



PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. under the Panjab University Act VII of 1947 - enacted by the Govt. of India)

FACULTY OF PHARMACEUTICAL SCIENCES

SYLLABI & REGULATIONS

FOR

MASTERS OF PHARMACY (M. PHARM.)

CREDIT BASED SEMESTER SYSTEM

FOR THE EXAMINATION, 2014-2015

--:α:--

**APPLICABILITY OF REGULATIONS FOR THE TIME
BEING IN FORCE**

Notwithstanding the integrated nature of a course spread over

SEMESTERWISE DISTRIBUTION OF MARKS AND CREDITS

SEMESTER	THEORY			PRACTICAL			TOTAL MARKS	TOTAL CREDITS
	NUMBER OF PAPERS	MARKS	CREDITS	NUMBER OF PAPERS	MARKS	CREDITS		
Semester-I	4	375	15	2	250	10	25	25
Semester-II	4	375	15	1	250	10	25	25
Semester-III ! "	-	-	-	#T\$es% ! "%'	-	50	-	50

(ii)

MASTER OF PHARMACY (M. PHARM.) (SEMESTER SYSTEM)

PROGRAM - 4# M. PHARM. (PHARMACOLOGY)

SCHEME OF TEACHING AND EXAMINATION

PS#	SC#	TH/0 H5(267&&8	C#1,2	E3\$4./\$.5/ M\$'82
FIRST SEMESTER				
THEORY				
MPCOL-1041	Pharmacology	3-1.T/t0%12	-	4 - 100
MPCOL-1042	Pharmacology	3-1.T/t0%12	-	4 - 100
MPCOL-104	Pharmacology	3-1.T/t0%12	-	4 - 100

(vi)

MASTER OF PHARMACY (M. PHARM.) (SEMESTER SYSTEM)

COURSE - 5 # M. PHARM. (PHARMACEUTICAL ANALYSIS AND QUALITY ASSURANCE)

SCHEME OF TEACHING AND EXAMINATION

PS&&'

SO*&+,

T&\$+-. /0

C*&1.,2

! RO''P - :# M. PHARM. (DR''! DISCOVERY AND DR''! DECELOPMENT)
SCHEME OF TEACHIN! AND EXAMINATION

P\$%&'	S() *&+,	T&\$+-. /0 H5('267 &&8		C' &1.,2		E3\$4./\$.5/ M\$'82
FIRST SEMESTER						
THEORY						
MPDRD-10: 1	Dr/+ D%*0&er, Pr0*ess	3-1.T/t0r% 12	-	4	-	100
MPDRD-10: 2	Pre*1%)%'1Dr/+ D%*0&er, ')(Dr/+ De&e106me)t	3-1.T/t0r% 12	-	4	-	100
MPDRD-10:	P\$' rm' *08%) et%'s ')(P\$' rm' *0(,) 'm% s %) Ne7 Dr/+ De&e106me)t	3-1.T/t0r% 12	-	4	-	100
MPCOM-1071	M0(er) A)'1, t%'1') (P\$' rm' *e/t%'1 Te*\$) %/es	3	-	3	-	75
PRACTICAL						
MPDRD-11: 1	Dr/+ D%*0&er, Pr' *t%'1-I	-	5	-	-	150
MPCOM-1171	M0(er) A)'1, t%'1') (P\$' rm' *e/t%'1 Te*\$) %/es Pr' *t%'1	-	-	4	-	100
T5,\$9		15	14	15	10	:25

T5,\$9 -5('2#2; < T5,\$9 C' &1.,2 25

SECOND SEMESTER
THEORY

MPDRD-20: 1	Dr/+ Des%) ')(De&e106me)t	3-1.T/t0r% 12	-	4	-	100
MPDRD-20: 2	C1%)%'1Dr/+ De&e106me)t	3-1.T/t0r% 12	-	4	-	100
MPDRD-20:	Dr/+ De1%&er, lss/es %) Ne7 Dr/+ De&e106me)t	3-1.T/t0r% 12	-	4	-	100
MPCOM-2084	l) tefle*t/'1Pr06ert, R% \$ts ')(Dr/+ Re+/1' t0r, A33' %s	3	-	3	-	75
PRACTICAL						
MPDRD-21: 1	Dr/+ D%*0&er, Pr' *t%'1-II	-	14	-	10	250
T5,\$9		15	14	15	10	:25

T5,\$9 -5('2#2; < T5,\$9 C' &1.,2 25

THIRD > FO''RTH SEMESTER

T\$%(')(30/rt\$ semester s\$' 1l *0m6r%e 03 rese' r*\$ 70r80)1,9
T\$e e:' m%)' t%0) s\$' 1l *0)s%t 03 t\$es% s/; m%te(' t t\$e e) (03 30/rt\$ semester ')(6rese)t' t%0) % t\$e 06e) sem%)' r9
T\$e res/1t 03 t\$e e:' m%)' t%0) 7%1; e +&e) 's 6' ss Or 3' % 7%\$0/t m' r8s9

SYLLABUS FOR MASTER OF PHARMACY (M. PHARM.)

COURSE - I# M. PHARM. (PHARMACEUTICAL CHEMISTRY)

SEMESTER-I

MPCHM-1011# A1?\$/+&1 O'0\$/.+ C-&4.2, '@-I

4. S,&'&5+-&4.2,'@

Elleme)ts 03 s,mmetr,@P1')e 03 s,mmetr,')(*e)ter 03 s,mmetr,>'1ter)'t%)+':% 03
s,mmetr,> s%6le ':% 03 s,mmetr,9 K%) (s 03 m0le*/les (%61',%) + 06t%'1 '*t%%,@
*0m60/)(s 7%\$ ' *\$%'1 '*r;0) 't0m> *0m60/)(s 7%\$ 0t\$er 4/'(r%&'1e)t *\$%'1
't0ms> *0m60/)(s 7%\$ ter&'1e)t *\$%'1 't0ms s/%';1, s/;st%/te('('m')t')es9
06t%'1 %0mer%m %) *0m60/)(s *0)t'%)%+)0 *\$%'1 't0m@ ;%\$e),1s> '1le)es>
0m60/)(s 7%\$ e:0,1% (0/;1e ;0)(s> s6%'')es> *\$%'1%, (/e t0 ' \$e1%'1 s\$'6e>
*\$%'1%, */se(;, restr%te(r0t't%0) 03 0t\$er t,6es9 C%-tr')s %0mer%m@res/1t%)+
3r0m (0/;1e ;0)(s> m0)0*, *1% *0m60/)(s> 3/se(r%) + s, stems> 0/t-%) %0mer%m9
E')t%0t06%'')((%stere0t06%' 't0ms>+r0/6s')(3' *es9 C\$%'1%, ')(%m60rt')*e 03
\$%'1 (r/+s> te\$%)%/es 30r 6re6'r%) + *\$%'1 (r/+s .*\$%'1%, 6001> e)<,m't%
tr')s30rm't%0)')('ss,metr% s,)t\$es%29

.15 Le*t/res2

5. R&\$+,.?&l/,&'4&1.\$,&2

=e)er't%0) 03 '*r;0*'t%0)> '*r;'')%0)s> '*r;e)es>)%re)esA)%re)%/m %0)s ')(3ree

R&\$1./0 M\$, &' . \$9 R&+544&/1&1 #

- 19 C' re, F9A9 ') (S/) (; er+ R99 A(&') *e(Or+')% C\$em%tr, 9 P' rt B@Re' *t%0)s ') (S,)t\$es%9 P1e) /m Press>L0) (0)9 L' test E(%%0)9
- 29 Er)est E919 ') (S' m/el B9 Stere0*\$em%tr, 03 Or+')% C0m60/) (s9 00\$) D%e, ') (S0)s> Ne7 E0r89 L' test E(%%0)9
- 39 Le\$r R9E9 ') (M' r*\$') (A9P9 Or; %'1 S, mmetr, @A Pr0; lem S01&%) + A66r0' *\$9 A*' (em% Press> Ne7 E0r89 L' test E(%%0)9
- 49 M' r*\$ 09 A(&') *e(Or+')% C\$em%tr, @Re' *t%0)s> Me*\$')%ms ') (Str/*t/res9 00\$) D%e, ') (S0)s> Ne7 E0r89 L' test E(%%0)9

MPCHM-1012# A1?\$/+&2 ./ C-&4.2, '@ 5B N\$, ('\$9 P'51(+,2

4 -5 ('26E&&8

1. C1'ss%%' t%0)> met\$0(03 %01' t%0)> *\$em%tr, ') (; %010+% '1 ' *t%&%, 03 '18'10%(s> ter6e)0%(s>31' &0)0%(s> *0/m' r%) s9

R&\$1./0 M\$, &' . \$9 R&+544&/1&1 #

- 19 C0r(e1l =9A9l)tr0(/*t%) t0 A18'10%(s9C0\$) D%e, ') (S0)s>Ne7 E0r89L' test E(%%)9
- 29 F%eser L9F9 ') (F%eser M9Ster0%(s9Re%) \$01(P/; 1%\$%) + C0%>Ne7 E0r89L' test E(%%)9
- 39 D%8er, M9L9 ') (D%8er, B9Se*0) ('r, P1')t Met' ; 01%m9 M*m%1') Press Lt(9L0) (0)9L' test E(%%)9
- 49 T0rsee1 K9B9=9N' t/r'1Pr0(/*t C\$em%tr, 9C0\$) D%e, ') (S0)s>Ne7 E0r89L' test E(%%)9
- 59 B' r; 0r)e C9B9P\$, t0*\$em%'1Met\$0(s9C\$'6m') ') (B' 1l>L0) (0)9L' test E(%%)9
9 F% ' r l9L9Or+')% C\$em%tr, 9T\$e E)+1%\$ L')+/' +e B008 S0*%et, >L0) (0)9L' test E(%%)9
- 79 D0133 M9E9 B/r+erls Me(%%)'1 C\$em%tr, ') (Dr/+ D%*0&er, >Pr% %%1e ') (Pr' *t%e9 C0\$) D%e, ') (S0)s>Ne7 E0r89L' test E(%%)9
- 59 M%\$*Ser L9A9 ') (B' 8er D9R9 A Se' r*\$ 30r N0&e1C\$em0tSer' 6, A+' %st T/; er*/10s% Am0)+st N' t/r'1Pr0(/*ts9P/re ') (A661%e(C\$em%tr, .1JJ52>"01970>N092>66 3 5-3719
- J9 Derm/t\$ C=9T\$e Pr' *t%e 03 Me(%%)'1 C\$em%tr, 9A*' (em% Press>C0r(0) B%1>O:30r(9L' test E(%%)9
- 109 B01(%AM9 C0m; %)' t0r%1 S,)t\$es% 03 N' t/r'1 Pr0(/*t B' se(L% r' r%es9 T' ,10r ') (Fr') *%>L0) (0)9L' test E(%%)9
- 119 M0)0+r' 6\$S ') (rele&') t re&%e7 ' rt%1es ' 66e' r%+ %) &' r%0/s 6er%0(%' 1s ') (K0/r)' 1s9

MPCHM-101 # A1?\$/+&2 ./ M&1.+/\$9C-&4.2, '@- l

. ! &/&,+ E/0./&&'./0

B' s% 6r% *%les> %n60rt')t t00ls 03 +e)et% e)+%eer%)+> restr%t% e)(0)/*1e' ses>
 DNA 1%' se> *10)% + &e*t0r> tr')s*r%t%>re*0m;% ')t DNA> *10)% + 03 +e)e> (ete*t%)
 ')(6/r%t%) 03 (es%e(*10)e> e:6ress%) 03 (e

R&\$1./0 M\$, &' . \$9 R&+544&/1&1 #

- 19 D0133 M9E9 B/r+erls Me(%)'1 C\$em%tr, ')(Dr/+ D%*0&er, > Pr% *%1e ')(Pr' *t%e9 (0\$) D%e, ')(S0)s>Ne7 E0r89 L' test E(%%)9
- 29 A1)1e, D9 ')(C' mes E9F9 M' rt% ('1e> T\$e E:tr' P\$' rm' *060e%9 P\$' rm' *e/t%'1 Press> L0) (0)9 L' test E(%%)9
- 39 D%1% ms D9A9 Lem8e TL9 F0, els Pr% *%1es 03 Me(%)'1 C\$em%tr, 9 L%6% *0tt D%1% ms ')(D%8%)s>P\$%' (e16\$% 9 L' test E(%%)9
- 49 M0)0+r' 6\$ \$ ')(re1e&')t re&%7 ' rt%1es ' 66e' r%)+ % &' r%0/s 6er%0 (%'1s ')((0/r)'1s9
- 59 Fr')8e R9 T\$e0ret%'1 Dr/+ Des%) Met\$0 (s> "019 "119 Else&%r>Ne7 E0r89 L' test E(%%)9
- 9 S%&erm') R9B9 T\$e Or+')% C\$em%tr, 03 Dr/+ Des%) ')(A*t%0)9 A*' (em% Press l) *9> S') D%e+0> USA9 L' test E(%%)9

MPCOM-1071# M51&' / A/\$9@, .+\$9 \$/1 P-\$' 4\$+& (, .+\$9 T&+- / .D(&2

-5 ('26E&&8

A. A1?\$/+&1 S, \$, .2, .+2

=e)er'1 *0)*e6ts>t70-t' % st/(e)t t-test ')(6' %e(s' m61e t-test>t70 s' m61es t-test> D%*0:0) r')8-s/m test> M'))-D\$%)e, test> 0)e-7', ')'1, s% 03 &' r%)*e> Kr/s8' 1-D' 11% test>t70-7', ')'1, s% 03 &' r%)*e> m/1t%1e *0m6' r%0) 6r0*e(/res %) ANO''A@ F%*\$erls LSD test> T/8e, ls st/(e)t%e(r') +e test ')(D/))ettls test9 NO)-1%e' r re+ress%0)@l)tr0(/*t%0)>%er' t%e met\$0(9

. Le*t/res2

B. P-\$' 4\$+& (, .+2

1. B' s% eleme)ts 03 NO&e1 (r/+ (e1%&er, s, stems9
2. B%0' &' %' ; %%, ')(; %0e4/%&'1e)*e test%)+> s%)%%%') *e 03 term%010+, > *0) (/ *t 03 ; %0' &' %' ; %%, tr%1s9
- . l)tr0(/*t%0) t0 &' 1%(' t%0) 03 m')/3' *t/r%)+ 3' *%1%es l9?9 A O9?9 ')((*ert%%' t%0)> 6re6' r' t%0) 03 &' 1%(' t%0) 6r0t0*01s9
4. St' ; %%, test%)+@B' *8+r0/)(')(*0)*e6t ')'1, s%> ICB +/%(e1%&es> (eterm%0' t%0) 03 s\$e13 1%e>+e)er'1 st' ; %%, ' s6e*ts 6ert' %)+ t0 API>30rm/1' t%0)s9

.10 Le*t/res2

C. P-\$' 4\$+& (, .+\$9 C-&4.2, '@

1. l/B'\$&1 S%&+, '52+5%@

l)tr0(/*t%0)>t\$e %3r're(' ; s0r6t%0) 6r0*ess>t\$e m0(es 03 &% r' t%0)s> stret*\$%)+ ')(; e)(%)+> ; 0)(6r06ert%es ')(' ; s0r6t%0) tre)(s> ; 's% s 03 % str/me)t' t%0) te*\$%)%/es>6\$' rm' *e/t%'1' 661%' t%0)s9

.2 Le*t/res2

MPCHM-2012 6 MP=" A-2052# A1?\$/+&1 A/\$9@,+\$9T&+-.D(&2

4 -5('26E&&8

l)tr0(/*t%0) t0 IR>U">NMR ') (MASS s6e*tr0s*06, % *0&ere(%) lst Semester9

MASTER OF PHARMACY (M. PHARM.) (SEMESTER SYSTEM)

79 A(&')*es % me(%%)'1 *\$em%tr, 03 *'r(%D&'s*/1'r '+e)ts> ')t% rr\$,t\$m%\$s> ')t%) +%)'1> ')t\$,6erte)s%e> ')t\$,6er1%%(em%\$s> FDA '66r0&e((r/+s>)e7 m0le*/les /) (er *1%)%'1 tr% 1s9

. Le*t/res2

59 A)t(%; et%\$s .1' test ' (&')*es ') (FDA '66r0&e((r/+s29

.2 Le*t/res2

J9 C\$em%'1*0)tr' *e6t%es .1' test ' (&')*es ') (FDA '66r0&e((r/+s29

.2 Le*t/res2

109 C/rre)t s*e)'r%D 03 (r/+ (%*0&er, %))'t%D)'1 rese'r*\$ 1';Or't0r%es ') (l)(%) 6\$'rm' *e/t%'1% (/str,9

.2 Le*t/res2

R&\$1./0 M\$,&'. \$9R&+544&/1&1#

19 D0133 M9E9 B/r+erIs Me(%%)'1 C\$em%tr, ') (Dr/+ D%*0&er,> Pr%)*%1e ') (Pr' *t%e9 C0\$) D%e, ') (S0)s>Ne7 E0r89L' test E(%%)9

29 A1)le, D9 ') (C' mes E9F9 M'rt%) ('1e> T\$e E:tr' P\$'rm' *060e%9 P\$'rm' *e/t%'1 Press> L0)(0)9L' test E(%%)9

39 NO+r' (, T9 Me(%%)'1 C\$em%tr,>A B%D*\$em%'1 A66r0'*\$9 O:30r(U)%ers%, Press>Ne7 E0r89 L' test E(%%)9

49 M0)0+r' 6\$'s ') (re1e&')t re&%e7 'rt%1es '66e'r%)+ % &'r%D/s 6er%D(%'1s ') (K0/r)'1s9

59 D%1% ms D9A9 Lem8e T9L9 FO, els Pr%)*%1es 03 Me(%%)'1 C\$em%tr,9 L%6%) *0tt D%1% ms ') (D%8%)s>P\$%' (e16\$%9L' test E(%%)9

MPCOM-2084@ I/,&99&+, (\$9 P'5%&',@ R.0-,2 \$/1 D'(0 R&0(9\$,5'@ ABB\$. '2

-5('26E&&8

PART A# I/,&99&+, (\$9 P'5%&',@ R.0-,2

1. I/,&99&+, (\$9 P'5%&',@ C0)*e6ts ') (3/) ('me)t'1s@T\$e emer+e)*e ') (+r07t\$ 03 t\$e *0)*e6ts re+r(%) + %telle*t/'1 6r06ert, .IP2> %telle*t/'1 6r06ert, 6r0te*t%D) .IPP2 ') (%telle*t/'1 6r06ert, r%-\$ts .IPR2F e*0)0m% %m60rt')*e> me*\$')%m 30r 6r0te*t%D) 03 %telle*t/'1 6r06ert,-6'te)ts> *06,r%-\$t> tr' (em' r8sf r01e 03 IP % 6\$'rm' *e/t%'1 % (/str,F+10; '1r' m%%%' t%D)s ') (3%)') *%1% m61%' t%D)s9

. Le*t/res2

29 Dr/+ re+/1' t0r, *0) tr01s ') (' /t\$0r%es9

39

- 29 Be*8ett A9B9 ')(Ste)1' 8e C9B9 Pr' *t%'1 P\$' rm' *e/t%'1 C\$em%tr,@P' rt l> At\$10)e Press9
L' test E(%%0)9
- 39 M')) F9=9 ')(S' /)(ers B9C9 Pr' *t%'1 Or+')% C\$em

SEMESTER III > IC

Rese' r*\$ 70r8 (/r%) + t\$(') (30/rt\$ semester9

T\$e e:'m% 't%) s\$'11 *0)s%t 03 t\$es% s/;m%te('t t\$e e) (03 30/rt\$ semester ') (6rese)t' t%) % t\$e 06e) sem% ' r9

T\$e res/lt 03 t\$e e:'m% 't%) 7%1 ; e +%e) 's 6' ss 0r 3' % 7%\$0/t m' r8s9

VVVVVVVVVVVVVVVVVVV

! RO" P-2# M. PHARM. (PHARMACE" TICS)

SEMESTER-I

MPCE"-1021#	D52\$0& F5' 4 D&2.0/ \$/1 D&?&95%4&/,
MPCE"-1022#	A1?\$/+&2 ./ D' (0 D&9.?&'@-l
MPCE"-102 #	A1?\$/+&1 P-\$' 4\$+58./&,.+2 > B.5%-\$' 4\$+&(.+2GI
MPCOM-1071#	M51&' / A/\$@,.\$9\$/1 P-\$' 4\$+&(.+\$9 T&+-/.D(&2
MPCE"-1121#	P-\$' 4\$+&(.+2 P'\$+,.\$9-l
MPCOM-1171#	M51&' / A/\$@,.\$9\$/1 P-\$' 4\$+&(.+\$9 T&+-/.D(&2 P'\$+,.\$9

MPCE"-1021# D52\$0& F5' 4 D&2.0/ \$/1 D&?&95%4&/,

4 -5 ('26E&&8

1. P'&B5' 4 (9\$, .5/ S, (1.&2

l)tr0(/*t0)> +0' ls 03 6re30rm/1' t0)> 6\$,s%0*\$em%'1 6r06ert%es> *r%er% 30r
sele*t0) 03 (r/+ ') (e: *%e)ts> *0m6' t% %%, tests9

.4 L0)5178(&)3.41797 (2)0.7

MASTER OF PHARMACY (M. PHARM.) (SEMESTER SYSTEM)

MPCE"-1022#

A1?\$/+&2 ./ D' (0 D&9.?&'@-l

4 -5('26E&&8

1. F/)('me)t'ls 03 *0)tr01le(rele'se .CR2 (r/+ (e1%er,@ R't%)'le 03

MPCE''-102 # A1?\$/+&1 P-\$' 4\$+58./&,.+2 > B.5%-\$' 4\$+&(,.-2-l

4 -5('26E&&8

1. C54%\$' ,4&/,\$9P-\$' 4\$+58./&,.+2

Re&%7 03 3/)('me)t'ls> term%010+,> ;'s% s 03 8%et% s 301107%)+ s%)+1e (Ose ' (m%)%tr' t%0) t\$R0/+\$ %st')t')e0/s ') ()0)-%st')t')e0/s r0/tes .1%e %&&9 ;01/s> %&&9 %3/s%0)> 6er0r'12 /s%)+ ser/m ') (/r%)e 1e&els> 0)e ') (m/1t%*0m6' rtme)t'1 8%et% s> m/1t%1e (Ose ' (m%)%tr' t%0)> s/6er60s%0) r/1e> 6r0; lem s01&%)+9

.J Le*t/res2

2. N5/+54%\$' ,4&/,\$9P-\$' 4\$+58./&,.+ M51&9./0 A%%'5\$+-

P%3'1ls 03 *0m6' rtme)t'1 te*\$)%/es ') (' (&)'t'+es 03 m0(e1-%) (e6e) (e)t ' 66r0' *\$es> (e3%)%0) ') (s%+)%%') *e 03 st0*\$' st% ' 66r0' *\$> st' t%t%'1 m0me)ts> AUC> AUMC> (eterm%)' t%0) 03 AUC ! AUMC /s%)+ te*\$)%/es 1%e tr' 6e<0%(' 1> 10+-tr' 6e<0%(' 1> s61%)e> PTOO ') (\$, ; r% (' 66r0' *\$es> MRT ') (%s s%+)%%') *e % 6\$' rm' *08%et% s> *0m6/t' t%0) 03 st' t%t%'1 m0me)ts 3r0m 61' sm' ') (/r%)e (' t' > */t 033 err0r>MDT>MIT>MAT ') (; %0' &' %' ; %%,> 6r0; lem s01&%)+9

.J Le*t/res2

. N5/-9./&\$' P-\$' 4\$+58./&,.+2

De3%)%0)> s%+)%%') *e ') (' 661%' t%0)s 7%\$ 1%er' t/re e:' m6les> re*0+)%0) 03)0)-1%)e' r%,> *0m6/t' t%0) 03)0)-1%)e' r 6\$' rm' *08%et% 6' r' meters .'' m> K_m> AUC> et*%2 3r0m t\$e t%me *0/rse ') (AUC 03 ' (r/+ % ; 0(, ; e%)+ e1%n%)' te(; , s%)+1e M%\$' e1% Me)te) 8%et% s> *0m6/t' t%0) 03 6\$' rm' *08%et% 6' r' meters .'' m> K_m> K> AUC> et*%2 3r0m t\$e t%me *0/rse 03 ' (r/+ ; e%)+ e1%n%)' te(; , M%\$' e1% Me)te) 8%et% s ') (; , ' ; 1e) (03 M%\$' e1% Me)te) 8%et% s ') (3%st-0r(er 8%et% s> 6r0; lem s01&%)+9

.5 Le*t/res2

4. P'5,&./ B./1./0

T\$e0r, 03 61' sm' 6r0te%) ; % (%)+ ') (%n61%' t%0)s e1eme)ts 03 S*' t*\$' r(> K10t< ') (R0se)t\$'1 ') '1, ses 30r *0m6/t' t%0) 03 ; % (%)+ 6' r' meters> e: 6er%me)t'1 te*\$)%/es t0 (eterm%)e 6r0te%) ; % (%)+ 7%\$ t\$e% mer%ts ') (1%n% t%0)s> 3' *t0rs %31/e) *%)+ 6r0te%) ; % (%)+> e33e*t 03 ; % (%)+ 0) (r/+ 6\$' rm' *08%et% s9

.5 Le*t/res2

5. P-@2.5950.+ \$9@ B\$2&1 P-\$' 4\$+58./&,.+ (PBPH) M51&92

B' s% *0) *e6ts 03 PBPK m0(e1s> (e&e106me)t 03 ' PBPK m0(e1> 1%n% t%0)s 7%\$ res6e*t t0 *1'ss%'1 *0m6' rtme)t'1 ' 66r0' *\$es> 6erme' t%0) 1%n%e((%3/s%0)-1%n%e(m0(e1s> % ters6e*%es s*' 1%)+> ' 661%' t%0)s9

.4 Le*t/res2

.. P-\$' 4\$+58./&,.+ \$/1 P-\$' 4\$+51@/\$4.+ (PH6PD) M51&92

B' s% *0) *e6ts 03 PKAPD m0(e1%)+> met\$0 (010+ , % *1/ (%)+ 1%)e' r>10+-1%)e' r>E_{m'}:>E_{m'}:-s%+m0%('1 m0(e1s>)0)-ste' (, st' te ') (t%ne-(e6e)(')t m0(e1s> ; %\$' s% (%tr% /t%0) m0(e1>t01er') *e ') (s%+)'1 tr')s(/*t%0) m0(e1s> ; %0m' r8ers>)0)-1%)e' r

m%e(e33e*t m0(e1%) +> N'W&e 6001 '66r0'*\$> \$,steres% 03 6\$'rm'*0(,) 'm%
res60)se> '661%' t%0)s9

.5 Le*t/res2

R&\$1./0 M\$,&'\$.9R&+544&/1&1#

R&\$1./0 M\$,&'. \$9 R&+544&/1&1#

19 S%&erste% R9M9 ') (De; ster F909 S6e*tr0metr% l(e)t%%' t%0) 03 Or+')% C0m60/) (s9 C0\$)

- 59 Me)(\$'m 09 De))e, R9C9 B'r)es 09D9 ')(T\$0m's M9 "0+e1ls Te:t;008 03 ?/')t%'t%e C\$em%'1A)'1,s%9Pe'rs0) E(/*' t%0) L%ñ%e(>S%)+'60re9L' test E(%%0)9
- 9 S%&erste% R9M9 ')(De;ster F9Q9 S6e*tr0metr% l(e)t%%' t%0) 03 Or+')% C0m60/)(s9 00\$) D%e, ')(S0)s>Ne7 E0r89L' test E(%%0)9
- 79 "0+e1 B9=9 ')("0+e1 D9B9 Dr/+ D%*0&er, ')(E&'1/' t%0)9 S6r%)+er-"erl' +> Ber1%9 L' test E(%%0)9
- 59 K/18' r)%S9K9 B') (; 008 03 E:6er%ne)t'1 P\$' rm' *010+,9 "' 11' ;\$ Pr' 8' s\$')>Ne7 De1\$%9 L' test E(%%0)9
- J9 =\$0s\$ M9N9 F/)('me)t'1s 03 E:6er%ne)t'1 P\$' rm' *010+,9 B%t0) ! C0m6'),>K018' t'9L' test E(%%0)9

SEMESTER-II

MPCE"-2021#	A1?\$/+&2 ./ D' (0 D&9.?&'@GII
MPCE"-2022#	A1?\$/+&1 P-\$' 4 \$+58./&,.+2 \$/1 B.5%-\$' 4 \$+&(.+2-II
MPCE"-202 #	P-\$' 4 \$+&(.+\$9 T&+/-/5950@ \$/1 B.5,&+/-/5950@
MPCOM-2084#	I/,&99&+, (\$9 P'5%&' ,@ R.0- ,2 \$/1 D' (0 R&0(9\$,5'@ ABB\$. '2
MPCE"-2121#	P-\$' 4 \$+&(.+2 P' \$+ ,.+ \$9GII

MPCE"-2021# A1?\$/+&2 ./ D' (0 D&9.?&'@ GII

4 -5('26E&&8

1. C5995.1\$9 \$/1 S(%'\$ 45%&+(9\$' D&9.?&'@ S@2,&42

'9 C10se(;%' ,ere(s,stem@B%t0r%'1 ; '*8+r0/)(> str/*t/r'1 's6e*ts> 6re6' r' t%0)>
*\$' r' *ter%' t%0)> e&'1/' t%0) ')('661%' t%0)s> s6e*%1%e(1%0s0mes %) (r/+
t' r+et%) +@)%0s0mes>er,t\$R0s0mes>6\$' rm' *0s0mes ')('4/' s0mes9

;9 N')06' rt%1es> s01%(1%%()')06' rt%1es .SLNs2@ Met\$0(03 6re6' r' t%0)>
*\$' r' *ter%' t%0)>e&'1/' t%0) ')(6\$' rm' *e/t%'1' 661%' t%0)s9

*9 M/1t%1e 7A0A7 em/1s%0)s 's (r/+ &e\$%1es@ l)tr0(/*t%0)> *0m60s%1%0) 03 t\$e
m/1t%1e em/1s%0) ')(st' ;%%, > %31/e)*e 03 t\$e) 't/re 03 0% 6\$' se> met\$0(s 30r
st' ;%%%) + 7A0A7 m/1t%1e em/1s%0)s> me*\$')%ms 03 tr')s60rt 03 s01/tes>
st/(%es9

(9 M%r0em/1s%0)s@l)tr0(/*t%0)> str/*t/re s01/;%%' t%0) ')(30rm/1' t%0) tr')s60rt
6r06ert%es ')(6\$' rm' *e/t%'1' 661%' t%0)s9

.15 Le*t/res2

2. P'5,&./ \$/1 P&%,.1& D' (0 D&9.?&'@

CO)s%(er' t%0)s %) t\$e 6\$,s%010+%'1 (e1%er, 03 t\$er' 6e/t% 6r0te%)s@C' rr%er-me(% te(
tr')s60rt 03 6e6t%(es ')(6e6t%(e ')'10+/es>6r0; lems 'ss0*% te(7%\$ t\$e (e1%er, 03

')(/r%)e le&el ('t'> *r0ss0&er (es%) ')(')'1,s% 03 ;%0e4/%&'le)*e tr% 1s> ;%07' %&ers>3e(er'1 6ers6e*t%&es> 6r0; lem s01&%)+9

.5 Le*t/res2

\$/1 5''&9\$,5/2 (ICICC)

CO)*e6t> ;%06\$' rm' *e/t%'1 *'1'ss%'t%0) s*\$eme> &'r%0/s l''l''C '66r0'*\$es 7%'\$ '661%'t%0)s ')(1%&n%'t%0)s> (%s01/t%0) 's' s/rro+' te t0 ;%0' &'%' ;%0%, 30r %&mme(% te rele'se ')(e:te)(e(rele'se 30rm/1't%0)s> A-D le&els> &'1%('t%0)> l''l''R> l''l''M> 3e(er'1 6ers6e*t%&es9

.5 Le*t/res2

4. P-\$'4\$+58./&,+ S.4 (9\$,5/2 \$/1 A99.&1 P-\$'4\$+58./&,+ A%%'5\$+--&2 P\$' rm' *08%et% s%&m/1't%0)s /s%)+ 6\$' rm' *08%et% 6'r' meters> s%&m6le 6r0; lem s01&%)+9 B's%s 03 *\$r0)06\$' rm' *08%et%> t0:%08%et%> 606/1't%0) 6\$' rm' *08%et%>s9

.5 Le*t/res2

5. "2& 5B C54%(&'2./ P-\$'4\$+58./&,+2 l)tr0(/*t%0)> str'te+, 30r m0(e1 ;/%(%)> sele*t%0) ')('661%'t%0) 03 s/%' ;le 6\$' rm' *08%et%> st't%t%'1 ')(&'r%) *e m0(e1s> 3/)*t%0) m%&%m%'t%0) 30r m':%&m%'t%0) 03 +00()ess 03 3%> %er't%&e ')()0)-%er't%&e te*\$)%/es> 7e%-\$t%)+ s*\$emes 30r)0)-1%e' r re+ress%0)> AIC> SC> MSC> (%%'1 &ers/s ')'10+ *0m6/ters>1' 7 03 6'rs%&n0),> 1%er't/re re&%e7 0) *0m6/ter s03t7're 0) *0m6'rtme)t't'>)0)*0m6'rtme)t't'1 ')(*1%0%'1 6\$' rm' *08%et% ')'1,s% ')(s%&m/1't%0)> ')(;%06\$' rm' *e/t%'s>st/(, 03 s0me *0m6/ter s03t7're s/*\$'s NONLIN>NONMEM9

.5 Le*t/res2

R&\$1./0 M\$,&'\$.9R&+544&/1&1#

- 19 D'+)er C=9 F/('me)t'ls 03 C1%0%'1 P\$' rm' *08%et%> Dr/+ l)te1%e)*e P/;1%'t%0)> B'm%t0)9L'test E(%%0)9
- 29 D'+)er C=9 P\$' rm' *08%et%>s 30r t\$e P\$' rm' *e/t%'1 S*%)t%t> Te*\$)0m%> Pe))s,1&')%9 L'test E(%%0)9
- 39 S\$'r+e1 L> E/ ABC ')(D/-60)+ S9 A661%e(B%06\$' rm' *e/t%'s ')(P\$' rm' *08%et%>s M*=r' 7-B%1 Me(%'1P/; 1%\$ers>Ne7 De1\$%L'test E(%%0)9
- 49 =% '1(M ') (Perr%er D9P\$' rm' *08%et%>s9l)30rm' Be'lt\$*'re>Ne7 E0r89L'test E(%%0)9
- 59 =% '1(M9 B%06\$' rm' *e/t%'s ')(C1%0%'1 P\$' rm' *08%et%>s Le' ! Fe; %er> P\$%' (e16\$%9 L'test E(%%0)9
- 9 Dressm') B ')(Le))er)'s B9 Or'1 Dr/+ A; s0r6t%0)@ Pre(%t%0) ! Assessme)t> M'r*e1 De88er>Ne7 E0r89L'test E(%%0)9
- 79 B0/r)e DEA9 M't\$em't%'1 M0(e11%)+ 03 P\$' rm' *08%et% D't'9 Te*\$)0m%> Pe))s,1&')%9 L'test E(%%0)9
- 59 De11%)+ P= ')(Tse FLS9 P\$' rm' *08%et%>s@ Re+/1't0r,> l)(/str%1 ')(A*' (em% Pers6e*t%&es>M'r'e1De88er>Ne7 E0r89L'test E(%%0)9

J9 =% '1(%M ') (Pres*0tt L9 B') (; 008s 03 C1%)%'1 P\$'

. N(,2 \$/1 B59,2 5B P\$,&/,./0
 C06,r%\$t ')(tr'(e m'r8 6r0te*t%)> *r%er% 30r 6'te)t';%>,> l)(%) 6'te)t '*t9
 1J70@ DTO ')(m0(%%'t%)s /)(er TRIPS> 3%)+ 03 ' 6'te)t '661%'t%)>

J9 lm60rt')t re+/1' t%)s re1' te(t0 %m60rt ')(e:60rt 03 (r/+s9

.12 Le*t/res2

R&\$1./0 M\$,&'. \$9R&+544&/1&1#

19 Tree*e DC9 M')'+%) + l)tefle*t/'1 C' 6%'1@ Or+')%'t%)'1> Str' te+% ')(P01%, D%me)s%)9
O:30r(U)%&ers%, Press>E)+1')(9L' test E(%%)9

29 D'(e(\$r' BL9 L' 7 Re1' t%) + t0 P' te)ts> Tr'(em' r8s> C06, r%-\$t Des%) ')(=e0+r' 6\$%'1
l)(%' t%)s9U)%&ers'1L' 7 P/; 1%\$%) +> Ne7 De1\$%L' test E(%%)9

39 B')s'1 P9 IPR B')(;008 30r P\$' rm' St/(e)ts ')(Rese'r*\$ers> P\$' rm' B008 S,)(%' te>

SEMESTER G III > IC

Rese' r*\$ 70r8 (/r%) + t\$%(') (30/rt\$ semester9

T\$e e:'m%'t%) s\$'11 *0)s%t 03 t\$es% s/; m%te('t t\$e e) (03 30/rt\$ semester ') (6rese)t' t%) % t\$e 06e) sem%' r9

T\$e res/lt 03 t\$e e:'m%'t%) 7%1 ; e +%e) 's 6' ss 0r 3' % 7%\$0/t m' r8s9

VVVVVVVVVVVVVVV99

119 E/r06e') Me(%)es E&'1/' t%0) A+e)*, =/(e1%es 0) ?/' 1%, 03 Ber; '1 Me(%)'1 Pr0(/*ts
%s/e(3r0m t%me t0 t%me ')('&'%; 1e 't \$tt6@AA777%eme' 9e/9%) t9
129 =/6t' MP>B') (' SS ')('' s%\$t K9 E(s9 B%010+% '1 S*ree)%+ 03 P1')t C0)st%/e)ts9 Tr' %)%+
M')/' >ICS-UNIDO>Tr%este .200 29

MASTER OF PHARMACY (M. PHARM.) (SEMESTER SYSTEM)

392949 E: tr' *t%e &'1/es %)*1/(%) + &01' t%e 0%9

.1 Le*t/re2

392959 ?/'1%' t%e *\$em%'1 tests9

.2 Le*t/res2

3929 9 ?/')t%' t%e *\$em%'1 tests@A*(&'1/e> %0(%)e &'1

C. P-\$'4\$+&(.+\$9C-&4.2,'@

1. l/B'\$&1 S%&+',52+5%@

l)tr0(/*t0)> t\$e %3r' re(' ;s0r6t0) 6r0*ess> t\$e m0(es 03 &% r' t0)s> stret*\$%) +
') (;e) (%> ;0) (6r06ert%es ') (' ;s0r6t0) tre) (s> ; 's% s 03 %str/me)t' t0)
te*\$)%/es> 6\$' rm' *e/t%' 1' 661%' t0)s9

.2 Le*t/res2

2. "9,'\$?.5%&, S%&+',52+5%@

l)tr0(/*t0)> t\$e)' t/re 03 e1e*tr0)% e: *%' t0)> t\$e 0r% % 03 U" ;') (str/*t/re>
6r% *%1e 03 ' ;s0r6t0) s6e*tr0s*06,> *\$r0m06\$0re- MNM#> ONM#> PNP#
tr')s%t0)s> ; 's% s 03 %str/me)t' t0) te*\$)%/es> 6\$' rm' *e/t%' 1' 661%' t0)s9

.2 Le*t/res2

. F9(5'.4&,'.+ A/\$%@2.2

l)tr0(/*t0) t0 t\$e 6r% *%1es 03 31/0res*e)*e> '661%' t0)s 03 31/0r%metr, %
6\$' rm' *e/t%' 1')'1,s%9

.1 Le*t/re2

4. N(+%\$' M\$0/&.,+ R&25/\$/+& S%&+',52+5%@

l)tr0(/*t0)>)/*1e' r s6% st'tes>)/*1e' r m'+)et% m0me)ts> ' ;s0r6t0) 03
e)er+,> t\$e me*\$')%m 03 res0') *e> *\$em%' 1 e4/%&' 1e)*e> s6% -s6% *0/61%> +>
' ;s% s 03 %str/me)t' t0) te*\$)%/es> 6\$' rm' *e/t%' 1' 661%' t0)s9

.2 Le*t/res2

5. M\$22 S%&+',54&,'@

B's% 6r% *%1e ') (t\$e0r, %&01&e(> ; 's% s 03 %str/me)t' t0) te*\$)%/es>
6\$' rm' *e/t%' 1' 661%' t0)s9

.2 Le*t/res2

∴ T-&'4\$9A/\$%@2.2

l)tr0(/*t0) t0 &' r%0/s t\$erm'1 met\$0(s 03 ')'1,s%> ; 's% 6r% *%1es ') (t\$e0r,>
6\$' rm' *e/t%' 1' 661%' t0)s9

.1 Le*t/re2

D. P-\$'4\$+50/52@

1. =e)er'1 6r% *%1es> *1'ss%' t0)>)0rm'1 ') (re&erse(6\$'se> ;0)(e(6\$'se>
se6' r' t0) me*\$')%ms9

2. l)tr0(/*t0) t0 6' 6er *\$r0m' t0+r' 6\$,> TLC> BPTLC> BPLC> =C9

.7 Le*t/res2

E. P-\$'4\$+5950@

De3% %t0) 03 ;%0'ss',> &' r%0/s t,6es 03 ;%0'ss',s> ' (&)'t'+es ') (1%t%' t0)s 03
;%0'ss',s 7%\$ s/%' ; 07813(0)-2.65625(')-' ; 07813(0)-2.65(/)-4.60938(%)-2.4

D. P-\$'4\$+50/52@

E:er*%es 0) *\$r0m't0+r'6\$% te*\$)%%/es9

R&\$1./0 M\$,&'\$.9R&+544&/1&1#

- 19 I)(%) P\$'rm' *060e%9L' test E(%%)9
- 29 U9S9P\$'rm' *060e% - NF9L' test E(%%)9
- 39 E/r06e') P\$'rm' *060e%9L' test E(%%)9
- 49 Br%%\$ P\$'rm' *060e%9L' test E(%%)9
- 59 Me)(\$'m C9 De))e, R9C9 B'r)es C9D9 ')(T\$0m's M9 ''0+e1ls Te:t;008 03 ?/')t%'t%e C\$em%'1A)'1,s%9Pe'rs0) E(/**t%) L%n%e(>S%)+'60re9L' test E(%%)9
- 9 S%&erste%) R9M9 ')(De;ster F9Q9 S6e*tr0metr% l(e)t%%'t%) 03 Or+')% C0m60/)(s9 C0\$) D%e, ')(S0)s>Ne7 E0r89L' test E(%%)9
- 79 ''0+e1 B9=9 ')(''0+e1 D9B9 Dr/+ D%*0&er, ')(E&'1/'t%)9 S6r%)er-''er1' +> Ber1%)9 L' test E(%%)9
- 59 K/18' r)%S9K9 B')(; 008 03 E:6er%ne)t'1 P\$'rm' *010+,9 ''1' ; \$ Pr'8's\$')>Ne7 De1\$% L' test E(%%)9
- J9 =\$0s\$ M9N9 F/)('me)t'1s 03 E:6er%ne)t'1 P\$'rm' *010+,9 B%t0) ! C0m6'),>K018't'9L' test E(%%)9

- 59 Be%)r%\$ M9 B' r)es C9> =% ; 0)s S9 ') (D%1% ms0) E9M9 F/) (' me)t' is 03 P\$' rm' *0+)0s, ') (P\$, t0t\$er' 6, 9 C\$/r*\$%1 L%&% +st0)e9L' test E(%%0)9
- 9 Br/)et0) C9 P\$' rm' *0+)0s, > P\$, t0*\$em%tr, > Me(%%) '1 P1') ts9 l) ter*e6t Lt(9> UK9 L' test E(%%0)9
- 79 "0+e1 B9=9 ') ("0+e1 D9B9 Dr/+ D%*0&er, ') (E&'1/' t%0)9 S6r%)+er-"er1' +> Ber1%9 L' test E(%%0).

MPCO! -20 2# A1?\$/+&2 ./ P-\$' 4\$+50/52@-II

4 -5 ('26E&&8

1. S, (1@ 5B P9\$/ ,2 E., - S%&+. \$9 E4%-\$2.2 5/ A+, .?& C5/2, ., (&/, 2 -\$?. /0 B5995E. /0 ,@%&2 5B B.5950.+ \$9 A+, .?, @, \$/1 A B'.&B l/, '51(+, .5/ 5B C\$.5(2 M51&92 "2&1 ./ , -&.'

t\$es%> 6r%Dr 'rt se'r*\$ S 6/;1%\$e(6'te)ts se'r*\$> %ter)et se'r*\$ 6'te)t s%es>
 s6e*%1%e(ser&%e se'r*\$ re4/ests>*0sts>6'te)t '661%'t%0) 30rms ')(+/%(e1%es>
 3ee str/*t/re> t%me 3r'mes> K/r%(%t%0) 's6e*ts> t,6es 03 6'te)t '661%'t%0)-
 6r0&%%0)'1>0)-6r0&%%0)'1>PCT ')(*0)&e)t%0) 6'te)t '661%'t%0)s>%ter)'t%0)'1
 6'te)t%)+ re4/%eme)t 6r0*e(/res ')(*0sts9 P'te)t %3r%+eme)t@Me')%)+s*06e>
 1%%'t%0)>(r/+ rel'te(6'te)ts %3r%+eme)ts>*se st/(%es ')(e:'m6les>6'te)t%)+
 ; , rese'r*\$ st/(e)ts9 Tr'(em'r8s le+%1't%0) ')(re+%tr't%0) s,stem %l)(% - '
 %tr0(/*t%0)>me')%)+ 03 tr'(em'r8> *r%er% 30r e1%-% %%,> 3%1%)+ '661%'t%0) 30r
 tr'(em'r8 re+%tr't%0)> tr'(e se*rets - s*06e m0('1%es ')(6r0te*t%0) '*se
 st/(%es9

.10 Le*t/res2

4. T&+ -/5950@ D&?&95%4&/,6T'\$/2B&' C544&'+.\$9.F\$, .5/ R&9\$, &1 A2%&+,2
 Te*\$)010+, (e&e106me)t@ Me')%)+ (r/+ rel'te(te*\$)010+, (e&e106me)t>
 t0:%010+% '1 st/(%es> ;%0e4/%&'1e)*e .BU2> *1% %'1 tr%1 6\$'se l>P\$'se ll ')(6\$'se
 ll> '66r0&e(;0(%es ')('+e)*es> s*'1e-/6> sem%*0mmer*%1%'t%0) ')(
 0mmer%1%'t%0)S6r' *t%'1 's6e*ts ')(6r0;1ems> s%t)%%'')*e 03 tr')s3er 03
 te*\$)010+, .TOT2> ;0tt1e)e*8s> m')'+%)+ te*\$)010+, tr')s3er> +/%(e1%es 30r
 rese'r*\$ st/(e)ts>s*%e)t%ts ')(rel'te(6ers0))e1>TOT '+e)*es %l)(% APCTD>
 NR

R&\$1./0 M\$,&'\$.9R&+544&/1&1#

19 Tree*e D%9 M')'+%+ l)tefle*t/'1 C' 6%'1@Or+')%'

SEMESTER G III > IC

Rese' r*\$ 70r8 (/r%) + t\$%(') (30/rt\$ semester9

! RO" P-4# M. PHARM. (PHARMACOLOGY)

SEMESTER-I

- MPCOL-1041# ! &/&' \$9 P-\$' 4 \$+5950@, P\$, -5).5950@ \$/1 T-&' \$%& (, .+2
- MPCOL-1042# E3%&' .4 &/, \$9 P-\$' 4 \$+5950.+ \$9 T&+- / .D (&2
- MPCOL-104 # D' (0 D.2+5?&'@ \$/1 T53.+5950@
- MPCOM-1071# M51&' / A/\$9@, .+\$9 \$/1 P-\$' 4 \$+& (, .+\$9 T&+- / .D (&2
- MPCOL-1141# P-\$' 4 \$+5950@ L\$) 5'\$, 5'@GI
- MPCOM-1171# M51&' / A/\$9@, .+\$9 \$/1 P-\$' 4 \$+& (, .+\$9 T&+- / .D (&2 P' \$+, .+\$9
- MPCOL-1041# ! &/&' \$9 P-\$' 4 \$+5950@, P\$, -5).5950@ \$/1 T-&' \$%& (, .+2
4 -5 ('26E&&8
1. I/, '51 (+, .5/ ,5 P-\$' 4 \$+5950@
ADME ') (3' *t0rs %31/e) *%) + (%e' se *0) (%%0)s9
.3 Le*t/res2
 2. P\$, -5%-@2.5950@ \$/1 D' (0 T-&' \$%@ 5B N& ('5950.+ \$9 \$/1 P2@+- .\$, ' .+ D.25' 1&'2
A1<\$%emerks (%e' se> '): %et, > (e6ress%0)> e6%e6s, > B/) t%) +t0) Is (%e' se> P' r8%) s0) %s
(%e' se ') (s*\$%06\$re)% 9
.5 Le*t/res2
 3. P\$, -5%-@2.5950@ \$/1 D' (0 T-&' \$%@ 5B C\$' 1.5? \$2+ (9\$' D.25' 1&'2
A)+%) '> ' rr\$, t\$m%> *0)+est%e \$e' rt 3' %/re> \$, 6er1%06r0te%) em% s ') (\$, 6erte)s%0) 9
. Le*t/res2
 4. D' (0 T-&' \$%@ 5B E/15+ ' ./& D.25' 1&'2
D%Or(ers 03 t\$, r0% (+1') (> ' (re)' 1 +1') (> (% ; etes me11%/s> +0)' ('1 \$0rm0) es ') (*0) tr' *e6t%&es9
. Le*t/res2
 5. P\$./ \$/1 I/B9\$ 4 4\$, .5/
Dr/+s /se (%) t\$e tre' tme) t 03 Oste0' rt\$r%% ') (+0/t9
.3 Le*t/res2
 6. P\$, -5%-@2.5950@ \$/1 D' (0 T-&' \$%@ 5B ! \$2, '5. /, &2, ./\$9 D.25' 1&'2
Pe6t% /1*ers> ') (%31' mm' t0r, ; 07e1 (%e' se9
.2 Le*t/res2
 7. P\$, -5%-@2.5950@ \$/1 D' (0 T-&' \$%@ 5B R&2%.' \$, 5'@ D.25' 1&'2
Ast\$m' ') (t/; er*/10s%9
.2 1e*t/res2

8. C-45, -&'\$@ 5B M.+ '5). \$9 \$/1 P\$' \$2., .+ D.2&\$2&2
 S/130) ' m%(es> 4/%) 010) es> *\$10r' m6\$e)% 01> ' m%) 0+1, *0s%(es> tetr' *, *1%) es>
 6e)% %1%) s> *e6\$' 10s60r%) s> ') t%&' %> ') t%/) + ' %> \$elm%) t\$% s%> m' 1' r%> 1e6r0s,>
 t/; er*/10s% ') (') t%) e061' st% ' +e) ts9

.5 Le*t/res2

; . M(9,-1' (0 '&2.2,\$/+&, 4&+-\$/.24 \$/1 1' (0 '&2.2,\$/ , ,)&' +(952.2 \$/1 4\$9\$'. \$.

.3 Le*t/res2

R&\$1./0 M\$, &' . \$9 R&+544 &/1&1#

- 19 Br/)t0) L9L9> L' <0 C9S9 ') (P' r8er K9L9> E(s9 =00(m') ! =%m') Is T\$e P\$' rm' *010+% '1 B' s% 03
 T\$er' 6e/t% s9 M*=r' 7-B%1> Ne7 E0r89 L' test E(%%) 9
- 29 K' t</) + B9=9 B' s% ') (C1%) %' 1 P\$' rm' *010+, 9 L') +eAM* =r' 7-B%1 Me(% '1 P/; 1% ' t%) s> Ne7
 E0r89 L' test E(%%) 9
- 39 K' 1') t B9 ') (R0s*\$1') DBE9 Pr%) *%1es 03 Me(% '1 P\$' rm' *010+, 9 O:30r(U)%ers%, Press>
 Ne7 E0r89 L' test E(%%) 9
- 49 R') + B9P9> D' le M9M9 ') (R%ter C9M9 P\$' rm' *010+, 9 C\$/r*\$%1 L%%) +st0)e> Ne7 E0r89 L' test
 E(%%) 9
- 59 S\$' rm' B9L9 ') (S\$' rm' K9K9 Pr%) *%1es 03 P\$' rm' *010+, 9 P' r' s P/; 1%\$er> De1\$% L' test
 E(%%) 9
- 9 S\$' r+e1 L9> M/t)%8 A9B9> S0/)e, P9F9 ') (S7') s0) L9N9 C0m6re\$e)s%e P\$' rm' *, Re&%79
 D0lters K1/7er Be' 1t\$ A L%6%) *0tt D%1% m ! D%8%) s> Ne7 De1\$% L' test E(%%) 9
- 79 D% %0 C9T9> T' 1; ert R9L9> Eee =9C9> M' t<8e =9R9> De1ls B9=9 ') (P0se, L9M9> E(s9
 P\$' rm' *0tSer' 6, @A P' t\$06\$, s%010+% A66r0' *\$9 M*=r' 7-B%1> Ne7 E0r89 L' test E(%%) 9

MPCOL-1042# E3%&' .4&/, \$9 P-\$' 4\$+5950.+ \$9 T&+ - / .D (&2

4 -5 ('26E&&8

1. D&?&95%4&/, \$/1 S+5%& 5B E3%&' .4&/, \$9 P-\$' 4\$+5950@
 C0mm0) 1' ; Or' t0r, ') %n' 1s> ; ree(%) + met\$0(s> ') est\$es% ! e/t\$')' s% 03
 e: 6er%me)t' 1') %n' 1s> (%3ere)t r0/tes 03 (r/+ ' (m%) %tr' t%) 9

. Le*t/res2

2. A9,&' /\$, .?&2 ,5 A/.4\$9 S+' &&/./0
 Ce1l 1%) es ') (Ot\$er % -&%r0 te*\$) %/es .ELISA> PCR te*\$) %/es29

.4 Le*t/res2

. E3%&' .4&/, \$9 T&+ - / .D (&2 E4%95@&1 . / , -& S+' &&/./0 5B D' (02 B&95/0./0 ,5 F5995E./0
 C\$, &05' .&2

3919 A) t% s, *\$0t% s> ') t%) : %t, ' +e) ts>) 00tr06% s> ') t%(e6ress') ts> ') t% ' r8%) s0) %)
 ' +e) ts> ') t%e6%e6t% s> ') ' 1+es% s ') (') t% % 31' mm' t0r, ' +e) ts9

.12 Le*t/res2

4. T53.+5950@

C0)*e6t> (e&e106me)t ')(s*06e 03 t0:%010+,> ;e\$'&%0/r'1 ')()e/r0t0:%%,> ter't010+,> e)(0t0:%> 6est%%(es> *'r(%*> \$e6't%> re)'1 ')(6/lm0)'r, t0:%%,9 l)(/str%b e)&%0)me)t'1 ')(30re)s% t0:%010+,> *1%*'1 t0:%010+,> 6r%*%1es ')(m')'+eme)t 03 (%3ere)t t, 6es 03 60%0)%>+t0:%%, re' *t%)s9

.11 Le*t/res2

5. l44 (/5,-&'\$\$@

l)tr0(/*t%) t0 %nm/)e s,stem> *e1l/1'r ')(\$/m0r'1 %nm/)%> *0m61eme)t> ')t%e)-')t% 0(, %ter' *t%)s> %nm/)%>, t0 ;' *ter%> &%/s> 6r0t0<0'> ')(3/)+% %nm/)0m0(/1' t0rs ')(%nm/)0s/66ress')ts ')(t\$e% /se % ' /t0%nm/)e (%0r(ers> 6r%*%1es ')((e&e106me)t 03 &' **%)es '+' %st (%3ere)t (%e' ses9

.10 Le*t/res2

R&\$1./0 M\$,&'\$.9R&+54 4&/1&1#

- 19 B' rt3' %T9 ')(Lee =9'9Dr/+ D%*0&er, 9E1se&%er>Ne7 E0r89L' test E(%%)9
- 29 B/')+ R9Dr/+ D%*0&er, Rese' r*\$9 D%e, l)ter S*%) *e>USA9L' test E(%%)9
- 39 E&')s R9P%Dr/+ ')(B%010+%*'1 De&e106me)t9 S6r%+er>USA9L' test E(%%)9
- 49 R%8, N9=9Dr/+s 3r0m D%*0&er t0 De&e106me)t9 D%e

- . l)tr0(/*t%) t0 &'1%(' t%) 03 m')/3' *t/r%) + 3' *%1%es l9?9 A O9?9 ') (*ert%%' t%)>
6re6' r' t%) 03 &'1%(' t%) 6r0t0*01s9
4. St';%%, test%)+@B' *8+r0/)(')(*0)*e6t ')'1,s%> ICB +/%(e1%)es> (eterm%)' t%)
03 s\$e13 1%e>+e)er'1 st';%%, 's6e*ts 6ert' %%) + t0 API>30rm/1' t%)s9
.10 Le*t/res2
- C. P-\$'4\$+&(,+\$9C-&4.2,'@
1. l/B'\$&1 S%&+',52+5%@
- l)tr0(/*t%)> t\$e %3r're(' ;s0r6t%) 6r0*ess> t\$e m0(es 03 &% r' t%)s> stret*\$%) +
')(;e) (% +> ;0) (6r06ert%es ') (' ;s0r6t%) tre)(s> ;'s% s 03 % str/me)t' t%)

SEMESTER-II

MPCOL-2041#	C9./.+9P-\$'4\$+5950@
MPCOL-2042#	M59&+(9\$' P-\$'4\$+5950@
MPCOL-204 #	R&+&/, A1?\$/+&2 ./ P-\$'4\$+5950@
MPCOM-2084@	I/,&99&+, (9P'5%&' ,@ R.0-,2 \$/1 D' (0 R&0(9\$,5'@ ABB\$. '2
MPCOL-2141#	P-\$'4\$+5950@ L\$)5'\$,5'@-II
MPCOL-2041#	C9./.+9P-\$'4\$+5950@

4 -5('26E&&8

1. I/, '51(+, .5/ ,5 C9./.+9P-\$'4\$+5950@
 De3%)%t0)> s*06e ')((e&e106me)t 03 *1%)%'1 6\$' rm' *010+,> r01e 03 6\$' rm' *%t %
 \$e'1t\$*' re s,stem>6res*r%t0) m0)%0r%) + ')(r' t0)'1 /se 03 (r/+s> esse)t%1 (r/+s
 ')()' t0)'1 (r/+ 601% ,> 6\$' rm' *0e6%(em%010+,> 6\$' rm' *0&%%') *e> 6' t%)t
 *0/)se11%)>me(%' t0) errors ')((r/+ %)30rm' t0) s, stems9

.5 Le*t/res2

2. C5/+&%,2 5B P-\$'4\$+&(, .+9C\$' &\$/1 .,2 |4%9&4&/, \$, .5/
 P1')> *0m60)e)ts ')(*\$'1le)+es> *0mm/)%' t0) ')(;e\$' &%0/r'1 s8%1s %) *1%)%'1
 6\$' rm' *010+, 6r' *t%e9

.2 Le*t/res2

. D' (0 T-&'\$%@ ./ S%&+. \$9.F&1 P\$, .&/, P5%(9\$, .5/2

.1. N&5/\$, &2# S6e*%1 *\$%(\$00((%e'ses ')(t\$e% m')'+eme)t>)'t0)'1
 %mm/)%' t0) 6r0+r' mmes> rele&')t 6'e(%tr% m')'+eme)t %s/es 's (0s'+es
 '(K/stme)t>6\$' rm' *08%)et%'s ')(*0m61%)*e9

.2. ! &'\$. \$, '+2# P\$' rm' *e/t%'1 *'re 61') ;'se(0) '+e rel'te(6\$,s%010+% '1 ')(
 6\$' rm' *08%)et%A6\$' rm' *0(,) 'm% *\$') +es> *0m61%)*e rel'te(%s/es9

. . P'&0/\$/+@ \$/1 L\$+, \$, .5/# =/%(e1%)es ')(6r%) *%1es 03 (r/+ t\$er'6, (/r%)+
 6re+)')*, ')(1' *t't0)9 M')'+eme)t 03 .63672()-4.60938(')-0.996094(m)-1.17188(%) -0.503M
 t\$, ')((L%t/res\$

4949 C1% %'1 tr%1 te' m> m0)%0r% + 03 *1% %'1 tr% 1>

. N&('5,'\$/2%5',&'2
 P1'sm' mem;r')e)e/r0tr')sm%ter tr')s60rters .N'`ACI` (e6e)(e)t
)e/r0tr')sm%ter tr')s60rters> N'`AK` (e6e)(e)t +1/t'm'te tr')s60rters2> &es%/1'r
)e/r0tr')sm%ter tr')s60rters .m0)0'm%e tr')s60rters ')('*et,1*\$01%e
 tr')s60rters9

- 39 Tre) (s % P\$' rm' *010+%' 1 S*%) *es9
- 49 Tre) (s % Ne/r0s*%) *es9
- 59 C0/r)' 103 P\$' rm' *010+, ') (E:6er%me)t' 1 T\$er' 6e/t%' s9

MPCOM-2084@ I/, &99&+, (\$9 P' 5%&', @ R.0-, 2 \$/1 D' (0 R&0 (9\$, 5' @ ABB\$. '2
 -5 ('26E&&8

PART A# I/, &99&+, (\$9 P' 5%&', @ R.0-, 2

1. I/, &99&+, (\$9 P' 5%&', @
 C0)*e6ts ') (3/) (' me)t' 1s@T\$e emer+e)*e ') (+r07t\$ 03 t\$e *0)*e6ts re+' r(%+
 %tefle*t/' 1 6r06ert, .IP2> %tefle*t/' 1 6r06ert, 6r0te*t%) .IPP2 ') (%tefle*t/' 1
 6r06ert, r%-\$ts .IPR2F e*0)0m% %m60rt')*e> me*\$')%m 30r 6r0te*t%) 03
 %tefle*t/' 1 6r06ert, -6' te)ts> *06, r%-\$t> tr' (em' r8sf r0le 03 IP % 6\$' rm' *e/t%' 1
 % (/str, F +10; ' 1r' m%' t%)s ') (3%) ') *% 1% n61%' t%)s9
 . Le*t/res2

2. T' \$1& R&9\$, &1 A2%&+, 2 5B I/, &99&+, (\$9 P' 5%&', @ R.0-, 2
 l)tefle*t/' 1 6r06ert, ') (%ter)' t%)' 1 tr' (e> *0)*e6t ; e\$%) (DTO .D0r1(Tr' (e
 Or+')%' t%)> DIPO .D0r1(l)tefle*t/' 1 Pr06ert, Or+')%' t%)> =ATT . =e)er' 1
 A+reeme)t 0) T' r%3 ') (Tr' (e2> TRIPs .Tr' (e Rel' te(l)tefle*t/' 1 Pr06ert, R%-\$ts>
 TRIMS .Tr' (e Rel' te(l)&estme)t Me's/res2 ') (=ATS . =e)er' 1 A+reeme)t 0)
 Tr' (es % Ser&%es> st' t/s % l) (% ') (0t\$er (e&e106% + *0/) tr%es> *' se st/ (es ') (e:
 : ' m6les> TRIPs %s/es 0) \$er; ' 1 (r/+s9
 .7 Le*t/res2

. N(, 2 \$/1 B59, 2 5B P\$, &/, ./0
 C06, r%-\$t ') (tr' (e m' r8 6r0te*t%)> *r%er% 30r 6' te)t' ; %%, > l) (%) 6' te)t ' *t9
 1J70@ DTO ') (m0(%%' t%)s /) (er TRIPs> 3%) + 03 ' 6' te)t ' 661%' t%)>
 6re*/t%)s ; e30re 6' te)t%+(%*10s/resA)0)-(%*10s/res> 6/; 1%' t%) -' rt%1eA
 t\$es%> 6r0r ' rt se' r*\$ S 6/; 1%\$e(6' te)ts se' r*\$> %ter)et se' r*\$ 6' te)t s%es>
 s6e*% 1%e(ser&%e se' r*\$ re4/ests> *0sts> 6' te)t ' 661%' t%) 30rms ') (+/(e1%) es>
 3ee str/*t/re> t%me 3r'mes> K/r%(% t%) ' s6e*ts> t, 6es 03 6' te)t ' 661%' t%) -
 6r0&%%) ' 1>) 0)-6r0&%%) ' 1> PCT ') (*0)&e)t%) 6' te)t ' 661%' t%)s> %ter)' t%)' 1
 6' te)t%+ re4/%eme)t 6r0*e(/res ') (*0sts9 P' te)t % 3r%+eme)t@Me') %> s*06e>
 1%' t%)> (r/+ rel' te(6' te)ts % 3r%+eme)ts> *' se st/ (es ') (e:' m6les> 6' te)t%+
 ; , rese' r*\$ st/(e)ts9 Tr' (em' r8s 1e+%1' t%) ') (re+%tr' t%) s, stem % l) (% - ')
 % tr0(/*t%)> me') % + 03 tr' (em' r8> *r%er% 30r e1%-% %%, > 3%1%) + ' 661%' t%) 30r
 tr' (em' r8 re+%tr' t%)> tr' (e se*rets - s*06e m0(' 1%' es ') (6r0te*t%) *' se
 st/ (es9
 .10 Le*t/res2

4. T&+/-/5950@ D&?&95%4&/, 6T' \$/2B&' C544&+'. \$9.F\$, .5/ R&9\$, &1 A2%&+, 2
 Te*\$)010+, (e&e106me)t@ Me') %> (r/+ rel' te(te*\$)010+, (e&e106me)t>

MPCOL-2141#

P-\$' 4\$+5950@ L\$) 5'\$,5'@-II

14 -5('26E&&8

1.

SEMESTER G III > IC

Rese' r*\$ 70r8 (/r%) + t\$%(') (30/rt\$ semester9

T\$e e:'m%) 't%) s\$'11 *0)s%t 03 t\$es% s/;m%te(' t t\$e e)(03 30/rt\$ semester ')(6rese)t' t%) % t\$e 06e) sem%) ' r9

T\$e res/lt 03 t\$e e:'m%) 't%) 7%1 ; e +%e) 's 6' ss 0r 3' % 7%\$0/t m' r8s9

VVVVVVVVVVVVVVVVVVV99

**! RO" P 5# M. PHARM. (PHARMACE" TICAL ANALYSIS AND
= " ALITY ASS" RANCE)**

SEMESTER-I

MP=" A-1051#	A%%9.&1 P-\$' 4\$+&(.+\$9 A/\$9@2.2 -I
MP=" A-1052#	! 551 M\$/(B\$+, ('./0 P'\$+,.+&2 (! MP2)
MPCO! -10 6	
MP=" A-105 #	P9\$/, D' (0 S,\$/1\$'1.F\$, .5/
MPCOM-1071#	M51&' / A/\$9@,.+\$9 \$/1 P-\$' 4\$+&(.+\$9 T&+-/.D(&2
MP=" A-1151#	P-\$' 4\$+&(.+\$9 A/\$9@2.2 P'\$+,.+\$9-I
MPCOM-1171#	M51&' / A/\$9@,.+\$9 \$/1 P-\$' 4\$+&(.+\$9 T&+-/.D(&2
MP=" A-1051#	A%%9.&1 P-\$' 4\$+&(.+\$9 A/\$9@2.2 -I

4 -5('26E&&8

1. I/, '51(+,.5/

M' ter%1 ') (6r0(/*t s6e*%%' t%0)s> re3ere)*e-st') ('r(s ') (t\$e% s0/r*es> +00(1' ; Or' tOr, 6r' *t%es> (0*/me)t' t%0)-STPs> *ert%%' t%0) 03 ')'1,s%> Ke,AFDA ') (%terme(% te +/%(') *e (0*/me)ts9

.5 Le*t/res2
2. S\$4%9./0 T&+-/.D(&2
 - 2.1. S' m61%)+ 6r0*e(/res %)*1/(%) + ;%010+% '1 s' m61es ') (errs> s6e*%1 *0)s%(er' t%0) 30r %terme(% te 6re*%0) ') (re6r0(/*% %%,9

.5 Le*t/res2

 - 2.2. S01&e)t ') (s01%(6\$' se e:tr' *t%0)> (%tr% /t%0) *0e33%e)t> 6e*e)t e:tr' *te(> '**eler' te(') (m%r07' &e 'ss%te(e:tr' *t%0)>s01%(6\$' se e:tr' *t%0)9

.3 Le*t/res2
- . L\$)5'\$,5'@ A(,54\$, .5/

Pr%)*%1e 03 ' /t0m' t%0)> ' /t0m' te(%str/me)ts> 6r0*ess *0)tr0l> 3107 %Ke*t%0) ')'1,s%9

.3 Le*t/res2

MP="A-1052# ! 551 M\$/(B\$, (. /0 P'\$+, .+&2 (! MP2)

4 -5('26E&&8

19 CO)*e6ts ')(6\$%0s06\$, >+e)er'1+/(e1%)es9

.1 Le*t/res2

29 Or+')%'t%0) ')(6ers0))e1 res60)s% %%%es> tr'%%) +> \$,+%)e> s'3et, 6r0+r'ms> 6ers0))e19

.3 Le*t/res2

39 B/!(%+ ')(6rem%es@ LO*'t%0)> (es%)> 61') 1',0/t> *0)str/*t%0)> 1%\$t%0)+> &e)t%'t%0)> m'%te)')*e ')(s')%'t%0)s> e)&%0)me)t'1 *0)tr0> '% \$')(1%+ s, stems>ster%e 're's>*0)tr01 03 *0)t'm%'t%0)>ster%%'t%0) 03') 're' .TP! STP29

.4 Le*t/res2

49 E4/%me)t@Se1e*t%0)>6/r*\$' se s6e*%%'t%0)s>*1e'

∴ C54%5(/1 F5'4 (9\$,5/2

?/'1%, 's6e*ts 03 *0m60/)(30rm/1't%0)s 03 me(%% '1 61')ts9 M0)0+r'6\$s 03
 *0m60/)(30rm/1't%0)s 03 API>*0)tr0103 e: *%6%)ts>st' ;%%, % (%' t%)+ 6' r' meters9

.2 Le*t/res2

R&\$1./0 M\$,&'\$.9R&+544&/1&1#

19

C. P-4\$&(,+\$9C-&4.2,'@

1. I/B'\$&1 S%&+',52+5%@

- 39 E/r06e') P\$' rm' *060e% 9L' test E(%%)9
- 49 Br%%\$ P\$' rm' *060e% L' test E(%%)9
- 59 Me)(\$' m C9 De))e, R9C9 B'r)es C9D9 ') (T\$0m's M9 ''0+ells Te:t;008 03 ?/')t%' t%e C\$em%'1A)'1,s%9Pe' rs0) E(/*' t%) L%n%e(>S%)+' 60re9L' test E(%%)9
- 9 S%&erste% R9M9 ') (De; ster F9Q9 S6e*tr0metr% l(e)t%%' t%) 03 Or+')% C0m60/)(s9 C0\$) D%e, ')(S0)s>Ne7 E0r89L' test E(%%)9
- 79 ''0+e1 B9=9 ') (''0+e1 D9B9 Dr/+ D%*0&er, ')(E&'1/' t%)9 S6r%) +er-'er1' +> Ber1%)9 L' test E(%%)9
- 59 =\$0s\$ M9N9 F/)('me)t'1s 03 E:6er%me)t'1P\$' rm' *010+,9 B%t0) ! C0m6'),>K018' t'9L' test E(%%)9

MPCOM-1171# M51&' / A/\$9@,.\$9\$/1 P-\$' 4\$+&(,.\$9 T&+-/.D(&2 P'\$+,.\$9 : -5('26E&&8

- A. P-\$' 4\$+&(,.\$9 C-&4.2, '@
 - 19 Ass', 6r0*e(/res 03 &' r%)s (r/+s /s%) + U'' s6e*tr0s*06,>s6e*tr0310/r%metr, ')(IR s6e*tr0s*06,9
 - 29 B' s%'s 03 s6e*tr'1')'1,s%9
 - 39 T\$erm'1')'1,s% /s%) + DSC te*\$)%/e9
- B. P-\$' 4\$+&(,.\$9 2
 - 19 E:er*%es ; 'se(0) (e+r' (' t%) 8%et%'s ')(s\$e13-1%e (eterm%)' t%)9
 - 29 D%\$01/t%) s8(')9.00391(t) -5030360%)m%507219e% /t%)s%
 - 29 Ass 03t

- 9 S%&erste% R9M9 ')(De;ster F909 S6e*tr0metr% l(e)t%%' t%0) 03 Or+')% C0m60/)(s9
C0\$) D%e, ')(S0)s>Ne7 E0r89 L' test E(%%0)9
- 79 "0+e1 B9=9 ')("0+e1 D9B9 Dr/+ D%*0&er, ')(E&'1/' t%0)9 S6r%+er-"er1' +> Ber1%9 L' test
E(%%0)9
- 59 K/18' r)%S9K9 B')(; 008 03 E:6er%me)t'1 P\$' rm' *010+,9 "' '11' ;\$ Pr' 8' s\$')> Ne7 De1\$%
L' test E(%%0)9
- J9 =\$0s\$ M9N9 F/)('me)t'1s 03 E:6er%me)t'1 P\$' rm' *010+,9 B%t0) ! C0m6'),> K018' t'9
L' test E(%%0)9

SEMESTER-II

MP=" A-2051# A%9.&1 P-\$' 4\$+&(.,+9 A/\$9@2.2-II

MPCHM-20126

MP=" A-2052# A1?\$/+&1 A/\$9@,.+9 T&+-/.D(&2

MP=" A-205 # =(\$9.,@ M\$/\$0&4&/, \$/1 C\$9.1\$, .5/

MPCOM-2084# I/,&99&+, (\$9 P'5%&' ,@ R.0-, 2 \$/1 D' (0 R&0(9\$,5'@ ABB\$. '2

MP=" A-2151# P-\$' 4\$+&(.,+9 A/\$9@2.2 P'\$+,.+9-II

MP=" A-2051# A%9.&1 P-\$' 4\$+&(.,+9 A/\$9@2.2-II

4 -5('26E&&8

1. Pr% *%1e ') (6r0*e(/re %)&01&e(% 4/)'t%'t%e (eterm% 't%) 03 t\$e 301107%+ 3/)*t%)'1+r0/6s@B, (r0: ,1* ' r; 0: ,1%>'1(e\$, (e>8et0)e>met\$0: ,1> ester ') (' m%)e9

.4 Le*t/res2

2. A (et'%e(st/(, 03 6r% *%1e ') (6r0*e(/res %)&01&e(% &'r%0/s 6\$,s%0*\$em%'1 met\$(s 03 ') '1,s% 03 6\$'rm'*e/t%'1 (0s'+e 30rms *0)t'%)%+ s/16\$0)'m%(es> ;'r;%/r'tes> ') '1+es%'s ') (')t%,ret%> 10**1 ') 'est\$et%'s> '(re)er+% (r/+s> ')t%'/;er*/1'r (r/+s> (%/ret%'s ') (')t%'n'1'r%1 .m%r0;%010+% '1 ') (' ;010+% '1 met\$(s 're e: *1/(e29

.7 Le*t/res2

. 033%%1met\$(s t0 e&'1/' te ster%e ') (;010+% '1 6re6' r' t%)s

3919 M%r0; %0' ss' ,

3929 Ster%e test%)+ 03 6're)ter'1') (0**/1' r 6r0(/*ts

3939 C\$'1le)+e test t0 e&'1/' te t\$e e33%' * , 03 t\$e 6reser&' t%e

.5 Le*t/res2

4. A)'1,s% 03 (r/+s ') (e:%%e)ts % t\$e s01%(st'te .s01%(st'te NMR> IR re31e*t')*e met\$(0>QRD>DSCAT=A29

.5 Le*t/res2

5. A/\$9@,.+9 4&,-51 ?\$9.1\$, .5/

'''1%(t%) (e3% %0) ') (term% 010+,> esse)t%1 6re-&'1%(t%) '*t%&%e@s S6e*tr0s*06%>BPLC ') (=C met\$(s .st't%t%'1') '1,s% ') (s%t)%%'1)*e % ') '1,t%'1 met\$(s29

.5 Le*t/res2

∴ P\$'rm' *060e%1 'ss',s %&01&e(% t\$e ') '1,s% 03 s0me sele*te((r/+s .' m% 06\$,1%e>6\$e),t0% ') (Ot\$ers29

.3 Le*t/res2

7. 14%('.,@%'5B.9./0

lm6/r%es> (r/+ m' ster 3%es> 6r03%) + 03 %n6/r%es> 033%%1 +/(e1%) es 30r %m6/r%es9

.5 Le*t/res2

8. C9./+ \$9+-&4.2,'@

C0m60s%0) 03 ;100(> *01le*t0) ')(6reser&'t0) 03 s'm6les> *1%)%'1 ')'1,s% 03
ser/m ele*tr01,tes> ;100(+1/*0se ')(;100(/re')%r0+e) .BUN2> /r% '*(>'1; /m%)
')(+10; /1%)s> '*(')('18' 1%)e 6\$0s6\$'t'ses> ;'r; %/r' tes9

.3 Le*t/res2

; . 144 (/5950.+ \$9 4&, -512 5B \$/\$9@2.2

Pr%) *%1es 03 %nm/)0'ss',> s6e*%%%, 03 %nm/)0'ss',s> 6re6'r't0) 03
%nm/)0'ss',s> 6re6'r't0) 03 t\$e ')t%0(> %*/;'t0) 6er0(30r t\$e 'ss',>
se6'r't0) 03 t\$e ;0/)(')(3ree ')t%e)> 31/0res*e)*e %nm/)0'ss',> e)<,me
%nm/)0'ss',9

.3 Le*t/res2

R&\$1./0 M\$,&'.\$9R&+544&/1&1#

2. "9, '\$?.5%&, 6 C.2.) %& S%&+, '52+5%@\$ /1 F9(5'.4&, '@
 E)er+, le&el ') (sele*t%0) r/les> e33e*t 03 s;/st%/e)ts> e33e*t 03 *0)K/+ 't%0)>
 *0)30rm't%0) ') (+e0metr,> t\$e D00(7'r(-F%\$er r/les> t\$e F%\$er-K/\$) r/les>
 '661%'t%0)s 03 U'' 7%\$ re3ere)*e t0 (%3ere)t ele*tr0)% s, stems9 Der%&'t%e
 s6e*tr0s*06, ')(%s '661%'t%0)s9
 F1/Ores*e)*e ')(*\$em%'1 str/*t/re> 31/Ores*e)*e %te)s%,> 3'*t0rs '33e*t%0)+
 31/Ores*e)*e> %str/me)t't%0)> *0m6'r%0) 03 31/Or0metr, 7%\$ U''
 s6e*tr06\$0t0metr,>'661%'t%0)s 03 31/Or%metr, % 6\$'rm'*e/t%'1')'1,s%9
 .5 Le*t/res2

. N(+%&\$' M\$0/&,.+ R&25/\$/+& S%&+, '52+5%@

¹H-NMR 2%&+, '52+5%@

M'+)et% e4/%'le)*e> 3'%/re 03 t\$e N-1 r/le> *\$em%'1 s\$%ts> 10*1 (%m'+)et%
 s\$%el(%> \$, ; r%(%'t%0) e33e*ts> m'+)et% ')%0tr06,> me*\$')%m 03 s6%-s6%
 0/61%> t\$e 0r%-% 03 s6%-s6% s61%t%> P's'1s tr%)+le> t\$e *0/61%+ *0)st')t>
 6r0t0)s 0) 0: ,+e>)%r0+e) ')(s/16\$/r> (%stere0mer% 6r0t0)s> *\$em%'1 s\$%t
 re'+e)ts> 10)+ r'+e *0/61%> s6% (e*0/61%+ met\$0(s>)/*1e'r 0&er B'/ser e33e*t9
 COrrrel't%0) NMR s6e*tr0metr,@l)tr0(/*t%0) t0 ¹B -¹B *0s, ')(¹B - ¹³C *0s, ')(%s
 '661%'t%0)s9l)tr0(/*t%0) ')('661%'t%0)s 03 2D NMRf s01%(st'te NMR9

¹C-NMR 2%&+, '52+5%@

l)tr0(/*t%0)> 6e'8 'ss%)me)ts> 033 res0'))*e (e*0/61%> sele*t%e 6r0t0)
 (e*0/61%> *\$em%'1 s\$%t e4e1e 0* \$+5r/)%em%'1

met\$(sf '661%'t%) 03 Q-r', (%3r' *t%) te*\$)%4/e % 6\$'rm' *e/t%'1 s*%) *es9
Ele*tr0) m%ros*06, ')(ele*tr0) (%3r' *t%)9

.4 Le*t/res2

7.

MASTER OF PHARMACY (M. PHARM.) (SEMESTER SYSTEM)

MP=" A-2151# P-\$' 4 \$+& (, .+\$9 A/\$9@2.2 P'\$+ ,.+\$9-II

14 -5 ('26E&&8

.l) *1/ (%) + T/tOr% 1ADOr8s\$06ASem%) ' r et*2

P-\$' 4 \$+& (, .+\$9 C-&4.2, '@

19 Dr/+ ') '1, s% /s%) + U''-'IS> IR> NMR> MS> QRD> DSC ') (P\$' rm' *060e%1 ' ss' , s 03
&' r%0/s (0s' +e 30rms9

29 DOr8s\$06s 0) s6e*tr'1%) ter6ret' t%)s9

! RO" P :# M. PHARM. (DR" ! DISCOERY AND DR" ! DECELOPMENT)

SEMESTER-I

MPDRD-10: 1#	D' (0 D.2+5?&'@ P'5+&22&2
MPDRD-10: 2#	P'&+9./.+9 D' (0 D.2+5?&'@ \$/1 D' (0 D&?&95%4&/,
MPDRD-10: #	P-\$'4\$+58./&,+2 \$/1 P-\$'4\$+51@/\$4.+2 ./ N&E D' (0 D&?&95%4&/,
MPCOM-1071#	M51&' / A/\$9@,+9 \$/1 P-\$'4\$+&(.+9 T&+-. /D(&2
MPDRD-11: 1#	D' (0 D.2+5?&'@ P'\$+,.+9-I
MPCOM-1171#	M51&' / A/\$9@,+9 \$/1 P-\$'4\$+&(.+9 T&+-. /D(&2 P'\$+,.+9

MPDRD-10: 1# D' (0 D.2+5?&'@ P'5+&22&2

4 -5('26E&&8

1. M51&9 A%%'5\$+-&2 5B D' (0 D.2+5?&'@ B'54 N\$, ('\$9 S5(' +&2
Se1e*t%0) 03)'t/r'1 s0/r*es 30r (r/+ (%*0&er, ;'se(0) 6\$,t0*0)st%/e)ts>
*\$em0t':0)0m,> et\$)06\$'rm' *010+%*1 re*0r(s ') (r')(0m '66r0'*\$9 C\$em%'1
*0)st%/e)ts ') (*0m60/)(e:tr' *t 's (r/+s> s,)er+, 6r% %*6le % 61')t (r/+s9 P1')t
se*0) ('r, met'; 01%es 's)e7 (r/+ tem61'tes9 Pre6'r't%0) 03 61')t m'ter%1 30r
; %010+%*1 e&'1/'t%0) .&'r%0/s met\$0(s 03 e:tr' *t%0)> s01&e)t *\$0%es> (0se sele*t%0)>
6re6'r't%0) ')(m0(e 03 ' (m%)%tr' t%0)29 B%0' *t%&%, +/%(e 3r' *t%0)' t%0)9 Se6'r't%0)
te*\$)%/es .*01/m) *\$r0m't0+r' 6\$,>*e)tr%/+ '11, '**eler'te (*\$r0m't0+r' 6\$,>BPLC
')(MPLC2 30r %01't%0) 03 1e' (m01e*/les9 N't/r'1 6r0(/*t 1% r'r%es ') (re*e)t
(e&e106me)t %)'t/r'16r0(/*ts9

.20 Le*t/res2

2. C-&4.2,'@ 5B C&99 M&4)'\$/&
Re*e6t0rs@ Dr/+ re*e6t0r %ter' *t%0)f

3929 "' r0/s ' 66r0' *\$es % ?SAR@O; ke*t%es 03 ?SAR> B')s*\$ ' 66r0' *\$> Free-D%0)
 m0(e> st' t%t%' 1 met\$0(s>) 0)-*0m6/ter ' ss%te(se' r*\$ 06er' t0)s 1%e T061%
 (e*%0) tree s%61e: met\$0(>F% 0)' **%se' r*\$ te*\$)%/e9
 3939 P' r' meter%' t0) 03 +r0/6sAm01e*/1es@E1e*tr0)%> ster% ') (1%06\$10% m01e*/1' r
 (es*r%t0)s>4/')t/m *\$em%' 1 *'1*/1' t0)s9
 3949 l)tr0(/*t0) t0 m01e*/1' r m0(e10) +9
 3959 C/rre)t1, /se((r/+ (%*0&er, t001s % 6\$' rm' *e/t%' 1%) (/str, 9

.7 Le*t/res2

4. R\$, .5/\$9 D&2.0/ 5B E/F@4&2 I/-.) .,5'2

4919 Des%) 03)0)-*0&' 1e)t1, ; % (% + e)<, mes % \$ % %0rs@R' 6%(re&ers% 1e % \$ % %0rsf
 s107> t%\$t ') (s107-t%\$t % \$ % %0rsf tr') s%0) st' te ')' 10+/esf m/1t%/; str' te
 % \$ % %0rs9
 4929 C/rre)t (e&e106me)ts 7%\$ res6e*t t0 t\$e % \$ % %0) 03 t\$e 301107% + e)<, mes@
 Re&erse tr') s*r%t' se> *' te*\$01-0-met\$, 1 tr') s3er' se> '*et, 1*\$01% ester' se>
 +1, *% ' m%(e r% 0)/ *1e0t%(e tr') s30rm, 1' se> BM= COA re(/*t' se % \$ % %0rsf
 ')t%net' ; 01%es@ (% , (r0301' te re(/*t' se % \$ % %0rs> 6\$0s6\$0(% ester' se> 6r0te%)
 8% ' se9
 4939 Des%) 03 *0&' 1e)t1, ; % (% + e)<, me % \$ % %0rs@ Me*\$')%m ; ' se(% \$ % %0rsf
 ' 33% % , 1' ; e1sf 6se/(0%re&ers% 1e % \$ % %0rs9 O)e re6rese)t' t%e e:' m61e e' *\$
 3r0m 6, r%(0: , 1 6\$0s6\$' te (e6e) (e)t e)<, mef =ABA tr') s3er' sef Or)% \$ % e
 (e*' r; 0: , 1' sef m0) 0' m%) e 0: % (' sef t\$, m%(, 1' te s,) t\$' sef *re' t%) e 8% ' se ') (L-
 =1/*0s% (' se % \$ % %0rs9

.12 Le*t/res2

R&\$1./0 M\$, &' . \$9 R&+544&/1&1#

- 19 D%1% ms D9A> Lem8e T9L9 F0, els Pr% *%61es 03 Me(%%) ' 1 C\$em%tr, 9 L%66% *0tt D%1% ms ') (D%8%) s>P\$%' (e16\$% 9L' test E(%%) 9
- 29 D0133 M9E9 B/r+erls Me(%%) ' 1 C\$em%tr, ') (Dr/+ D%*0&er, 9 C0\$) D% M9E 2' trstE(%%) (9) 2.4.441]TJC/R73 1196

MPDRD-10: # P-\$'4\$+58./&,.+2 \$/1 P-\$'4\$+51@/\$4.+2 ./ N&E D'(0 D&?&95%4&/,

4 -5('26E&&8

1. C54%\$' ,4&/,\$9P-\$'4\$+58./&,.+2
 Re&%7 03 3/)('me)t'ls> term%010+,> ;'s% s 03 8%et% s 301107%)+ s%)+1e (Ose
 '(m%)%tr't%0) t\$R0/+\$ %st')t')e0/s ') ()0)-%st')t')e0/s r0/tes .1%8e %&9 ;01/s>
 %&9 %3/s%0)>6er0r'1>et*%2 /s%)+ ser/m ') (/r% e 1e&e1s>0)e ') (m/1t%*0m6' rtme)t'1
 8%et% s>m/1t%1e (Ose '(m%)%tr't%0)>s/6er60s%0) r/1e>6r0; lem s01&%)+
.7 Le*t/res2
2. N5/+54%\$' ,4&/,\$9P-\$'4\$+58./&,.+ M51&9./0 A%%'5\$+-
 P%3'1ls 03 *0m6' rtme)t'1 te*\$)%%/es ') ('(&')t'+es 03 m0(e1-%) (e6e)(e)t
 '66r0'*\$es> (e3%)%0) ') (s%+)%%'')*e 03 st0*\$' st% '66r0'*\$> st't%t%'1 m0me)ts>
 AUC> AUMC> (eterm%t%0) 03 AUC ! AUMC /s%)+ te*\$)%%/es 1%8e tr'6e<0%('1> 10+
 tr'6e<0%('1> s61%e) PTTO ') (\$,; r%('66r0'*\$es> MRT ') (%s s%+)%%'')*e %
 6\$' rm' *08%et% s9
.7 1e*t/res2
3. N5/-9./&\$' P-\$'4\$+58./&,.+2
 De3%)%0)>s%+)%%'')*e ') ('661%' t%0)s 7%\$ 1%er' t/re e:' m61es> re*0+)%0) 03)0)-
 1%e'r%,>*0m6/t' t%0) 03)0)-1%e'r 6\$' rm' *08%et% 6' r' meters ."m>K_m> AUC> et*%2
 3r0m t\$e t%me *0/rse ') (AUC 03 ' (r/+ % ;0(, ; e%)+ e1%r%)' te(; , s%)+1e M%\$' e1%
 Me)te) 8%et% s9
.7 Le*t/res2
4. B.5\$?\$.9\$).9,@ \$/1 B.5&D(.\$%&/+&
 B's% *0)*e6ts> (es%+)') (e&'1/' t%0) 03 ;%0e4/%&'1e)*e tr%1s9 Fe(er'1 .US FDA !
 DC=l2 +/%(e1%e)s 30r 0r'1 (r/+ (e1%er, s, stems@ Imme(% te rele'se ') (e:te)(e(
 rele'se 30rm/1' t%0)s9
.7 Le*t/res2
5. B.5%-\$'4\$+&(,+\$9C9\$22.B.+\$, .5/ S+-&4& (BCS) \$/1 ICICC
 ') (*Orrel' t%0)s .l''l''C2@C0)*e6ts> (%s01/t%0) 's' s/rr0+' te t0
 ;%0' &' %' ;%&,> &' r%0/s l''l''CAI''l''R '66r0'*\$es % t\$e 1%\$t 03 BCS>'661%' t%0)s

MASTER OF PHARMACY (M. PHARM.) (SEMESTER SYSTEM)

MPCOM-1171# M51&' / A/\$9@,..+\$9\$/1 P-\$' 4\$+&(<.,+\$9 T&+- / .D(&2 P'\$+ ,.+ \$9 : -5('26E&&8

- A. P-\$' 4\$+&(<.,+\$9 C-&4.2,'@
 - 19 Ass', 6r0*e(/res 03 &' r%0/s (r/+s /s%) + U'' s6e*tr0s*06,> s6e*tr0310/r%metr, ') (IR S6e*tr0s*06,9
 - 29 B' s% s 03 s6e*tr'1')'1,s%9
 - 39 T\$erm'1')'1,s% /s%) + DSC te*\$) %4/es9
- B. P-\$' 4\$+&(<.,+2
 - 19 E:er*%es ; 'se(0) (e+r' (' t%0) 8%) et%'s ') (s\$e13-1%e (eterm%) ' t%0)9
 - 29 D% s01/t%0) st/(%s 03 m' r8ete(30rm/1' t%0)s9
 - 39 A), 0t\$er 6r' *t%'1 ; 'se(0) t\$e0r,9
- C. P-\$' 4\$+5950@
 - 19 B%0' ss', (es%+)s /s%) + &' r%0/s %) -&%r0 6re6' r' t%0)s9
 - 29 E:6er%me)t'1 T0:%010+, @C'1* /1' t%0)s 03 LD₅₀ &'1/es ') (t\$er' 6e/t% %) (e:9
- D. P-\$' 4\$+50/52@
 - E:er*%es 0) *\$r0m' t0+r' 6\$% te*\$) %4/es9

SEMESTER-II

MPDRD-20: 1# D' (0 D&2.0/ \$/1 D&?&95%4&/,
 MPDRD-20: 2# C9./.+ \$9 D' (0 D&?&95%4&/,
 MPDRD-20: # D' (0 D&9.?&'@ I22 (&2 ./ N&E D' (0 D&?&95%4&/,
 MPCOM-2084@ I/, &99&+, (\$9 P'5%&' ,@ R.0-, 2 \$/1 D' (0 R&0 (\$\$,5'@ ABB\$. '2
 MPDRD-21: 1# D' (0 D.2+5?&'@ P' \$+, .+\$9-II

MPDRD-20: 1# D' (0 D&2.0/ \$/1 D&?&95%4&/,

4 -5 ('26E&&8

19 D' (0 D.2+5?&'@ B'54 S@/, -&, .+ S, '\$, &0.&2

PrOte*t%0) ')((e6r0te*t%0) 03 &' r%0/s +r0/6sf P01,m0r6\$%m % (r/+ (%*0&er,F
 P01,mers@M0)0mers ')(601,mers> ' ((%1%0) 601,mers> stere0*\$em%tr, 03 601,mers>
 *0601,mers 03 t70 0r m0re m0)0mers>*0) (e)s' t%0) 601,mers>' 661%' t%0)s9

.5 Le*t/res2

29 T-'&& D.4&/2.5/\$9 S, '(+ ('&-\$.1&1 D' (0 D&2.0/

P01&0.0/2(K) -0.488281() -3.92578(*4C35 41(') -4.;) -2.4141(811(2.9253)8.45739063() -4.60938(3.16406(9)2528

59 C\$em%'1*0)tr'*e6t%es .1' test ' (&)*es ')(FDA '66r0&e((r/+s29

.2 Le*t/res2

J9 C/rre)t s*e)'r%0 03 (r/+ (%*0&er, %))'t%0)'1 rese'r*\$ 1';Or't0r%es ')(l)(%)

2949 PrOt0*01 (es%)% +> CRF> 6' t%)t % 30rme(*0)se)t ! e)r01me)t 30r *1%)%'1
tr% 1s> % *1/s%) ') (e: *1/s%) *r%er% > 7%\$(r' 7' 1s ') ((r06 0/ts> 7' s\$ 0/t ') (r/) % 6er%0(9

.4 Le*t/res2

2959 M0)%0r%) + 03 *1%)%'1 tr% 1> re60rt 6re6' r' t%)> (e&% t%) % *1%)%'1 tr% 1s9

.4 Le*t/res2

. C9./.+ \$9 D\$, \$ M\$/\$0&4&/,

Re+/1' t0r, re4/%eme)t> (' t' ; 'se (e&e106me)t> CRF> (' t' e)tr,> 4/er,> *0rre*t%)
') ((' t' & ' 1%(' t%)9

.4 Le*t/res2

4. R&+&/, T' &/12 ./ C9./.+ \$9 T' . \$9

e-C1%)%'1 tr% 1> *1%)%'1 tr% 1 re+/1' t0r, ' 33' %s> (Oss%er ') (%s *0m60)e)ts> DMF> CRO>
*\$' 1le)+es> 1% m%' t%)s ') (%s r01e %) (r/+ (e&e10

MPDRD-20: # D' (0 D&9.?&'@ l22 (&2 ./ N&E D' (0 D&?&&95%4&/,

4 -5 ('26E&&8

1.

29. E' 1807s8, S9B9 Te*\$) %/es 03 S01/; %%' t%0) 03 Dr/+s9 M' r*e1 De88er> Ne7 EOr89L' test E(%%0)9
39. Rem% +t0) C9P9 S*%e)*e ') (Pr' *t%e 03 P\$' rm' *, 9 L%

4. T&+ - /5950@ D&?&95%4&/,6T'\$/2&&' C54 4&&' +.\$9.F\$, .5/ R&9\$, &1 A2%&+,2
 Te*\$)010+, (e&e106me)t@ Me')%>+ (r/+ rel'te(te*\$)010+, (e&e106me)t>
 t0:%010+% '1 st/(%es> ;%0e4/%&'1e)*e .BU2> *1%)%'1 tr%1 6\$'se l>P\$'se ll ')(6\$'se
 ll> '66r0&e(;0(%es ')('+e)*es> s*'1e-/6> sem%*Ommer*%'1%'t0) ')(
 Ommer%'1%'t0)S6r' *t%'1 's6e*ts ')(6r0;1ems> s%&)%%'')*e 03 tr')s3er 03
 te*\$)010+, .TOT2> ;0ttle)e*8s> m')'+%>+ te*\$)010+, tr')s3er> +/(e1%)es 30r
 rese'r*\$ st/(e)ts> s*%e)t%ts ')(rel'te(6ers0))e1> TOT '+e)*es %> l)(% APCTD>
 NRDC> TIFAC> IBCIL> TBSEASIDBI9 TOT rel'te((0*/me)t't0)@ CO)3%(e)t%1%,
 '+reeme)ts> 1%e)s%>+ MOUs> 1e+'1 %s/es> *Om6/1s0r, 1%e)s%>+ ')(%s/%>+ 03
 ' **ess t0 me(%%)es>DOBA (e*'1 r't0)9
- .10 Le*t/res2
5. E, -. +2 \$/1 C\$9(&2 ./ IP

SEMESTER G III > IC

Rese' r*\$ 70r8 (/r%) + t\$(') (30/rt\$ semester9

T\$e e:'m%)'t%) s\$'11 *0)s%t 03 t\$es% s/;m%te('t t\$e e) (03 30/rt\$ semester ') (6rese)t' t%) % t\$e 06e) sem%)' r9

T\$e res/lt 03 t\$e e:'m%)'t%) 7%1 ;e +%&e) 's 6' ss Or 3' % 7%\$0/t m' r8s9

.....

Published by : Prof. A.K. Bhandari, Registrar, Panjab University, Chandigarh