	Assign. (40)	Quiz (10)	Total (100)	Attn. (5)
1	18901916045	SK NADIM ALI	14	35		0		0	**35**	**35**	**7**	77	**4**
2	18901917018	TANMOY DAN	14	35		0		0	**35**	**35**	**7**	77	**4**
3	18901917041	SOURAV SAHOO	17	42.5		0		0	**43**	**37**	**8**	88	**4**
4	18901917050	SOMDEV MONDAL	14	35		0		0	**35**	**35**	**7**	77	**4**
5	18901917062	SAYAN KUNDU	17	42.5		0		0	**43**	**36**	**8**	87	**4**
6	18901917063	SAYAN DALUI		0		0		0	**0**	**0**	**0**	0	**4**
7	18901917074	RAJAT BISWAS	15	37.5		0		0	**38**	**35**	**7**	80	**4**
8	18901917082	PRASUN KUMAR DUTTA	16	40		0		0	**40**	**36**	**8**	84	**4**
9	18901917090	MAHMUD UL HASSAN	14	35		0		0	**35**	**35**	**8**	78	**4**
10	18901917096	INDRANIL GHOSAL	16	40		0		0	**40**	**37**	**8**	85	**4**
11	18901917109	BISHAL GOSWAMI	14	35		0		0	**35**	**35**	**8**	78	**4**
12	18901917115	ATANU RUIDAS	17	42.5		0		0	**43**	**36**	**7**	86	**4**
13	18901917116	ARMAN NIZAMI	15	37.5		0		0	**38**	**35**	**7**	80	**4**
14	18901917118	ARIJIT GHOSH	16	40		0		0	**40**	**36**	**8**	84	**4**
15	18901917119	ARIJEET MONDAL	16	40		0		0	**40**	**37**	**8**	85	**4**
16	18901917126	ANIK LAYEK	17	42.5		0		0	**43**	**37**	**8**	88	**4**

08/06/19

Signature of the Examiner(s) with date

Dr. B. C. Roy College of Pharmacy and Allied Health Sciences
Durgapur - 713206

B. Pharm. 1st Year 2nd Semester (NEW) Theory Examination' 2019

Tabulation Sheet

Paper: BIOCHEMISTRY (THEORY) **Code:** PT-214

Sl. No.	University Roll No.	Name	1st Sess (20)	1st Sess (50)	2nd Sess (20)	2nd Sess (50)	3rd sess(20)	3rd sess (50)	Best of Three (50)	Assign (40)	Quiz (10)	Total (100)	Attn. (5)
1	18901917048	SOUMITA GHARA		0		0	12	30	30	35	7	72	4
2	18901918016	UMME SALMA	10	25		0		0	25	37	8	70	4
3	18901918017	TUSHAR KANTI DHARA	19	47.5	15	37.5		0	48	39	8	95	4
4	18901918018	TUNIR SAHOO	13	32.5		0		0	33	37	7	77	4
5	18901918019	TIYAS BARICK	18	45		0		0	45	39	8	92	4
6	18901918020	TATHAGATA KHANRA	12	30	9	22.5		0	30	39	9	78	4
7	18901918021	TAMAL PAL	10	25	4	10		0	25	39	9	73	4
8	18901918023	SWADHIN MANDAL	9	22.5		0		0	23	38	7	68	4
9	18901918024	SUVASISH MITRA	18	45	17	42.5		0	45	39	10	94	4
10	18901918025	SUVAJIT HAZRA	10	25		0		0	25	39	9	73	4
11	18901918026	SURYADEEP BOSE	0	0	12	30		0	30	35	5	70	4
12	18901918027	SUMIT MUKHERJEE	5	12.5	10	25		0	25	39	9	73	4
13	18901918028	SUMAN TANTI	9	22.5	3	7.5		0	23	38	7	68	4
14	18901918029	SUMAN PAINE	11	27.5	4	10		0	28	38	6	72	4
15	18901918030	SUMAN MODAK	13	32.5	15	37.5		0	38	39	9	86	5
16	18901918031	SUMAN GHOSH	13	32.5		0		0	33	39	8	80	4
17	18901918032	SUDIPTA HAIT	10	25		0		0	25	38	8	71	4
18	18901918033	SUBHAM MONDAL	17	42.5		0		0	43	39	8	90	4
19	18901918034	SRIJITA CHATTERJEE	11	27.5	8	20		0	28	39	9	76	4
20	18901918035	SOUVIK SINGHA	15	37.5		0		0	38	39	8	85	4
21	18901918036	SOUTIK DUTTA	10	25		0		0	25	36	6	67	4
22	18901918037	SOURAV MONDAL	6	15	10	25		0	25	36	7	68	4
23	18901918038	SOURAV MANDAL	9	22.5		0		0	23	36	6	65	4
24	18901918039	SOURAV MAHATA	7	17.5	11	27.5		0	28	38	8	74	4
25	18901918040	SOUMITRA SAHOO	16	40	13	32.5		0	40	37	8	85	4
26	18901918041	SOUMAJIT BANERJEE	14	35		0		0	35	38	7	80	4
27	18901918042	SOMEN GORAI	12	30	6	15		0	30	37	7	74	4
28	18901918043	SNEHA BHATTACHARJEE	16	40	11	27.5		0	40	38	8	86	4
29	18901918044	SK NAYIM ALI	19	47.5		0		0	48	38	8	94	4
30	18901918045	SHUBHASHREE MONDAL	16	40		0		0	40	38	7	85	4
31	18901918046	SHUBHAM KOLAY	12	30		0		0	30	36	6	72	4
32	18901918047	SHRUTI DAS	11	27.5	16	40		0	40	39	10	89	4
33	18901918048	SHREYA MAJI	9	22.5	11	27.5		0	28	39	10	77	4
34	18901918049	SAYANTAN DAS	7	17.5		6		0	18	38	7	63	4
35	18901918050	SATYAJIT ROY	4	10		7		0	10	35	6	51	4
36	18901918051	SANJOY KUMAR BASU	10	25		0		0	25	35	6	66	4
37	18901918052	SANGRAMJIT ROY	0	0	7	17.5		0	18	35	6	59	4
38	18901918053	SAHEB ADAK	8	20	10	25		0	25	38	8	71	4
39	18901918054	RIYA DEY	13	32.5		0		0	33	37	7	77	4
40	18901918055	RITAM MONDAL	10	25		0		0	25	38	8	71	4
41	18901918056	REHAN ALI MONDAL	10	25	6	15		0	25	38	7	70	4
42	18901918057	RATNADIP SAIN	17	42.5	15	37.5		0	43	39	8	90	5
43	18901918058	RAKESH DEY	14	35		0		0	35	36	5	76	4
44	18901918059	RAJSHEKHAR GHORAI	10	25		0		0	25	38	7	70	4
45	18901918060	RAJIB DE	9	22.5	15	37.5		0	38	39	8	85	4
46	18901918061	RAJESH SK	0	0		0	12	30	30	36	9	75	4
47	18901918062	RAJDEEP KARMAKAR	15	37.5	12	30		0	38	37	9	84	4
48	18901918063	RAHUL MAITY	15	37.5	16	40		0	40	38	8	86	4
49	18901918064	RAHUL KARMAKAR	2	5	6	15		0	15	38	7	60	4
50	18901918065	PYEORIMA MAJI	12	30		0		0	30	39	10	79	4
51	18901918066	PUSPITA CHAL	7	17.5	19	47.5		0	48	39	10	97	4
52	18901918067	PRIYAM PAL	10	25		0		0	25	38	7	70	4

Signature of the Examiner(s) with date

Durgapur - 713206

B. Pharm. 1st Year 2nd Semester (NEW) Theory Examination' 2019

Tabulation Sheet

Paper: BIOCHEMISTRY (THEORY) **Code:** PT-214

Sl. No.	University Roll No.	Name	1st Sess (20)	1st Sess (50)	2nd Sess (20)	2nd Sess (50)	3rd sess(20)	3rd sess (50)	Best of Three (50)	Assign. (40)	Quiz (10)	Total (100)	Attn. (5)
53	18901918068	PRIYA RAY	18	45		0		0	45	38	8	91	4
54	18901918069	PRIYA BHAGAT	10	25	16	40		0	40	39	10	89	4
55	18901918070	PRITIKAR DAS	8	20		0		0	20	38	8	66	4
56	18901918071	PRATIK BARIK	11	27.5	18	45		0	45	39	9	93	5
57	18901918072	PRAKARSHA DE	17	42.5		0		0	43	39	8	90	4
58	18901918073	PRADIP MAL	10	25		0		0	25	38	9	72	4
59	18901918074	PARTHA PRATIM BEZ	12	30		0		0	30	36	8	74	4
60	18901918075	NADIM MONDAL		0	5	12.5		0	13	36	6	55	4
61	18901918076	MOUMITA DAS	16	40	18	45		0	45	39	8	92	4
62	18901918077	MD SAMIM SARDAR	17	42.5	17	42.5		0	43	38	8	89	4
63	18901918078	MD BELAL HOSSAIN	11	27.5		4		0	28	36	7	71	4
64	18901918079	MD ASHRAF ALI	9	22.5	18	45		0	45	38	8	91	5
65	18901918080	KUSHAL SENI	8	20	16	40		0	40	38	9	87	5
66	18901918081	KASHMIRI DUTTA	13	32.5		0		0	33	37	8	78	4
67	18901918082	KALYANI KUMARI	7	17.5	13	32.5		0	33	37	8	78	4
68	18901918083	KALPATARU MITRA	18	45		0		0	45	37	8	90	4
69	18901918084	JISHA BARIK	12	30	3	7.5		0	30	39	6	75	4
70	18901918085	JEET BANERJEE	12	30	15	37.5		0	38	39	8	85	4
71	18901918086	JAYANTA MAHALI	10	25	2	5		0	25	38	7	70	4
72	18901918087	IRFAN MALLIK	0	0	2	5	11	27.5	28	37	9	74	4
73	18901918088	IMZAZUL RAHAMAN	15	37.5	12	30		0	38	39	9	86	4
74	18901918089	HIRONMOY DAS	12	30	3	7.5		0	30	37	7	74	4
75	18901918090	HABIBUR RAHAMAN MOMIN	8	20	7	17.5		0	20	36	7	63	4
76	18901918091	GOPAL SARKAR	7	17.5	6	15	11	27.5	28	36	9	73	4
77	18901918092	DORA SAMANTA	9	22.5	10	25		0	25	37	8	70	4
78	18901918093	DONA ADAK	18	45	15	37.5		0	45	39	9	93	4
79	18901918094	DIPAN KUNDU	0	0	2	5	12	30	30	35	6	71	4
80	18901918095	DIBYENDU NANDI	12	30	10	25		0	30	37	8	75	4
81	18901918096	DIBYENDU MAJI	16	40	14	35		0	40	39	9	88	4
82	18901918097	DEBOJYOTI SARKAR	0	0	3	7.5	13	32.5	33	35	7	75	4
83	18901918098	DEBARGHYA PRAMANIK	13	32.5		0		0	33	36	7	76	4
84	18901918099	DEBAPRIYA KOLEY	14	35		0		0	35	36	7	78	4
85	18901918100	CHANDAN DAS	0	0	6	15	12	30	30	34	6	70	4
86	18901918101	BISWARUP DUTTA	12	30	4	10		0	30	37	7	74	5
87	18901918102	BIPLAB DAS	0	0	11	27.5		0	28	36	7	71	4
88	18901918103	BAZRADEEP MONDAL	11	27.5	7	17.5		0	28	36	7	71	4
89	18901918104	AYAN MAJUMDER	12	30		0		0	30	38	7	75	4
90	18901918105	AVISHEK SARKAR	11	27.5		0		0	28	36	7	71	4
91	18901918106	ASLAM ANSARI	10	25	7	17.5		0	25	37	8	70	4
92	18901918107	ASISH JANA	9	22.5		0		0	23	38	8	69	4
93	18901918108	ARUP KOLEY	9	22.5	13	32.5		0	33	38	8	79	4
94	18901918109	ARUN BAIDYA	7	17.5	4	10	12	30	30	35	6	71	4
95	18901918110	ARITRA LAHIRI	16	40	17	42.5		0	43	39	9	91	5
96	18901918111	ARITRA CHOWDHURY	9	22.5		0		0	23	37	8	68	4
97	18901918112	ANUSKA CHATTERJEE	18	45	19	47.5		0	48	39	9	96	5
98	18901918113	ANKIT CHATTERJEE	0	0		0	13	32.5	33	33	6	72	4
99	18901918114	ANIRBAN DAS	17	42.5	14	35		0	43	38	8	89	5
100	18901918115	ANIRBAN BANERJEE	0	0	16	40		0	40	38	10	88	4
101	18901918116	AKASH SAHA	13	32.5	14	35		0	35	38	9	82	4
102	18901918117	AKASH MONDAL	13	32.5	14	35		0	35	37	7	79	4
103	18901918118	AISHIKA BARMAN	17	42.5		0		0	43	39	10	92	5
104	18901918119	ADWITIYA ROY	6	15		0	12	30	30	37	7	74	4
105	18901918120	ABHISHEK GHOSH	10	25	15	37.5		0	38	39	8	85	4

08/06/19

Signature of the Examiner(s) with date

Dr. B. C. Roy College of Pharmacy & AHS, Durgapur
College Code – 189

Course Completion Status

Academic Year: 2018-19

Course Name: Biochemistry (Theory) Course code: PT-214

Taught by: 1. Dr. Parthasarathi Panda
2.
3.

Date	Proposed number of units to be covered on date as per lesson plan	Units Completed	% of Completion	Reason for incompletion	Signature of Faculty(s)	Signature of Principal/ Director
08.03.19	2	Unit I & Unit II	40%.		8/3/19	PRINCIPAL Dr. B. C. Roy College of Pharmacy & A.H.S. Bidhannagar, Durgapur-713206
23.04.19	2	Unit III & Unit V	40%.		23/4/19	PRINCIPAL Dr. B. C. Roy College of Pharmacy & A.H.S. Bidhannagar, Durgapur-713206
10.05.19	1	Unit IV	20%.		10/5/19.	PRINCIPAL Dr. B. C. Roy College of Pharmacy & A.H.S. Bidhannagar, Durgapur-713206

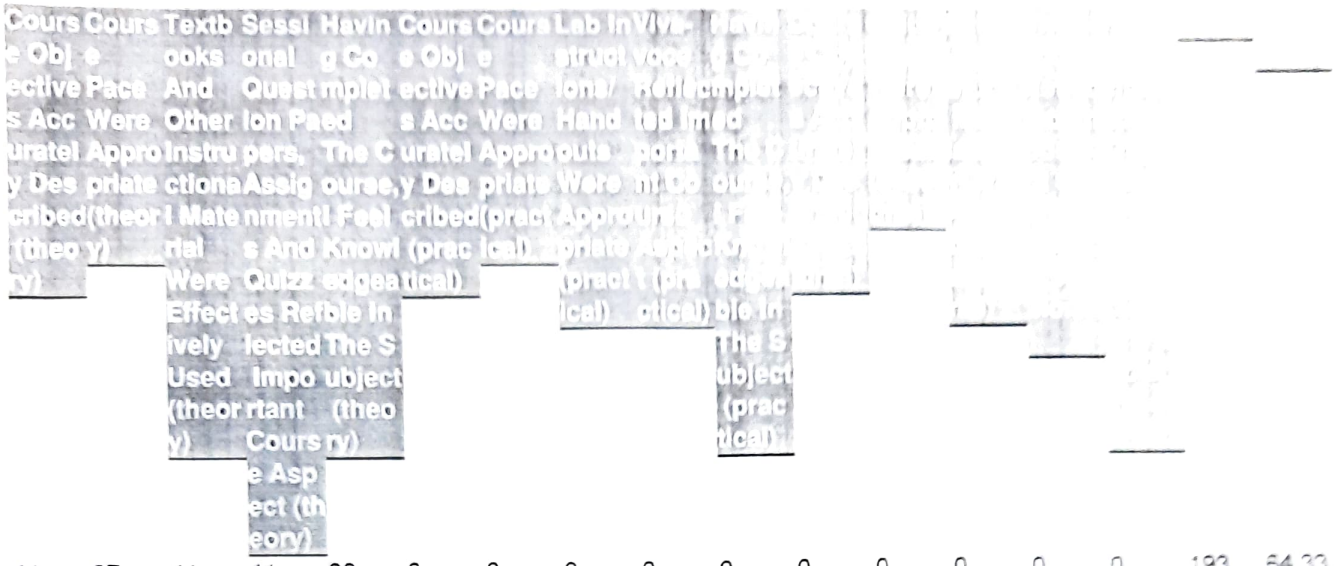
B.PHARM 1ST YEAR 2ND SEMESTER 2018-19

RESULT ANALYSIS

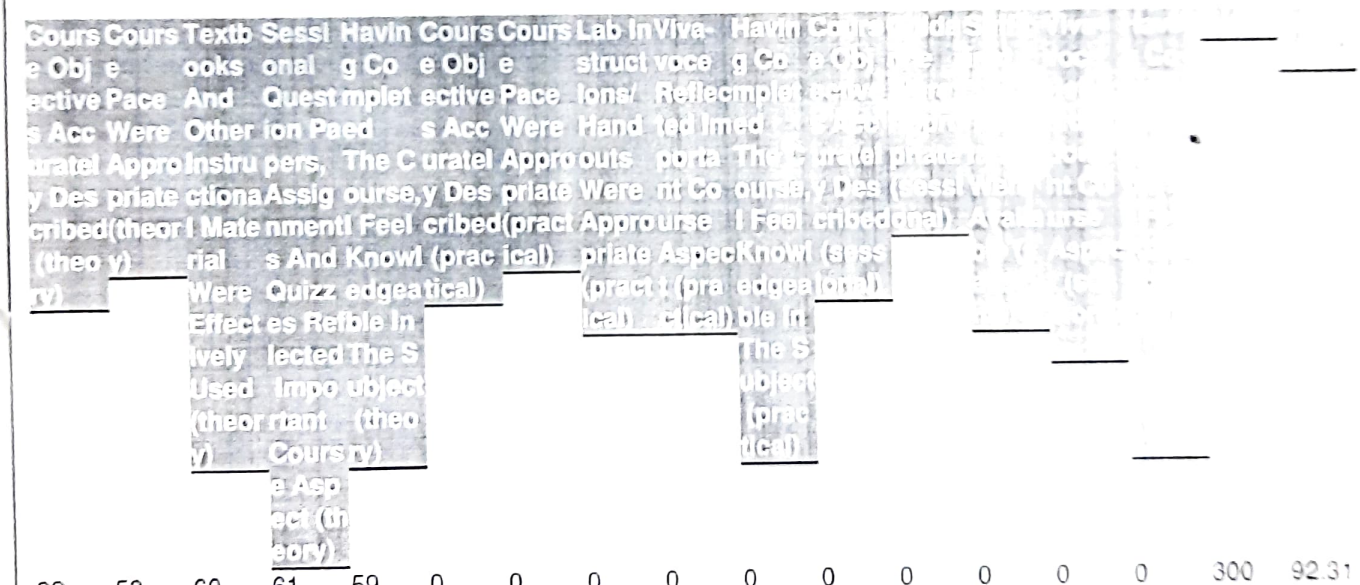
GRADE	PT215	PT213	PT214	PT216	PT298	PT296	PT297	HU282	PTC203	PTC293
O	0	12	1	0	6	40	18	21	6	1
E	15	20	15	1	40	32	53	17	27	26
A	32	19	22	17	27	25	27	32	38	46
B	24	23	24	28	17	4	6	18	22	28
C	21	10	23	30	10	4	1	12	7	3
D	9	18	12	18	4	0	0	4	4	1
F	4	2	7	10	1	0	0	1	1	0
I	0	1	1	1	0	0	0	0	0	0
	105	105	105	105	105	105	105	105	105	105

Course Feedback (Summary)

Sub Code PT 214
Sub Type T



Sub Code PT 215
Sub Type T



28/06/19
PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206

ACADEMIC YEAR:

2017-18

DR.B.C.ROY COLLEGE OF PHARMACY AND AHS
DR.MEGHNAD SAHA SARANI,BIDHANNAGAR
DURGAPUR-06

B.PHARM 1ST YEAR 2ND SEMESTER SECTION (A) & (B) ROUTINE
EFFECTIVE FROM 10TH JANUARY, 2018

DOC.NO:RTN/B/2018/2/EVEN

DAY	SEC	10.00-11.00	11.00-2.00	2.00-2.30	2.30-3.30	3.30-4.30	4.30-5.30	5.30-6.30
TUE	A	PT216,DC	PTC293GA,PT296GB,PT297GC,PT298GD,LIB_INTGE		HU282,SC	PT215,SSM	PTC203,SB	T-PT213,SKM
	B	PT215,SSM	SB, AD, PM, GKB		PTC203,SB	PT216,DC	HU282,SC	T-PT214,PM
WED	A	PT216,DC	PTC293GB,PT296GC,PT297GD,PT298GE,LIB_INTGA		PT213,SKM	PTC203,SB	T-PT215,SSM	T-PT214,PM
	B	PTC203,SB	SB SKM, PM, GKB		T-PT215,SSM	PT216,DC	PT213,SKM	T-HU282,MC
THUR	A	PT214,PM	PTC293GC,PT296GD,PT297GE,PT298GA,LIB_INTGB	RECESS	PTC203,SB	PT213,SKM	HU282,MC	TUTORIAL
	B	PT213,SKM	SB, SKM, PM, SSM		HU282,MC	PT214,PM	PTC203,SB	T-PT213,SKM
FRI	A	PT215,SSM	PTC293GD,PT296GE,PT297GA,PT298GB,LIB_INTGC		PT214,PM	PT216,DC	PT213,SKM	T-HU282,MC
	B	PT216,DC	SB, AD, PSP, SSM		PT213,SKM	PT215,SSM	PT214,PM	T-PTC203,SB
SAT	A	T-PT216,DC	PTC293GE,PT296GA,PT297GB,PT298GC,LIB_INTGD		PT215,SSM	PT214,PM	HU282,MC	T-PTC203,SB
	B	PT214,PM	SB, SKM, PSP, SSM		HU282,MC	T-PT216,DC	PT215,SSM	TUTORIAL

DC-MR.DIPESH CHAKRABORTY,SSM-MR.SAROJ SINGHAMURA,SB-MR.SOUMEN BANNERJEE,PM-MS.PUJA MISHRA, SKM-DR SUDIP KR MONDAL,AD-DR.ANJAN DE, PSP-DR PARTHA SARATHI PANDA,GKB-DR.GOUTAM KR BAGCHISC-DR.SUBRATA CHAKRABORTY,MC-MRS.MOITREYEE CHATTOPADHYAY

ISSUE NO:1

REVISION N0:0

PREPARED BY

MR.S.BOSE
(ASST.PROF,BCRCP)

Workload for PM = 8 h

APPROVED BY

DR.S.RAY
(PRINCIPAL,BCRCP)

PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206

Dr. B .C. ROY COLLEGE OF PHARMACY & A.H.S
DR. MEGHANAD SAHA SARANI, BIDHANNAGAR,
DURGAPUR-06
B. PHARM. 1ST YEAR 2ND SEMESTER 2018

PAPER- BIOCHEMISTRY (THEORY) **PAPER CODE- PT-214**

LIST OF ASSIGNMENTS

SL NO	ROLL NO.	NAME	TOPICS ASSIGNED	MAPPING WITH CO
1	18901916045	SK NADIM ALI	Define the following term: i) Glycolysis, ii) Gluconeogenesis, iii) Glycogenesis, iv) Glycogenolysis, and v) Lipolysis vi) HMP shunt, vii) Krebs Cycle	CO.PT 214.2
2	18901917012	ZINATAMAN SARKAR		
3	18901917013	WASHIM RAHAMAN		
4	18901917014	VIVEKANANDA BARIK		
5	18901917015	TUHIN PAUL		
6	18901917016	TUFAN MONDAL		
7	18901917017	TANUJ GHOSH DASTIDAR		
8	18901917018	TANMOY DAN		
9	18901917019	TANIA BISWAS		
10	18901917020	SWAGATA PAL		
11	18901917021	SUVENDU MAITY		
12	18901917022	SUSHOVAN PAL		
13	18901917023	SUSANTA ATA		
14	18901917024	SUPRITI TALIT		
15	18901917025	SUPRABHAT BAJAR		
16	18901917026	SUJOY THAKUR		
17	18901917027	SUJAN MONDAL		
18	18901917028	SUDIPTO CHAKRABORTY		
19	18901917029	SUDIPTA MANDAL		
20	18901917030	SUDIPTA MAITY		
21	18901917031	SUDIP MONDAL		
22	18901917032	SUBHENDU GHOSH		
23	18901917033	SUBHAM KONER		
24	18901917034	SUBHAM DAS		
25	18901917035	SUBHAJYOTI SAMANTA		
26	18901917036	SUBHADIP DAS		
27	18901917037	SOUVIK HATI		
28	18901917038	SOUVIK DANDAPAT		
29	18901917039	SOUVIK BHANDARY		
30	18901917040	SOURIK MONDAL		
31	18901917041	SOURAV SAHU		
32	18901917042	SOURAV ROY		
33	18901917043	SOURAV MUKHERJEE		
34	18901917044	SOUMYAJIT CHAKRABORTY		
35	18901917045	SOUMYADIP MAITY		
36	18901917046	SOUMYA GHOSH		
37	18901917047	SOUMYA DASMAHAPATRA		
38	18901917048	SOUMITA GHARA		
39	18901917049	SOUDEEP DEY		
40	18901917050	SOMEDEV MONDAL		
41	18901917051	SNIGDHA CHAKRABORTY		
42	18901917053	SK MEHERONNISHA		
43	18901917054	SK IZAZ AHAMMED		

20/2/18

20/02/18

Dr. B .C. ROY COLLEGE OF PHARMACY & A.H.S
DR. MEGHANAD SAHA SARANI, BIDHANNAGAR,
DURGAPUR-06

B. PHARM. 1ST YEAR 2ND SEMESTER 2018

PAPER- BIOCHEMISTRY (THEORY) **PAPER CODE:- PT-214**

LIST OF ASSIGNMENTS

SL NO	ROLL NO.	NAME	TOPICS ASSIGNED	MAPPING WITH CO
44	18901917055	SINCHONI CHOUDHURY	Why is TCA cycle considered as an open cycle? Schematically represent Krebs cycle.	CO.PT 214.2
45	18901917056	SHUVECHHA DAS		
46	18901917057	SHREEMA BAKSI		
47	18901917058	SHRABANI SAMANTA		
48	18901917059	SHIBAM DEY		
49	18901917060	SHANTANU META		
50	18901917061	SAYANTAN MAHAPATRA		
51	18901917062	SAYAN KUNDU		
52	18901917063	SAYAN DOLUI		
53	18901917064	SAUROV DAS		
54	18901917065	SAMIR BHUNIA		
55	18901917066	SAINI DUTTA		
56	18901917067	SAGNIK DHARA		
57	18901917068	SABUJ ROY		
58	18901917069	ROUNAK GHOSH		
59	18901917070	ROUNAK BHATTACHARYA		
60	18901917071	RIYA SUTRADHAR		
61	18901917072	RITIKA BISWAS	a) Schematically represent the Electron Transport Chain depicting the sites for ATP synthesis. b) Explain why conversion of NADH to NAD+ yields 3 molecules of ATP while FADH to FAD+ yields only 2.	CO PT 214.2
62	18901917073	RANAJIT PAL		
63	18901917074	RAJAT BISWAS		
64	18901917075	RAJAN BHARTI		
65	18901917076	RAHUL SAHU		
66	18901917077	PRONAY MANDAL		
67	18901917078	PRIYABRATA DALBERA		
68	18901917079	PRITAM SAHA		
69	18901917080	PRITAM PRADHAN		
70	18901917081	PRITAM KUNDU		
71	18901917082	PRASUN KUMAR DUTTA		
72	18901917083	PRANABESH SAMANTA		
73	18901917084	PINTU ADHIKARY		
74	18901917085	NITISH KUMAR HALDER		
75	18901917086	MRINAL GHOSH		
76	18901917088	MD SAHID ALI		
77	18901917089	MANGALDEEP BHOUMIK		
78	18901917090	MAHMUD UL HASAN		
79	18901917091	KRISHANU DAS		
80	18901917092	KOUSHIK BANERJEE		
81	18901917093	KAUSTAV NAG		
82	18901917094	ISHITA SEN		
83	18901917095	ISHITA SARKAR		
84	18901917096	INDRANIL GHOSAL		
85	18901917097	ENAMUL ANAM		
86	18901917098	DIPTI LAHA		
87	18901917099	DIBYENDU JANA		
88	18901917100	DEEPANWITA MONI		
89	18901917101	DEBOJYOTI JANA		
90	18901917102	DEBKANTA LOUHA		

20/2/18 20/02/18

Dr. B .C. ROY COLLEGE OF PHARMACY & A.H.S
DR. MEGHANAD SAHA SARANI, BIDHANNAGAR,
DURGAPUR-06
B. PHARM. 1ST YEAR 2ND SEMESTER 2018

PAPER- BIOCHEMISTRY (THEORY) **PAPER CODE- PT-214**

LIST OF ASSIGNMENTS

SL NO	ROLL NO.	NAME	TOPICS ASSIGNED	MAPPING WITH CO
91	18901917103	DEBJOTY PAUL		

Paulshea 20/2/18

Ps Pan 20/02/18

Dr. B .C. ROY COLLEGE OF PHARMACY & A.H.S
DR. MEGHANAD SAHA SARANI, BIDHANNAGAR,
DURGAPUR-06
B. PHARM. 1ST YEAR 2ND SEMESTER 2018

PAPER- BIOCHEMISTRY (THEORY) **PAPER CODE- PT-214**

LIST OF ASSIGNMENTS

SL NO	ROLL NO.	NAME	TOPICS ASSIGNED	MAPPING WITH CO
92	18901917104	DEBDUTTA CHAKRABORTY	Write a note on a) Pasteur effect and Crabtree effect b) Oxidative phosphorylation c) Inhibitors of ETC d) Inhibitors of oxidative phosphorylation e) Glycogen Storage Diseases f) Production of ATP and its significance g) Pathways for Gluconeogenesis	CO.PT 214.2
93	18901917105	CHIRANJIT DEY		
94	18901917106	CHANDREIEE MUKHERJEE		
95	18901917107	BITAN GUCHHAIT		
96	18901917108	BISWANATH DAWN		
97	18901917109	BISHAL GOSWAMI		
98	18901917110	BISHAL GANDHI		
99	18901917111	BIKASH KUMAR PANDEY		
100	18901917112	BIKASH BHAKAT		
101	18901917113	BIJAYA MUKHERJEE		
102	18901917114	AVIJIT BEJ		
103	18901917115	ATANU RUIDAS		
104	18901917116	ARMAN NIZAMI		
105	18901917117	ARITRA PAUL		
106	18901917118	ARIJIT GHOSH		
107	18901917119	ARIJEET MONDAL		
108	18901917120	ANWESHA MODAK		
109	18901917121	ANUVAB PURKAIT		
110	18901917122	ANUPAM MAITY		
111	18901917123	ANNESH DAS		
112	18901917124	ANINDITA CHOWDHURY		
113	18901917125	ANIKET CHATTOPADHYAY		
114	18901917126	ANIK LAYEK		
115	18901917127	ANAMITRA BHATTACHARYA		
116	18901917128	AMRITA HAZRA		
117	18901917129	AMITAVA MEDDA		
118	18901917130	AMARTYA KUNDU		
119	18901917131	AMARTYA BHOJ		
120	18901917133	ABHISHEK GHOSH		
121	18901917134	ABEER KUMAR SINGH		

20/2/18

20/02/18

Mapping between the Assignments and course outcomes (CO)

Assignment Topics	CO.PT 214.1	CO.PT 214.2	CO.PT 214.3	CO.PT 214.4
Define the following term: i) Glycolysis, ii) Gluconeogenesis, iii) Glycogenesis, iv) Glycogenolysis, and v) Lipolysis vi) HMP shunt, vii) Krebs Cycle		3		
Why is TCA cycle considered as an open cycle? Schematically represent Krebs cycle.		3		
a) Schematically represent the Electron Transport Chain depicting the sites for ATP synthesis. b) Explain why conversion of NADH to NAD+ yields 3 molecules of ATP while FADH to FAD+ yields only 2.		3		
Write a note on a) Pasteur effect and Crabtree effect b) Oxidative phosphorylation c) Inhibitors of ETC d) Inhibitors of oxidative phosphorylation e) Glycogen Storage Diseases f) Production of ATP and its significance g) Pathways for Gluconeogenesis		3		

Priyanka 20/2/18

P S Panda 20/12/18

PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S
Bidhannagar, Durgapur-713206

DR. B. C. ROY COLLEGE OF PHARMACY AND ALLIED HEALTH SCIENCES, DURGAPUR – 713206

B. PHARM. 1ST YEAR 2ND SEMESTER 1ST SESSIONAL EXAMINATION 2018

PAPER: Biochemistry CODE: PT 214

TIME: 1HOUR FM: 20

GROUP – A [Multiple Choice Type Questions]

1. Choose the correct alternatives for all of the following: 5 x 1 = 5

i) Glucose and galactose are epimers and they differ structurally in orientation of H and OH on:

a) C_1 b) C_3 c) C_2 d) C_4

ii) Which of the following biomolecule transfer genetic information from genes to ribosomes to synthesize protein?

a) DNA b) mRNA c) rRNA d) tRNA

iii) The subject that deals with thermodynamic principles and its application to biological system is

a) Biochemical Energetics b) Bioinformatics c) Biochemistry d) Biophysics

iv) Lipase belongs to which class of Enzymes

a) Oxidoreductase b) Transferase c) Hydrolase d) Lyase

v) The Kinetic effect when K_m value increases and V_{max} remains constant refers to

a) Competitive Inhibition b) Non-competitive Inhibition c) Irreversible Inhibition d) Allosteric Inhibition

GROUP – B: Short Answer Type Questions (Answer any two) 2 x 2.5 = 5

2. Give example of a competitive Inhibitor and show how they inhibit the enzyme and become useful as a drug. [2.5]

3. What is Gibb's Free energy concept? Express free energy as a function of entropy and enthalpy. [2.5]

4. What is Chargaff's rule of DNA composition? [2.5]

GROUP – C: Long Answer Type Questions (Answer any one) 1x 10 = 10

5. Define the following term with examples:

i) Anomers, ii) Coenzyme, iii) Allosteric inhibition, iv) High energy compounds, and v) Mucopolysaccharide [5 x 2 = 10]

6. a) Differentiate between exergonic and endergonic reaction

b) Derive Michaelis Menten Equation and define K_m with help of this equation. [5 + 5]

Mapping between the QPs of 1st Sessional Examination 2018 of PT-214 and Course Outcomes (CO)

Question No	CO.PT 214.1	CO.PT 214.2	CO.PT 214.3	CO.PT 214.4
1.(i)	1			
1.(ii)	1			
1.(iii)		1		
1.(iv)				1
1.(v)				1
2				2.5
3		2.5		
4			2.5	
5. (i & v)	4			
5. (ii & iii)				4
5. (iv)		2		
6. (a)		5		
6. (b)				5
Total	6	10.5	2.5	13.5

9/3/18

09/03/18

DR. B. C. ROY COLLEGE OF PHARMACY AND ALLIED HEALTH SCIENCES, DURGAPUR – 713206

B. PHARM. 1ST YEAR 2ND SEMESTER 2nd SESSIONAL EXAMINATION 2018

PAPER: Biochemistry CODE: PT 214

TIME: 1HOUR FM: 20

GROUP – A [Multiple Choice Type Questions] 5 x 1 = 5

1. Choose the correct alternatives for all of the following:

i) Which one of these is not a basic amino acid

a) Lysine b) Threonine c) Arginine d) Histidine

ii) Oleic acid is abbreviated as

a) 18:1 b) Δ^9 c) both d) None

iii) In the final step of electron transport chain, electron is accepted by

a) NAD^+ b) CoQc) Cytochrome oxidase d) Oxygen

iv) An alternative pathway to glycolysis and TCA cycle for the oxidation of glucose that provides NADPH and pentoses is known as

a) Hexose monophosphate shunt b) Gluconeogenesis c) Glycogenolysis d) EM pathway

v)Which of the following statement is true for von Gierke's disease

a) It is one type of glycogen storage disease.

b) It occurs due to the defect in the enzyme glucose 6-phosphatase.

c) It is characterized by fasting hypoglycaemia, lactic acidemia, hyperlipidemia, ketosis, etc.

d) All of the above

GROUP – B [Short Answer Type: Answer any two) 2 x 2.5 = 5

2. Write a short note on denaturation of protein. [2.5]

3. Name the inhibitors of Electron Transport Chain. [2.5]

4. Differentiate between the Pasteur effect and Crabtree effect [2.5]

GROUP – C [Long Answer Type: Answer any one] 1x 10 = 10

5. a) Schematically represent the Krebs cycle.

b) Write about oxidative phosphorylation. [5+5 = 10]

6. Describe the steps involved in β- oxidation of Fatty acids. Calculate the energy evolved after complete β- oxidation of Stearic acid. [7+3]

Mapping between the QPs of 2nd Sessional Examination 2018 of PT-214 and Course Outcomes (CO)

Question No	CO.PT 214.1	CO.PT 214.2	CO.PT 214.3	CO.PT 214.4
1.(i)	1			
1.(ii)	1			
1.(iii)		1		
1.(iv)		1		
1.(v)		1		
2	2.5			
3		2.5		
4		2.5		
5. (a)		5		
5. (b)		5		
6		10		
Total	4.5	28		

Pritisha 24/09/18

Sutanja 24/09/18

Quiz Assessment Rubrics

Academic Year: 2017-18

Subject Code: PT-214

No. of Student Present: 100

Question Number	CO	% Correct	% Incorrect	Total
Q1	CO.PT 214.1	88	12	100
Q2	CO.PT 214.1 & 214.3	82	18	100
Q3	CO.PT 214.2	75	25	100
Q4	CO.PT 214.1	80	20	100
Q5	CO.PT 214.2	90	10	100
Q6	CO.PT 214.4	95	5	100
Q7	CO.PT 214.2	81	19	100
Q8	CO.PT 214.1 & 214.3	72	28	100
Q9	CO.PT 214.2 & 214.4	85	15	100
Q10	CO.PT 214.2 & 214.4	92	8	100
	Average	84	16	**Attainment**
				3

Attainment Level	Score
60%≤X<70%	1
70%≤X<80%	2
80%≤X≤100%	3

14/04/18

DR. B. C. ROY COLLEGE OF PHARMACY AND ALLIED HEALTH SCIENCES, DURGAPUR – 713206

B. PHARM. 1ST YEAR 2ND SEMESTER 2018

QUIZ QUESTIONS

PAPER- BIOCHEMISTRY (THEORY) **PAPER CODE- PT-214**

1. α-Helix is stabilized by

a) Hydrogen bonds b) Disulphide bonds

Answer: a

2) Guanosine nucleotide is held by the cytosine nucleotide by the number of hydrogen bonds

a) 2 b) 3

Answer: b

3 Carboxylation of acetyl-CoA to malonyl -CoA takes place in presence of

a) -SH group b) $-CH_2OH$ group

Answer: a

4. Cellulose is made up of the molecules of

a) α-Glucose. b) β-Glucose.

Answer: b

5. In oxidative phosphorylation, one molecule of reduced flavoprotein produces how many ATPs:

a) 2 b) 3.

Answer: a

6. In the feedback regulation, the end product binds at

a) Active site. b) Allosteric site.

Answer: b

7. Which pyrimidine nucleotide acts as the high energy intermediate?

a) UTP b) UDGP

Answer: b

8. The type of RNA that characteristically contain methylated purines and pyrimidines is:

a) t-RNA b) m-RNA

Answer: b

9. Cytochrome oxidase is poisoned by

a) Cyanide b) Sulfide

Answer: a

10. A specific inhibitor for succinate dehydrogenase is:

a) Citrate b) Malonate

Answer: b

Mapping between the Quiz Questions and course outcomes (CO)

Question No	CO.PT 214.1	CO.PT 214.2	CO.PT 214.3	CO.PT 214.4
1	1			
2			1	
3		1		
4	1			
5		1		
6				1
7		1		
8			1	
9		1		
10				1
Total	2	4	2	2

Prithika
7/04/18

Ps Pama
07/04/18

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : PT-214

BIOCHEMISTRY

Time Allotted: 3 Hours | *Full Marks*: 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group–A

1. Choose the correct alternatives for *any ten* of the following questions: 1×10=10

(i) Co-enzyme "Q" is a Lipophilic:
- (a) Proton Carrier
- (b) Anion Carrier
- (c) Cation Carrier
- (d) Electro Carrier

(ii) Which of the following is not an essential Fatty Acid?
- (a) Linolenic acid
- (b) Linoleic acid
- (c) Arachidonic acid
- (d) Oleic acid

(iii) The term "Free Energy" is represented by
- (a) ΔG
- (b) ΔH
- (c) ΔS
- (d) $\Delta G°$

(iv) An example of disaccharide is
- (a) Fructose
- (b) Galactose
- (c) Glucose
- (d) Maltose

(v) Nucleic acids consists of
- (a) Nitrogenous base
- (b) Pentose sugar
- (c) Phosphate group
- (d) All of these

(vi) A measure of disorder or randomness in the system is
- (a) Enthalpy
- (b) Entropy
- (c) Free energy
- (d) None of these

(vii) dNTPs are synthesized from

(a) De novo pathway
(b) salvage pathway
(c) Ribose - 5 - phosphate pathway
(d) from corresponding NTP

(viii) Which of the following coenzyme source is not vitamin B complex?

(a) TPP
(b) ATP
(c) NAD
(d) FMN

(ix) The essential amino acid is

(a) Lysine
(b) Alanine
(c) Proline
(d) Glycine

(x) Excess at deposition in the liver causing deposition of toxic materials in the liver. This condition is known as

(a) Fatty liver
(b) Hypercholesterolemia
(c) Atherosclerosis
(d) Obesity

(xi) What is the role of formyl-THF?

(a) Synthesis of DNA and RNA
(b) Synthesis of Thymidine
(c) Synthesis of Methionine
(d) Synthesis of homocysteine

(xii) The first purine nucleotide synthesized in De novo pathway is

(a) UMP
(b) IMP
(c) CMP
(d) GMP

Group–B

Answer any three of the following questions. 5×3=15

2. Write short note on Nucleotide and Nucleoside with examples. 5

3. Show the Glycolysis cycle pathway schematically. 5

4. Write short note on oxidative phosphorylation and its significance. 5

5. Write down the energetics of Citric Acid Cycle. 5

6. Write, in brief, about the salvage pathway of nucleotides. What is the major fate of dietary nucleotides? 3+2=5

Group–C

Answer any three of the following questions. 15×3=45

7. What is an enzyme? How is it different from coenzymes? Classify enzymes with examples. What is Line Weaver Burke plot? 3+3+3+6=15 CO·PT·214·4

8. Define lipid and classify it with proper example. Write down with a neat sketch the β-oxidation pathway. Write a short note on hyperbilirubinea and obesity. 2+3+5+5=15 CO·PT·214·1 & CO·PT·214·2

9. Describe Urea Cycle with figure. Differentiate between deamination and transamination. 7·5+7·5=15 CO PT 214·2

10. Illustrate biosynthesis and significance of Serotonin, Melatonin and Noradrenaline. Write on Albinism, Phenyl Ketonuria. (4×3)+3=15 CO·PT·214·2

11. Briefly explain the hormonal regulation of blood glucose level. What is HMP shunt? What is its clinical significance? 7·5+7·5=15 CO PT 214·2

Dr. B. C. Roy College of Pharmacy and Allied Health Sciences
Durgapur - 713206

B. Pharm. 1st Year 2nd Semester (NEW) Theory Examination 2018

Tabulation Sheet

Paper: [illegible] Code: [illegible]

S. No.	University Roll No.	Name	1st Sess. (20)	2nd Sess. (20)	[illegible] (20)	Best of Two (20)	Att. Assgt. (5)	Total (50)
1	[illegible]	[illegible]					5	5
2	[illegible]	[illegible]	16			16	5	21
3	[illegible]	[illegible]	15.5	11		15.5	5	21
4	[illegible]	[illegible]	17			17	5	22
5	[illegible]	[illegible]	18.5	11		18.5	5	24
6	[illegible]	[illegible]	11	14.5		14.5	5	19
7	[illegible]	[illegible]	15	14		15	5	20
8	[illegible]	[illegible]				7	5	12
9	[illegible]	[illegible]	13.5	9		13.5	5	18
10	[illegible]	[illegible]	10	8		11	5	16
11	[illegible]	[illegible]	13.5	14.5		14.5	5	19
12	[illegible]	[illegible]	13	12		13	5	18
13	[illegible]	[illegible]	12.5	11		12.5	5	17
14	[illegible]	[illegible]	13	12		13	5	18
15	[illegible]	[illegible]	7.5	8	14	14	5	19
16	[illegible]	[illegible]	14.5	20		20	5	25
17	[illegible]	[illegible]	14	12.5		14	5	19
18	[illegible]	[illegible]	15.5	13.5		15.5	5	20
19	[illegible]	[illegible]	10	13.5		13.5	5	18
20	[illegible]	[illegible]	13	15.5		15.5	5	20
21	[illegible]	[illegible]				2	5	7
22	[illegible]	[illegible]	17.5			17.5	5	23
23	[illegible]	[illegible]	5		11	11	5	16
24	[illegible]	[illegible]	4	5	12	12	5	17
25	[illegible]	[illegible]				3	5	8
26	[illegible]	[illegible]		7	11	11	5	16
27	[illegible]	[illegible]	8	4	12	12	5	17
28	[illegible]	[illegible]		5	11	11	5	16
29	[illegible]	[illegible]	14.5	11.5		14.5	5	19
30	[illegible]	[illegible]		1.25	12	12	5	17
31	[illegible]	[illegible]	5.5	1.25	12	12	5	17
32	[illegible]	[illegible]	14.5			14.5	5	19
33	[illegible]	[illegible]	12	14		14	5	19
34	[illegible]	[illegible]	11	15		15	5	20
35	[illegible]	[illegible]	16.5			16.5	5	21
36	[illegible]	[illegible]	13.5			13.5	5	18
37	[illegible]	[illegible]	12	3		12	5	17
38	[illegible]	[illegible]				3	5	8
39	[illegible]	[illegible]		15		15	5	20
40	[illegible]	[illegible]		5	11	11	5	16
41	[illegible]	[illegible]	9	15		15	5	20
42	[illegible]	[illegible]	9	11.5		11.5	5	17
43	[illegible]	[illegible]	12			12	5	17
44	[illegible]	[illegible]	13			13	5	18

6/6/18

Signature of the Examiners with date

Dr. B. C. Roy College of Pharmacy and Allied Health Sciences
Durgapur - 713206

B. Pharm. 1st Year 2nd Semester (NEW) Theory Examination' 2018

Tabulation Sheet

Paper: BIOCHEMISTRY Code: PT-214

Sl. No.	University Roll No.	Name	1st Sess (20)	2nd Sess (20)	IT (20)	Best of Two (20)	Attn./ Assign. (10)	Total (30)
45	18901917056	SHUVECHHA DAS	12			12	9	21
46	18901917057	SHREEMA BAKSI	15			15	10	25
47	18901917058	SHRABANI SAMANTA	10.5	4		10.5	10	21
48	18901917059	SHIBAM DEY				0	9	9
49	18901917060	SHANTANU META	10	3		10	9	19
50	18901917061	SAYANTAN MAHAPATRA	11	0.5		11	10	21
51	18901917062	SAYAN KUNDU		2	12	12	8	20
52	18901917063	SAYAN DOLUI				0	5	5
53	18901917064	SAUROV DAS	5	0.5	12	12	8	20
54	18901917065	SAMIR BHUNIA	16	18.75		18.75	10	29
55	18901917066	SAINI DUTTA	19.5	18		19.5	10	30
56	18901917067	SAGNIK DHARA	18	15		18	10	28
57	18901917068	SABUJ ROY				0	5	5
58	18901917069	ROUNAK GHOSH	12.5	9		12.5	9	22
59	18901917070	ROUNAK BHATTACHARYA	13.5	4		13.5	10	24
60	18901917071	RIYA SUTRADHAR	10.5			10.5	10	21
61	18901917072	RITIKA BISWAS	7	1.25	11	11	10	21
62	18901917073	RANAJIT PAL	11	6		11	10	21
63	18901917074	RAJAT BISWAS				0	8	8
64	18901917075	RAJAN BHARTI	5.5	2.5	14	14	10	24
65	18901917076	RAHUL SAHU	4.5	2.5	11	11	9	20
66	18901917077	PRONAY MANDAL	13.5	11.5		13.5	8	22
67	18901917078	PRIYABRATA DALBERA		2.5	12	12	8	20
68	18901917079	PRITAM SAHA	3	1		3	9	12
69	18901917080	PRITAM PRADHAN		1.25	11	11	8	19
70	18901917081	PRITAM KUNDU	16.5	13.5		16.5	10	27
71	18901917082	PRASUN KUMAR DUTTA	2	0	5	5	7	12
72	18901917083	PRANABESH SAMANTA	14			14	10	24
73	18901917084	PINTU ADHIKARY	7	1.25	11	11	10	21
74	18901917085	NITISH KUMAR HALDER		4	11	11	7	18
75	18901917086	MRINAL GHOSH	5		12	12	9	21
76	18901917088	MD SAHID ALI	12			12	8	20
77	18901917089	MANGALDEEP BHOUMIK	12			12	10	22
78	18901917090	MAHMUD UL HASAN				0	5	5
79	18901917091	KRISHANU DAS	9.5	7		9.5	10	20
80	18901917092	KOUSHIK BANERJEE	9.5			9.5	8	18
81	18901917093	KAUSTAV NAG		3	14	14	9	23
82	18901917094	ISHITA SEN	16.5	19		19	9	28
83	18901917095	ISHITA SARKAR		1.25	10	10	8	18
84	18901917096	INDRANIL GHOSAL				0	8	8
85	18901917097	ENAMUL ANAM	2.5		14	14	7	21
86	18901917098	DIPTI LAHA	14			14	10	24
87	18901917099	DIBYENDU JANA	12	19		19	9	28
88	18901917100	DEEPANWITA MONI		15.5		15.5	7	23
89	18901917101	DEBOJYOTI JANA	6.5	3	14	14	9	23

Signature of the Examiner(s) with date

Dr. B. C. Roy College of Pharmacy and Allied Health Sciences
Durgapur - 713206

B. Pharm. 1st Year 2nd Semester (NEW) Theory Examination' 2018

Tabulation Sheet

Paper: BIOCHEMISTRY **Code:** PT-214

Sl. No.	University Roll No.	Name	1st Sess (20)	2nd Sess (20)	IT (20)	Best of Two (20)	Attn./ Assign. (10)	Total (30)
90	18901917102	DEBKANTA LOUHA	18			18	10	28
91	18901917103	DEBJOTY PAUL	19.5			19.5	10	30
92	18901917104	DEBDUTTA CHAKRABORTY	13	15		15	9	24
93	18901917105	CHIRANJIT DEY	4	7	12	12	8	20
94	18901917106	CHANDREIEE MUKHERJEE	13.5	16		16	10	26
95	18901917107	BITAN GUCHHAIT		9.5		9.5	9	19
96	18901917108	BISWANATH DAWN		3	12	12	8	20
97	18901917109	BISHAL GOSWAMI	0.5			0.5	7	8
98	18901917110	BISHAL GANDHI	7.5	13		13	9	22
99	18901917111	BIKASH KUMAR PANDEY	16	18.5		18.5	10	29
100	18901917112	BIKASH BHAKAT	10	11		11	10	21
101	18901917113	BIJAYA MUKHERJEE	13.5			13.5	10	24
102	18901917114	AVIJIT BEJ				0	7	7
103	18901917115	ATANU RUIDAS				0	8	8
104	18901917116	ARMAN NIZAMI	2		10	10	9	19
105	18901917117	ARITRA PAUL	8.5	4	12	12	9	21
106	18901917118	ARIJIT GHOSH	4			4	8	12
107	18901917119	ARIJEET MONDAL	2	1.25	14	14	9	23
108	18901917120	ANWESHA MODAK	13.5	17.5		17.5	10	28
109	18901917121	ANUVAB PURKAIT		12.5		12.5	10	23
110	18901917122	ANUPAM MAITY	17	16		17	10	27
111	18901917123	ANNESH DAS	19	18		19	10	29
112	18901917124	ANINDITA CHOWDHURY	9.5	6		9.5	10	20
113	18901917125	ANIKET CHATTOPADHYAY	11.5			11.5	9	21
114	18901917126	ANIK LAYEK				0	8	8
115	18901917127	ANAMITRA BHATTACHARYA	6.5		14	14	8	22
116	18901917128	AMRITA HAZRA	14			14	10	24
117	18901917129	AMITAVA MEDDA		3.75	13	13	6	19
118	18901917130	AMARTYA KUNDU	13.5	0		13.5	10	24
119	18901917131	AMARTYA BHOJ	14.5	9		14.5	10	25
120	18901917133	ABHISHEK GHOSH	6		12	12	9	21
121	18901917134	ABEER KUMAR SINGH	9.5	8		9.5	10	20

Signature of the Examiner(s) with date

Dr. B. C. Roy College of Pharmacy & AHS, Durgapur
College Code – 189

Course Completion Status

Academic Year: 2017 - 18

Course Name: Biochemistry (Theory) **Course code:** PT 214

Taught by: PUJA MISHRA

Date	Proposed number of units to be covered on date as per lesson plan	Units Completed	% of Completion	Reason for incompletion	Signature of Faculty(s)	Signature of Principal/ Director
10/01/18 to 2/3/18	Units I, V & II (half) completed.		50%.	–	Puja 03/3/18	03/03/18 PRINCIPAL Dr. B. C. Roy College of Pharmacy & A.H.S. Bidhannagar, Durgapur-713206
11/3/18 to 08/5/18	Units II (half) III & IV (completed)		50%.	–	Puja 09/05/18	10/05/18 PRINCIPAL Dr. B. C. Roy College of Pharmacy & A.H.S. Bidhannagar, Durgapur-713206

GRADE	HU 282	PT 213	PT 214	PT 215	PT 216	PT 296	PT 297	PT 298	PTC 203	PT 293
O	7	2	2	5	2	15	6	18	4	4
E	11	10	15	13	4	52	20	31	17	48
A	11	13	19	22	24	43	33	44	19	46
B	21	13	20	31	35	4	31	19	26	13
C	23	27	23	17	31	3	17	3	25	4
D	38	29	23	14	17		6	1	25	
I										
F	6	23	15	15	4		4	1	1	2
TOTAL	117	117	117	117	117	117	117	117	117	117

ANNEXURE I: PROGRAM OUTCOMES

1. **Pharmacy Knowledge:** Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.
2. **Planning Abilities:** Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
3. **Problem analysis:** Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
4. **Modern tool usage:** Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
5. **Leadership skills:** Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and well-being.
6. **Professional Identity:** Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
7. **Pharmaceutical Ethics:** Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
8. **Communication:** Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
9. **The Pharmacist and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
11. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

PT 214 BIOCHEMISTRY (Theory)

Course Objectives (COB)

COB.PT 214.1: To **acquire** chemistry and biological importance of biological macromolecules *i.e.* carbohydrate, amino acids and proteins, lipids, nucleic acids.

COB. PT 214.2: To **know** the significance of metabolism, bioenergetics and biological oxidation in biological systems.

COB. PT 214.3: To **understand** the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

COB. PT 214.4: To **enumerate** the catalytic role of enzymes, enzyme kinetics with or without inhibitors.

Course Outcomes (CO)

CO. PT 214.1: To **explain** and **understand** the chemistry and biological importance of biomolecules such as carbohydrate, amino acids and proteins, lipids, nucleic acids.

CO.PT 214.2: To **compare** and **identify** the importance of metabolism, bioenergetics in normal or various pathological conditions.

CO.PT 214.3: To **describe** the genetic organization of mammalian genome and **appreciate** the functions of DNA in the synthesis of RNAs and proteins.

CO.PT 214.4: To **illustrate** the catalytic role of enzymes, importance of enzyme inhibitors and coenzyme with examples, therapeutic and diagnostic applications of enzymes and isoenzyme.

10/01/18

10/01/18

PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206

Dr. B. C. Roy College of Pharmacy & AHS, Durgapur - 713206

Course Code: PT 214
Course Name: BIOCHEMISTRY (Theory)

CO Mapping against PO Attributes

CO →	CO1		CO2		CO3		CO4		CO5	
PO ↓	PO Attributes	Score	PO Attributes	Score	PO Attributes	Score	PO Attributes	Score	PO Attributes	Score
PO1	Know Comprehend Administer	3	Know Comprehend Administer	3	Know Comprehend Administer	3	Know Comprehend Administer	3	Know Comprehend Administer	
PO2	Plan Organise Develop	—	Plan Organise Develop	1	Plan Organise Develop	—	Plan Organise Develop		Plan Organise Develop	
PO3	Utilize Think Solve	—	Utilize Think Solve	—	Utilize Think Solve	—	Utilize Think Solve		Utilize Think Solve	
PO4	Learn Select Apply	2	Learn Select Apply	3	Learn Select Apply	3	Learn Select Apply	3	Learn Select Apply	
PO5	Motivate Build Participate	—	Motivate Build Participate	—	Motivate Build Participate	—	Motivate Build Participate		Motivate Build Participate	
PO6	Understand Analyze Communicate	—	Understand Analyze Communicate	—	Understand Analyze Communicate	—	Understand Analyze Communicate		Understand Analyze Communicate	
PO7	Honour Decide Apply	—	Honour Decide Apply	—	Honour Decide Apply	—	Honour Decide Apply		Honour Decide Apply	
PO8	Comprehend Write Present	-	Comprehend Write Present	—	Comprehend Write Present	—	Comprehend Write Present		Comprehend Write Present	
PO9	Reason Assess Take Responsibilty	3	Reason Assess Take Responsibilty	3	Reason Assess Take Responsibilty	3	Reason Assess Take Responsibilty	3	Reason Assess Take Responsibilty	
PO10	Understand Solve Demonstrate	2	Understand Solve Demonstrate	2	Understand Solve Demonstrate	2	Understand Solve Demonstrate	2	Understand Solve Demonstrate	
PO11	Recognize Engage Satisfy	3	Recognize Engage Satisfy	3	Recognize Engage Satisfy	3	Recognize Engage Satisfy	3	Recognize Engage Satisfy	

16/01/18

10/01/18

PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206

PT 214 BIOCHEMISTRY (Theory)

Table 1. Mapping between course objectives and course outcomes or COB-CO matrix of course- PT 214

COB	CO214.1	CO214.2	CO214.3	CO214.4
COB.PT 214.1	3	2	2	-
COB.PT 214.2	2	3	-	2
COB.PT 214.3	3	-	3	2
COB.PT 214.4	-	3	2	3
COB.PT 214N	2.7	2.7	2.5	2.3

Table 2. Mapping between course outcomes and program outcomes or CO-PO matrix of course- PT 214

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO.PT 214.1	3	-	-	2	-	-	-	-	3	2	3
CO.PT 214.2	3	-	-	3	-	-	-	-	3	2	3
CO.PT 214.3	3	-	-	3	-	-	-	-	3	2	3
CO.PT 214.4	3	-	-	3	-	-	-	-	3	2	3
CO.PT 214N	3	-	-	3	-	-	-	-	3	2	3

Table 3. Mapping between the PEOs and course outcomes or CO-PEO matrices of course- PT 214

CO	PEO1	PEO2	PEO3	PEO4	PEO5
CO.PT 214.1	3	3	2	3	-
CO.PT 214.2	3	3	2	3	-
CO.PT 214.3	3	3	2	3	-
CO.PT 214.4	3	3	2	3	-
CO.PT 214N	3	3	2	3	-

Note: Correlation levels 1, 2 or 3 as defined below: 1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

It there is no correlation, put '-'

10/01/18

10/1/18

PRINCIPAL

Dr. B. C. Roy College of Pharmacy & A.H.S.

Bidhannagar

Assessment tools	Frequency (Per SEM)	PEO1	PEO2	PEO3	PEO4	PEO5
Internal examinations	2	3	3	3	3	2
Quiz	2	3	3	3	2	3
Assignments	1	3	3	3	3	3
Project presentations	1 (Graduation Tenure)	3	3	3	2	3
Lab Viva-voce	Weekly	3	3	2	2	2
End-sem Examinations	1	3	3	3	2	2
AVERAGE		3	3	2.8	2.3	2.5

PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur-713206

Assessment tools vs PO

Assessment tools	Frequency (Per SEM)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
Internal examinations	2	3	2	2	-	-	3	2	3	2	2	3
Quiz	2	3	-	1	2	2	2	2	1	2	1	2
Assignments	1	3	3	3	3	3	3	2	3	2	2	3
Project presentations	1 (Graduation Tenure)	3	3	3	3	3	3	3	3	3	3	3
Lab Viva-voce	Weekly	3	1	2	2	1	2	2	2	2	2	3
End-sem Examinations	1	3	3	3	3	3	3	3	3	3	3	3

PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, Durgapur

PROGRAM EDUCATIONAL OBJECTIVES

1. To produce Under Graduates who would have developed a strong background in Pharmaceutical Sciences and ability to use these ideas in their chosen fields of specialization.
2. To produce Under Graduates who have the ability to demonstrate technical competence in the fields of Pharmaceutical Sciences.
3. To produce Under Graduates who would attain professional competence through life-long learning such as advanced degrees, professional registration and other professional activities.
4. To produce Under Graduates who function effectively in a different pharmaceutical field.
5. To produce Under Graduates who would be able to take individual responsibility and to work as a part of a team towards the fulfilment of both individual and organizational goals.

PRINCIPAL
Dr. B. C. Roy College of Pharmacy & A.H.S.
Bidhannagar, [illegible]

PT 214 BIOCHEMISTRY (Theory)

45 Hours

Scope: Biochemistry deals with complete understanding of the molecular levels of the chemical process associated with living cells. The scope of the subject is providing biochemical facts and the principles to understand metabolism of nutrient molecules in physiological and pathological conditions. It is also emphasizing on genetic organization of mammalian genome and hetero & autocatalytic functions of DNA.

Objectives: Upon completion of course student shell able to

1. Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
2. Understand the metabolism of nutrient molecules in physiological and pathological conditions.
3. Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

Course Content:

UNIT I 08 Hours

- **Biomolecules**

  Introduction, classification, chemical nature and biological role of carbohydrate, lipids, nucleic acids, amino acids and proteins.

- **Bioenergetics**

  Concept of free energy, endergonic and exergonic reaction, Relationship between free energy, enthalpy and entropy; Redox potential.

  Energy rich compounds; classification; biological significances of ATP and cyclic AMP

UNIT II 10 Hours

- **Carbohydrate metabolism**

  Glycolysis – Pathway, energetics and significance

  Citric acid cycle- Pathway, energetics and significance

  HMP shunt and its significance: Glucose-6-Phosphate dehydrogenase (G6PD) deficiency

  Glycogen metabolism Pathways and glycogen storage diseases (GSD)

  Gluconeogenesis- Pathway and its significance

  Hormonal regulation of blood glucose level and Diabetes mellitus

- **Biological oxidation**

  Electron transport chain (ETC) and its mechanism.

PT 214 BIOCHEMISTRY (Theory)

45 Hours

Scope: Biochemistry deals with complete understanding of the molecular levels of chemical process associated with living cells. The scope of the subject is provide the biochemical facts and the principles to understand metabolism of nutrient molecules in physiological and pathological conditions. It is also emphasizing on genetic organization of mammalian genome and hetero & autocatalytic functions of DNA.

Objectives: Upon completion of course student shell able to

1. Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
2. Understand the metabolism of nutrient molecules in physiological and pathological conditions.
3. Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

Course Content:

UNIT I

08 Hours

- **Biomolecules**

  Introduction, classification, chemical nature and biological role of carbohydrate, lipids, nucleic acids, amino acids and proteins.

- **Bioenergetics**

  Concept of free energy, endergonic and exergonic reaction, Relationship between free energy, enthalpy and entropy; Redox potential.

  Energy rich compounds; classification; biological significances of ATP and cyclic AMP

UNIT II

10 Hours

- **Carbohydrate metabolism**

  Glycolysis – Pathway, energetics and significance

  Citric acid cycle- Pathway, energetics and significance

  HMP shunt and its significance. Glucose-6-Phosphate dehydrogenase (G6PD) deficiency

  Glycogen metabolism Pathways and glycogen storage diseases (GSD)

  Gluconeogenesis- Pathway and its significance

  Hormonal regulation of blood glucose level and Diabetes mellitus

- **Biological oxidation**

  Electron transport chain (ETC) and its mechanism

Oxidative phosphorylation & its mechanism and substrate level phosphorylation

Inhibitors ETC and oxidative phosphorylation/Uncouplers

UNIT III **10 Hours**

- **Lipid metabolism**

β-Oxidation of saturated fatty acid (Palmitic acid)

Formation and utilization of ketone bodies; ketoacidosis De novo synthesis of fatty acids (Palmitic a

Biological significance of cholesterol and conversion of cholesterol into bile acids, steroid hormone and vitamin D

Disorders of lipid metabolism: Hypercholesterolemia, atherosclerosis, fatty liver and obesity.

- **Amino acid metabolism**

General reactions of amino acid metabolism: Transamination, deamination & decarboxylation, urea cycle and its disorders

Catabolism of phenylalanine and tyrosine and their metabolic disorders (Phenyketonuria, Albinism, alkeptonuria, tyrosinemia)

Synthesis and significance of biological substances; 5-HT, melatonin, dopamine, noradrenaline, adrenaline

Catabolism of heme; hyperbilirubinemia and jaundice

UNIT IV **10 Hours**

- **Nucleic acid metabolism and genetic information transfer**

Biosynthesis of purine and pyrimidine nucleotides

Catabolism of purine nucleotides and Hyperuricemia and Gout disease

Organization of mammalian genome

Structure of DNA and RNA and their functions

DNA replication (semi conservative model)

Transcription or RNA synthesis

Genetic code, Translation or Protein synthesis and inhibitors

UNIT V

07 Hours

- **Enzymes**

  Introduction, properties, nomenclature and IUB classification of enzymes

  Enzyme kinetics (Michaelis plot, Line Weaver Burke plot)

  Enzyme inhibitors with examples

  Regulation of enzymes: enzyme induction and repression, allosteric enzymes regulation

  Therapeutic and diagnostic applications of enzymes and isoenzymes

  Coenzymes –Structure and biochemical functions

PT 297 BIOCHEMISTRY (Practical)

4 Hours / Week

1. Qualitative analysis of carbohydrates (Glucose, Fructose, Lactose,Maltose, Sucrose and starch)
2. Identification tests for Proteins (albumin and Casein)
3. Quantitative analysis of reducing sugars (DNSA method) and Proteins (Biuret method)
4. Qualitative analysis of urine for abnormal constituents
5. Determination of blood creatinine
6. Determination of blood sugar
7. Determination of serum total cholesterol
8. Preparation of buffer solution and measurement of pH
9. Study of enzymatic hydrolysis of starch
10. Determination of Salivary amylase activity
11. Study the effect of Temperature on Salivary amylase activity.
12. Study the effect of substrate concentration on salivary amylase activity.

LESSON PLAN: Biochemistry
Paper code: PT 214 **B. Pharm. 1st Year 2nd Semester**

No. of Classes/ week: 3+1T

CLASS	MODULE	TOPICS
1	UNIT 1	Introduction, classification, chemical nature and biological role of carbohydrate, lipids, nucleic acids, amino acids and proteins
2	UNIT 1	Concept of free energy, endergonic and exergonic reaction
3	UNIT 1	Relationship between free energy, enthalpy and entropy; Redox potential
4	UNIT 1	Energy rich compounds; classification; biological significances of ATP and cyclic AMP
5	UNIT 2	Glycolysis- Pathway, energetics and significance
6	UNIT 2	Citric acid cycle- Pathway, energetics and significances
7	UNIT 2	HMP shunt and its significances; Glucose-6-phosphate dehydrogenase (G6PD) deficiency
8	UNIT 2	Glycogen metabolism pathways and glycogen storage diseases (GSD)
9	UNIT 2	Gluconeogenesis- Pathway and its significances
10	UNIT 2	Hormonal regulation of blood glucose level and Diabetes mellitus
11	UNIT 2	Electron transport chain (ETC) and its mechanism
12	UNIT 2	Oxidative Phosphorylation and its mechanism, substrate level phosphorylation
13	UNIT 2	Inhibitors of ETC and oxidative phosphorylation/ Uncouplers
14	UNIT 3	β- Oxidation of saturated fatty acid (Palmitic acid)
15	UNIT 3	Formation and utilization of ketone bodies; ketoacidosis, De novo synthesis of fatty acids (Palmitic acid)
16	UNIT 3	Biological significance of cholesterol and conversion of cholesterol into bile acids, steroid hormone and Vit. D
17	UNIT 3	Disorders of lipid metabolism: Hypercholesterolemia, atherosclerosis, fatty liver and obesity
18	UNIT 3	General reactions of amino acid metabolism: Transamination, deamination & decarboxylation, Urea cycle and its disorders
19	UNIT 3	Catabolism of Phenylalanine and Tyrosine and their metabolic disorders (Phenyketonuria, Albinism, Alkeptonuria, Tyrosinemia)
20	UNIT 3	Catabolism of Phenylalanine and Tyrosine and their metabolic disorders (Phenyketonuria, Albinism, Alkeptonuria, Tyrosinemia)
21	UNIT 3	Synthesis and significance of biological substances; 5-HT, melatonin, dopamine, noradrenaline and adrenaline

22	UNIT 3	Catabolism of heme, hyperbilirubinemia and jaundice
23	UNIT 4	Biosynthesis of Purine and Pyrimidine nucleotides; Catabolism of Purine nucleotides and Hyperuricemia and Gout
24,25	UNIT 4	Disease organization of mammalian genome
26,27,28	UNIT 4	Structure of DNA and RNA, their functions, DNA replication (semi-conservative model), transcription and RNA synthesis
29,30,31	UNIT 5	Introduction, Properties, nomenclature and IUB classification of enzymes, Enzyme kinetics (Michaelis plot, Line Weaver Burke plot)
32	UNIT 5	Enzyme inhibitors with example
33	UNIT 5	Regulation of Enzymes: Enzyme induction and repression, allosteric enzymes regulation
34,35	UNIT 5	Therapeutic and diagnostic applications of enzymes and isoenzymes
36	UNIT 5	Co-enzymes: Structure and biochemical functions
37-45	-----	REVISION/TUTORIAL

Prepared By	Approved By
10/01/2018	14/01/18
(DR. PARTHASARATHI PANDA) Asst. Professor, BCRCP	(PROF. SUBHARATA RAY) Principal, BCRCP

DR. B.C. ROY COLLEGE OF PHARMACY AND AHS

DURGAPUR-713206

STUDY MATERIAL CONTENTS OUTLINE

PAPER- BIOCHEMISTRY (Theory) **PAPER CODE- PT 214**

UNIT I

Biomolecules

1. Introduction to Biochemistry and Biomolecules will discuss from Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005. Definition, classification, chemical nature and biological role of carbohydrate, lipids, nucleic acids, amino acids and proteins will discuss to the students through preparing PowerPoint (ppt slide) by taking materials from the following books:

- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 9-26.
- Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005, pp 238-272.
- Chatterjea M. N., Shinde R. Textbook of Medical Biochemistry, 8th Edn., Jaypee Brother Medical Publishers (P) Ltd., New Delhi, 2012, pp 23-43.
- Harper's Biochemistry. 26th edition / R. K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell, 2003, pp 102-110.

2. Introduction, definition, classification, chemical nature and biological importance of lipids will discuss to the students through preparing PowerPoint (ppt slide) by taking materials from the following books:

- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 28-41.
- Chatterjea M. N., Shinde R. Textbook of Medical Biochemistry, 8th Edn., Jaypee Brother Medical Publishers (P) Ltd., New Delhi, 2012, pp 45-64.

3. Definition, classification, chemical nature and biological role of nucleic acids will discuss to the students through preparing PowerPoint (ppt slide) by taking materials from the following books:

- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 69-83.
- Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005, pp 273-300.
- Chatterjea M. N., Shinde R. Textbook of Medical Biochemistry, 8th Edn., Jaypee Brother Medical Publishers (P) Ltd., New Delhi, 2012, pp 215-224.
- Harper's Biochemistry. 26th edition / R. K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell, 2003, pp 286-292.

4. Definition, classification, chemical nature and biological role of amino acids and proteins will discuss to the students through preparing PowerPoint (ppt slide) by taking materials from the following books:

- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 43-67.
- Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005, pp 75-189.
- Chatterjea M. N., Shinde R. Textbook of Medical Biochemistry, 8th Edn., Jaypee Brother Medical Publishers (P) Ltd., New Delhi, 2012, pp 76-94.

Bioenergetics

Introduction, definition of bioenergetics, free energy, Concept of Energy rich compounds, endergonic and exergonic reaction, Relationship between free energy, enthalpy and entropy, Redox potential, Energy reach compounds, classification; biological significances of ATP and cyclic AMP will discuss to the students through preparing PowerPoint (ppt slide) by taking materials from the following books:

- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 221-224.
- Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005, pp 489-507.
- Harper's Biochemistry. 26th edition / R. K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell, 2003, pp 80-85.

UNIT II: Carbohydrate metabolism

Introduction to metabolism and carbohydrate metabolism, Pathway, energetics and significance of Glycolysis and Citric acid cycle, HMP shunt and its significance, Glucose-6-Phosphate dehydrogenase (G6PD) deficiency, Glycogen metabolism Pathways and glycogen storage diseases (GSD), Gluconeogenesis- Pathway and significance, Hormonal regulation of blood glucose level and Diabetes mellitus will discuss to the students through preparing PowerPoint (ppt slide) by taking materials from the following books:

- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 244-283.
- Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005, pp 521-630.
- Chatterjea M. N., Shinde R. Textbook of Medical Biochemistry, 8th Edn., Jaypee Brother Medical Publishers (P) Ltd., New Delhi, 2012, pp 326-388.
- Harper's Biochemistry. 26th edition / R. K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell, 2003, pp 122-172.

Biological oxidation

Introduction to biological oxidation, Electron transport chain (ETC) and its mechanism, Oxidative phosphorylation & its mechanism and substrate level phosphorylation, Inhibitors ETC and oxidative phosphorylation/Uncouplers will discuss to the students through preparing PowerPoint (ppt slide) by taking materials from the following books:

- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 224-237.
- Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005, pp 238-272.
- Chatterjea M. N., Shinde R. Textbook of Medical Biochemistry, 8th Edn., Jaypee Brother Medical Publishers (P) Ltd., New Delhi, 2012, pp 507-520.
- Harper's Biochemistry. 26th edition / R. K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell, 2003, pp 86-91.

UNIT III: Lipid metabolism

Introduction to lipid metabolism, β-Oxidation of saturated fatty acid (Palmitic acid), Formation and utilization of ketone bodies, ketoacidosis De novo synthesis of fatty acids (Palmitic acid), Biological significance of cholesterol and conversion of bile acids, steroid hormone and vitamin D cholesterol into Disorders of lipid metabolism: Hypercholesterolemia, atherosclerosis, fatty liver and obesity will discuss by preparing delivering notes by consulting the following books:

- Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005, pp 631-655.
- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 285-328.
- Chatterjea M. N., Shinde R. Textbook of Medical Biochemistry, 8th Edn., Jaypee Brother Medical Publishers (P) Ltd., New Delhi, 2012, pp 399-460.
- Harper's Biochemistry. 26th edition / R. K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell, 2003, pp 180-229.

Amino acid metabolism

Introduction to amino acid metabolism, General reactions of amino acid metabolism: Transamination, deamination & decarboxylation, urea cycle and its disorders, Catabolism of phenylalanine and tyrosine and their metabolic disorders (Phenyketonuria, Albinism, alkeptonuria, tyrosinemia), Synthesis and significance of biological substances such as 5-HT, melatonin, dopamine, noradrenaline, adrenaline; Catabolism of heme; hyperbilirubinemia and jaundice will discuss to the students through preparing PowerPoint (ppt slide) by taking materials from the following books:

- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 330-378.

- Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005, pp 833-861.
- Chatterjea M. N., Shinde R. Textbook of Medical Biochemistry, 8th Edn., Jaypee Brother Medical Publishers (P) Ltd., New Delhi, 2012, pp 471-528.
- Harper's Biochemistry. 26th edition / R. K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell, 2003, pp 242-269.

UNIT IV: Nucleic acid metabolism and genetic information transfer

Biosynthesis of purine and pyrimidine nucleotides, Catabolism of purine nucleotides and Hyperuricemia and Gout disease, Organization of mammalian genome, Structure of DNA and RNA and their functions, DNA replication (semi conservative model), Transcription or RNA synthesis, Genetic code, Translation or Protein synthesis and inhibitors will discuss to the students through preparing PowerPoint (ppt slide)/lecture notes by taking materials from the following books:

- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 387-400, 523-576.
- Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005, pp 861-878.
- Chatterjea M. N., Shinde R. Textbook of Medical Biochemistry, 8th Edn., Jaypee Brother Medical Publishers (P) Ltd., New Delhi, 2012, pp 260-285, 293-297.
- Harper's Biochemistry. 26th edition / R. K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell, 2003, pp 293-373.

UNIT V: Enzymes

Introduction, properties, nomenclature and IUB classification of enzymes, definition of enzyme, holoenzyme, apoenzyme, isoenzyme and coenzyme, Enzyme kinetics (Michaelis plot, Line Weaver Burke plot), Enzyme inhibitors with examples, Regulation of enzymes: enzyme induction and repression, allosteric enzymes regulation, Therapeutic and diagnostic applications of enzymes and isoenzymes, Structure and biochemical functions of coenzymes will discuss by preparing delivering notes by consulting the following books:

- Lehninger A. Principles of Biochemistry. – New York. – W.H. Freeman and Company. 2005, pp 190-233.
- Satyanarayana U., Chakrapani U. "Biochemistry", 4th Edn, Elsevier, New Delhi, 2013, pp 9-26.
- Chatterjea M. N., Shinde R. Textbook of Medical Biochemistry, 8th Edn., Jaypee Brother Medical Publishers (P) Ltd., New Delhi, 2012, pp 121-133.