SEAL

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SET-X

10001

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## Ph.D./URS-EE-Jan-2022

**SUBJECT: Pharmaceutical Science** 

		Sr. No
ime : 11/4 Hours	Max. Marks : 100	Total Questions : 100
foll No. (in figures)	(in words)	
ame	Father's Name	
fother's Name	Date of Examination	
(Signature of the Candidate)	_	(Signature of the Invigilator)

## CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

- 1. All questions are compulsory.
- 2. The candidates must return the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfairmeans / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
- 3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
- 4. Question Booklet along with answer key of all the A, B, C & D code will be got uploaded on the University website after the conduct of Entrance Examination. In case there is any discrepancy in the Question Booklet/Answer Key, the same may be brought to the notice of the Controller of Examination in writing/through E.Mail within 24 hours of uploading the same on the University Website. Thereafter, no complaint in any case, will be considered.
- 5. The candidate *must not* do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers *must not* be ticked in the question booklet.
- There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
- 7. Use only Black or Blue Ball Point Pen of good quality in the OMR Answer-Sheet.
- 8. Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 initiates after starting of the examination.

1.	Identify the incorrect statement from among the following:
	(1) Aromatic compounds are Planar
	(2) Aromatic compounds are cyclic
	(3) Aromatic compounds have 4n electrons
	(4) Aromatic compounds are generally less reactive than similarly substituted alkenes.
2.	In electrophilic aromatic substitution reactions the halides are:
	(1) Ortho/para directing and activating
	(2) Ortho/para directing and deactivating
	(3) Meta directing and activating
	(4) Meta directing and deactivating
3.	A drug follow zero order degradation kinetics with rate constant $k_0$ =0.70 / day. The initial concentration of drug solution is 75 mg/ml. What would be the concentration of solution after seven days?
	(1) 70.9 mg/ml (2) 71.8 mg/ml
	(3) 72.9 mg/ml (4) 69.1 mg/ml
4.	How many grams of active ingredient would be required to prepare 920 ml of 0.95% w/v solution?
	(1) 8.74 gm (2) 874 mg
	(3) 9.5 gm (4) 950 mg
5.	How many grams of the zinc oxide (10%, w/v) cream, be mixed with zinc oxide (1% w/v) cream to prepare 450 gm of zinc oxide (5% w/v) cream?
	(1) 200 gm (2) 250 gm
	(3) 50 gm (4) 150 gm

10				
6.	How many ml of alcohol would	be required to prepare 750 ml of 1 in 20 solution?		
	(1) 2 ml	(2) 3.75 ml		
	(3) 20 ml	(4) 37.5 ml		
7.	A pseudoplastic liquid			
	(1) becomes less viscous as the	rate of shear increases		
	(2) becomes more viscous as the rate of shear increases			
	(3) becomes less viscous over ti	me when a constant shear stress is applied		
	(4) becomes more viscous over time when a constant shear stress is applied			
8.	What is the kinematic viscosity of a liquid that has a density of 1.2 g cm <sup>-3</sup> and a dynamic viscosity of 2cP?			
	(1) $0.6 \text{ m}^2 \text{ s}^{-1}$	(2) $1.67 \times 10^{-6} \text{ m}^2 \text{ s}^{-1}$		
	(3) $1.67 \text{ m}^2 \text{ s}^{-1}$	(4) $0.6 \times 10^{-6} \mathrm{m}^2 \mathrm{s}^{-1}$		
9.	Choose the <i>incorrect</i> statement :			
	(1) Different polymorphic forms of a drug can have different melting points			
	(2) Different polymorphic forms of a drug can have different molecular formulae			
	(3) Different polymorphic forms of a drug can have different solubility			
	(4) Different polymorphic forms of a drug can have different crystal habit			
10.	Which of the following represent the strongest intermolecular force of interaction?			
	(1) Hydrogen bond	(2) Covalent bond		
	(3) London dispersion	(4) Dipole-diploe interaction		
11.	Diamorphine differs from morph	hine by the presence of :		
	(1) two methyl groups	(2) two acetyl groups		
	(3) one acetyl group	(4) one methyl group		

12.	Esomeprazole is the of omep	razole.		
	(1) (S)-enantiomer	(2) (R)-enantiomer		
	(3) E-isomer	(4) racemic mixture		
13.	Which of the following is the most appropriate parameters for qualitative identification of substances in chromatography?			
	(1) Retention time	(2) Resolution factor		
	(3) HETP	(4) Relative retention factor		
14.	Which of the following carbonyl compound reacts violently with water?			
	(1) Ethanal	(2) Ethanoic acid		
	(3) Ethanoyl chloride	(4) Butan-2-one		
15.	5. The reaction of conversion of an aldehyde to alcohol is			
	(1) Oxidation	(2) Polymerization		
	(3) Reduction	(4) Esterification		
16.	Which one of the following compounds does not absorb light in the UV-Vis spectrum?			
	(1) Paracetamol	(2) Diclofenac		
	(3) Curcumin	(4) Chloral hydrate		
17.	The primary site for amino acid cataboli	sm is		
	(1) Kidney	(2) Liver		
	(3) Brain	(4) Adipose tissue		
18.	The tertiary structure of protein refers to			
	(1) the overall 3D shape	(2) the sequence of amino acids		
	(3) the sequence of nucleotides (4) the arrangement of subunits			
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19	. Identify the correct statement for glye	colysis:
	(1) The gluconeogenesis is the exact	opposite of glycolysis.
	(2) In glycolysis, the glucose is form	ed from pyruvate.
	(3) Glycolysis can take place under a	macrobic conditions.
	(4) The mitochondria is the primary s	site of glycolysis.
20.	. What is the term used for drugs that a are used for the same purpose ?	are similar in structure to a known drug and which
	(1) copycat' drugs	(2) 'me-too' drugs
	(3) derivative drugs	(4) 'analogue' drugs
21.	What is the term used for small molesite?	ecules that bind to different regions of a binding
	(1) epimers	(2) isomers
	(3) isotopes	(4) epitopes
22.	Which of the following is <i>not</i> an endo	genous lead compound ?
	(1) neurotransmitter	(2) modulator
	(3) alkaloid	(4) hormone
23.	What bacterial enzyme aids the surviv	al of Helicobacter pylori in the stomach?
	(1) carbonic anhydrase	(2) urease
	(3) β-lactamase	(4) transpeptidase
24.	What sort of receptor is the nicotinic re-	eceptor ?
	(1) A G-protein coupled receptor	
	(2) A kinase linked receptor	
	(3) An intracellular receptor	
	(4) An ion channel	
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25.	Which feature of acetylcholine interacts by hydrogen bonding?	s with the binding site of cholinergic	receptors
	(1) The acyl methyl group		
	(2) The ester		
	(3) The quaternary nitrogen		
	(4) All three N-methyl groups		
26.	Which of the following needs lie on the need theory?	top of the pyramid as per Maslow's	hierarchy
	(1) Physiological needs	(2) Safety needs	
	(3) Self-actualization needs	(4) Esteem needs	
27.	The Theory of Leadership which stadeveloped is:	tes that the excellent leaders are	born, not
	(1) The Trait Theory		
	(2) The Great Man Theory		
	(3) The Behavioural Theory		
	(4) The Transformational Theory		
28.	Which heterocyclic ring system is presen	nt in Rofecoxib?	
	(1) Furan	(2) Indole	
	(3) Pyridine	(4) Pyrrole	
	(0) 2) 22222	(1)	
29.	The drying process where Eutectic point	is involved:	
	(1) Fluid bed drying		
	(2) Tray drying		
	(3) Freeze-drying		
	(4) Both fluid bed and freeze drying		
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30.	During distillation of mixtures of liquid	s, the one which evaporates first is
	(1) more volatile liquid	(2) less volatile liquid
	(3) non-volatile liquid	(4) immiscible liquid
31.	Which of the following states that the directly proportional to the area and ter to the length of the path of flow:	rate of heat flow through a uniform material inperature gradient, while inversely proportional
	(1) Rittinger's Law	(2) Zeroth Law
	(3) Fourier Law	(4) Fick's Law
32.		if all the particles pass through a sieve with d not more than 40% by weight through a sieve
	(1) $710  \mu m$ , $250  \mu m$	(2) 350 μm, 180 μm
	(3) $180 \mu m$ , $125 \mu m$	(4) 1700 μm, 355 μm
33.	What is observed during mixing of solic speed?	ds in V-Cone Blender, if the speed kept to high
	(1) Segregation	(2) Sedimentation
	(3) Uniform dispersion	(4) None of these
34.	Corrosion of metals is fairly high in one	of the following medium:
	(1) Acidic	(2) Alkaline
	(3) Neutral	(4) Non-Aqueous
35.	The list of authoritative books of Ayurv	edic, Sidhha and Unani Tibb system is given in 1940.
	(1) Schedule T	(2) First Schedule
	(3) Schedule M <sub>1</sub>	(4) Schedule P
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36.	deals with the list of drugs exempted from certain provisions governing manufacture and sale of drugs.		
	(1) Schedule K	(2) Schedule D	
	(3) Schedule X	(4) Schedule P	
<b>37.</b> The label on containers for drugs for internal use, listed in Schedule X must c following information :			
(1) Symbol XRx in red letters on the top left corner			
	(2) Manufacturing licence No.		
(3) Warning: To be sold by retail on the prescription of Registered Me practitioner only			
(4) All of these			
38.	Which type of the bond geometry is assonumber 4?	ociated with the complexes having coordination	
	(1) Tetrahedral	(2) Trigonal	
	(3) Square planar	(4) Linear	
39.	<b>39.</b> Identify the derived property of powders :		
	(1) Surface area	(2) Solubility	
	(3) Size distribution	(4) Porosity	
40.	Which of the following statement is NO	T TRUE for Passive diffusion?	
	(1) It can be explained by Fick's Law		
	(2) It is an energy independent process		
	(3) Drugs moves against the concentrat	ion gradient	
	(4) It is non saturable process		
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<ul> <li>41. Which kind of molecules cannot pass through a pore transport? <ul> <li>(1) Low Molecular weight molecules</li> <li>(2) Water-soluble drugs</li> <li>(3) Molecules upto 400 Dalton</li> <li>(4) Molecules greater than 400 Dalton</li> </ul> </li> <li>42. Non-linear pharmacokinetics can also be identified as pharmacokinetics. <ul> <li>(1) dose dependent</li> <li>(2) enzyme capacity limited</li> <li>(3) saturation</li> <li>(4) All of the above</li> </ul> </li> <li>43. Which of the following is the characteristic of non-linear pharmacokinetics?</li> </ul>	
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(1) dose dependent (2) enzyme capacity limited (3) saturation (4) All of the above	
(1) dose dependent (2) enzyme capacity limited (3) saturation (4) All of the above	
(3) saturation (4) All of the above	
<b>43.</b> Which of the following is the characteristic of non-linear pharmacokinetics?	
when of the following is the characteristic of non-linear pharmacokinetics?	
(1) Area under the curve is proportional to the dose	
(2) Elimination half-life remains constant	
(3) Area under the curve is not proportional to the dose	
(4) Amount of drug excreted through remains constant	
to the state of th	
44. The Non-linear pharmacokinetic arises due to	
<ol> <li>Pathological alteration at any one of the various pharmacokinetic steps, suc absorption, distribution and/or elimination.</li> </ol>	h as
(2) Capacity-limited metabolism.	
(3) Alteration in protein binding characteristics	
(4) All of the above	
45. Which of the following applies to non-compartmental pharmacokinetics?	
(1) MRT = AUMC/AUC	
(2) AUMC = MRT/AUC	
(3) $MRT = AUC/AUMC$	
(4) $AUC = AUMC/MRT$	

46.	The Wagner-Nelson-Method in comdetermination of	partment n	nodelling	is empl	oyed	for the
	(1) absorption rate constant (Ka) from % ARA Vs time curve					
	(2) elimination rate constant (Ke) from % ARA Vs time curve					
	(3) absorption rate constant (Ka) from % ARA. Vs Concentration curve					
	(4) Determination of plasma half life					
47.	Which of the following drug metabolism	reaction is	not conjuga	ation?		
	(1) Glucuronidation	(2) Sulfate	formation			
	(3) Hydrolysis	(4) Methyl	lation			
40	Identify the characteristic feature of colo	mic release s	evetems			
48.						
	(1) They release the drug along the entire length of GIT					
	(2) They use enteric coating.					
	(3) They employ polymers that dissolve only in the alkaline pH of colon					
	(4) Both (2) and (3)					
49.	Anhydrous lactose offers advantage of	ove	r lactose hy	drate.		
	(1) better flow properties					
	(2) absence of maillard reaction					
	(3) better compressibility					
	(4) none of the above					
50.	The B tooling and D tooling of tablet ma	achine have	different	o least		
	(1) punch and die length					
	(2) die length but same punch length					
	(3) punch and die diameter					
	(4) die diameter but same punch diamet	ter				
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51	. Which of the following describes salbu	tamol, a β2-adrenoceptor agonists?	
31	(1) Direct acting sympathomimetic		
	(2) Indirect acting sympathomimetic		
	(3) Direct acting parasympathomimetic		
	(4) Indirect acting parasympathomimet	ric	
52.	Which of the following physiological response of the body?	processes are not parts of the 'fight and flight	
	(1) Vasodilatation in skeletal muscle	(2) Increased gut motility	
	(3) Bladder relaxation	(4) Sweating	
53.	Where is the hormone erythropoietin pr	oduced in the body?	
	(1) Spleen	(2) Liver	
	(3) Thyroid	(4) Kidney	
54.	Partial agonists are molecules that		
		se irrespective of the presence of antagonists.	
	(2) have affinity toward the target receptor but no efficacy.		
	(3) have affinity and efficacy toward the target receptor.		
	(4) have an agonistic effect on the receptor, but only ever achieve a submaxima response		
55.	Which of the following statement is <i>corn</i>	rect for bioavailability 2	
	(1) Bioavailability describes the pro-	portion of the drug administered that is not available to induce a physiological effect.	
	(2) Bioavailability describes the ability undesirable physiological effects.	of the administered drug metabolites to cause	
	(3) Bioavailability is used to describe	the fraction of the dose of drug administered acilitates the desired physiological effects.	
	(4) Bioavailability is the length of time	desired physiological effects.	

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and thus is available to cause a physiological effect.

(4) Bioavailability is the length of time an administered drug is present in the body

**56.** Microorganisms on culturing in nutrient broth show growth at different locations in the test tube. Match the location of growth with the characteristics of microbes.

#### Growth location Microbial characteristics 1 Bottom of the test tube P Facultative anacrobe II Whole of the test tube Q Obligate acrobes III Top of the test tube Microaerophile R IV Slightly below the top S Obligate anacrobes of the test tube (1) I-S, II-P, III-Q, IV-R (2) 1-P, II-Q, III-R, IV-S (3) I-S, II-P, III-R, IV-Q (4) I-S, II-R, III-P, IV-Q

**57.** Match the following drugs with their therapeutic category.

	Drugs		Therapeutic Indications
I	Alogliptin	P	MDR-Tuberculosis
П	Bedaquiline	Q	Cushing's disease
Ш	Roflumilast	R	Chronic obstructive pulmonary disease
IV	Pasireotide	S	Type 2 Diabetes mellitus
(1)	I-S, II-P, III-Q, IV-R		
(2)	<b>I-P</b> , <b>II-</b> Q, III-R, IV-S		
(3)	<b>I-S</b> , <b>II-P</b> , <b>III-</b> R, <b>I</b> V-Q		
(4)	I-S, II-R, III-P, IV-Q		

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58	Match	the	following	NSAiDs	with th	neir	chemical	class:
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	NSAIDs	Chemical Class			
	1 Indomethacin	P Propionic acid derivative			
	II Ibuprofen	Q Pyrrolo-pyrrole derivative			
	III Diclofenac	R Indole derivative			
	IV Ketorolac	S Arylacetic acid derivative			
	(1) I-R, II-P, III-S, IV-Q				
	(2) I-P, II-Q, III-R, IV-S				
	(3) I-S, II-P, III-R, IV-Q				
	(4) I-S, II-R, III-P, IV-Q				
59.	In which of the following conditions Is	Ketoacidosis is <i>not</i> present:			
	(1) Diabetes mellitus	(2) Starvation			
	(3) Dehydration	(4) Diabetes insipidus			
60.	Which of the following are <i>not</i> the sig	gns of inflammation?			
	(1) Swelling	(2) Pallor			
	(3) Redness	(4) Pain			
61.	The cancer cells in stage 2	•			
	(1) have spread to other parts of the body				
	(2) may or may not have spread to lymph nodes				
	(3) have spread to the lymph nodes a	bove collar bone			
	(A) are not enreading	The second second			

62.	The	most	common	type	e of	ang	ina	is	
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- (1) Stable angina
- (2) Microvascular angina
- (3) Variant angina
- (4) Unstable angina

(4) I-S, II-R, III-P, IV-Q

63. Match the following phytoconstituents with their chemical tests.

# Alkaloid I Tropane I Indole II Isoquinoline IV Diterpene (1) I-S, II-P, III-Q, IV-R (2) I-P, II-Q, III-R, IV-S (3) I-S, II-P, III-R, IV-Q

**64.** Match the following diuretics with their appropriate category.

	Diuretic		Category
P	Furosemide	I	Carbonic anhydrase inhibitor
Q	Spironolactone	П	Phenoxyacetic acid derivative
R.	Ethacrynic acid	Ш	Potassium sparing
S	Acetazolamide	IV	Sulphamoyl derivative
(1)	P-IV, Q-III, R-II, S-I,		
(2)	P-I, Q-III, R-II, S-IV		
(3)	P-IV, Q-I, R-II, S-III		
(4)	P-IV, Q-II, R-I, S-III		

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65.	Which of the following drugs can antag	onise 5-HT?
	(1) Cinnarizine	(2) Cyproheptadine
	(3) Ondansetron	(4) All of the above
66.	Which of the following antidiabetic age	nt can cause lactic acidosis?
	(1) Chlorpropamide	(2) Phenformin
	(3) Glipizide	(4) Metformin
67.	Which of the following is a preffered d by high-dose use of glucocorticoids?	rug for the management of osteoporosis caused
	(1) Alendronate	(2) Calcitonin
	(3) Mestranol	(4) Vitamin D
68.	Identify the potassium channel opener fi	rom among the following:
	(1) Pinacidil	(2) Hydralazine
	(3) Glibenclamide	(4) Amiloride
69.	Metronidazole is least likely to be effect	tive in the treatment of:
	(1) Amebiasis	
	(2) Giardiasis	
	(3) Psudomembranous colitis	
	(4) Pneumocystosis	A C. H. S. H.
70.	Identify the drug whose concurrent use i	is likely to cause failure of oral contraception:
	(1) Isoniazid	(2) Rifampicin
	(3) Cimetidine	(4) Propranolol
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<ol> <li>Match the drugs with their mechanism of act</li> </ol>	ion	
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		Mechanism
	1	Competitive inhibition of PABA uptake
cyclic acid	П	Nucelic acid binding to viral enzymes
	Ш	Inhibition of dihydrofolate reductase
	IV	Inhibition of DNA dependent RNA polymerase
I, S-I,		
S-IV		
I, S-I		
S-IV		
ving is GABAB agonis	st?	
	(2)	Baclofen
	(4)	Bicuculline
ring drug is used clinic	call	y for enuresis and chronic pain?
	(2)	Fluvoxamine
	(4)	Phenelzine
ring is used in methan	ol p	poisoning?
	(2)	Naltrexone
	(4)	None of the above
ring is inverse agonist	of	benzodiazepine receptors?
	(2)	β-Carbolines
de	(4)	Glutethimide
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76.	i. In which of the following types of seizures Phenytoin is ineffective?					
		) Generalized tonic-clonic		Simple partial		
	(3	) Complex partial	(4)	Absence		
77.	Fl	uoxetine blocks the transport of				
	(1	) Scrotonin	(2)	Norepinephrine		
	(3	) Dopamine	(4)	GABA		
78.	W	hich of the following is true for Isonia:	zid ?			
	(1)	) It requires pyridoxine supplementation	on			
	(2) It may discolor the tears, saliva, urine or feces orange-red					
	(3) It causes ocular complications that are reversible if the drug is discontinued					
	(4)	It may be ototoxic and nephrotoxic				
79.	Ma	atch the followings:				
		Vitamin		Chemical name		
	P	Vitamin B1	I	Riboflavin		
	Q	Vitamin B2	П	Thiamine		
	R	Vitamin B6	Ш	Hydroxycobalamine		
	S	Vitamin B12	IV	Pyridoxine		
	(1)	P-IV, Q-III, R-II, S-I,				
	(2)	P-I, Q-III, R-II, S-IV				
	(3)	P-IV, Q-I, R-II, S-III		-dinasani (		
	(4)	P-II O-I P-IV S-III				

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80.	Match	the	crude	drugs	with	their	chemical	teete
						CITCLE	Chemicai	

## Drug **Chemical Test** P Senna Meconic acid test Q Digitalis II Borntrager test R Opium III Fluorescence test S Ergot IV Keller-Killiani test (1) P-IV, Q-III, R-II, S-I, (2) P-I, Q-III, R-II, S-IV (3) P-II, Q-IV, R-I, S-III (4) P-II, Q-I, R-IV, S-III The C-24 glycosides give the following test positive: 81. (1) Liberman's sterol test (2) Baljet test (3) Legal test (4) All of the above The IR spectrum of the organic liquid can be taken up by placing it between a pair of polished plate made of: (1) Sodium chloride (2) Potassium bromide (3) Aluminium chloride (4) Both (1) and (2) Which of the following cannot be used as reference electrode? 83. (1) Calomel electrode (2) Glass electrode (3) Silver/silver chloride electrode (4) Standard Hydrogen electrode

84	4. Which of the following act as precursors for the biosynthesis of Atropine?			
	(1) Ornithine and Phenylalanine	(2) Tyrosine and Tryptophan		
	(3) Tyrosine and Dopamine	(4) Tryptophan and Dopamine		
85.	The biological source of Star Anise is:			
00.	(1) Pimpinella anisum	(2) Illicium anisum		
	(3) Illicium verum	(4) Illicium religiosum		
0.0				
86.	, settined from a	ne following:		
	(1) Dioscorea	(2) Ginseng		
	(3) Liquorice	(4) Thevetia		
87.	Sapogenins are characterized by			
	(1) Spiroketal side chain	(2) 27 cholestane system		
	(3) Spirostane structure	(4) all of the above		
88.	Steroidal estrogens are produced semi-s	ynthetically from the following plant sterol.		
	(1) Gitogenin	(2) Diosgenin		
	(3) Ditogenin	(4) Estrogenin		
89.	All are phytoestrogens except:			
	(1) Genistein	(2) Daidzein		
	(3) Coumesterol	(4) Diethylstillbesterol		
90.	Shinoda test is used for chemical evalua-	tion of		
	(1) Alkaloids	(2) Flavanoids		
	(3) Anthraquinones	(4) Lipids		
PHD/URS-EE-2022/(Pharmaceutical Science)(SET-X)/(A)				

91.	Stomatal number is defined as average number of stomata			
	(1) per leaf blade	umr	er of stomata	
	(2) per mm <sup>2</sup> area of leaf epidermis			
	(3) per cm <sup>2</sup> area of leaf epidermis			
	(4) per inch <sup>2</sup> area of leaf epidermis			
	. ded of leaf epidermis			
92.	Match the crude drugs with their respect	ive t	richome types.	
	Crude drug		Trichome types	
	P Cassia	í	Lignified trichomes	
	Q Datura	П	Appresed trichomes	
	R Stropanthus	Ш	Multiseriate trichomes	
	S Nux-Vomica		Unicellular covering trichomes	
	(1) P-IV, Q-III, R-II, S-I,		P-I, Q-III, R-II, S-IV	
	(3) P-IV, Q-I, R-II, S-III	(4)	P-II, Q-I, R-IV, S-III	
93.	Which of the following crude drugs cont	tain	Eugenol?	
	(1) Coriander	(2)	Fennel	
	(3) Tulsi	(4)	Cardamom	
0.4	Ginkgo biloba is used for its	activ	ity	
94.			lipid lowering	
	<ul><li>(1) expectorant</li><li>(3) PAF antagonistic</li></ul>		antidepressant	
	(3) PAF antagonishe	( - )		
95.	Inulin renal clearance is used for measur	remo	ent of	
	(1) effective renal blood flow			
	(2) glomerular filtration rate			
	(3) renal drug excretion rate			
	(4) active renal secretion			
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- ALLI/	JELD-EJEJ-MUMMI (E. E.C.)			

96	. Which of the following is characterize	ed by presence of anisocytic stomata?
	(1) Senna	(2) Belladona
	(3) Digitalis	(4) Coca
97.	One mg of Lycopodium spores used spores.	in quantitative microscopy contain an average of
	(1) 94,000	(2) 92,000
	(3) 90,000	(4) 9,200
98.	Glass transition temperature is detecte	d through
	(1) X-ray diffraction	
	(2) Solution calorimetry	
	(3) Thermogravimetry	
	(4) Differential scanning calorimetry	
99.	Triterpenoids are the active constituen	its of
	(1) Jaborandi	(2) Rhubarb
	(3) Stramonium	(4) Brahmi
100.	Which of the following HPLC detecto	r is most sensitive to changes in temperature?
	(1) Refractive index detector	ended solidative to changes in temperature?
	(2) Photo Diode Array detector	
	(3) Fluorescence detector	
	(4) Electrochemical detector	
		that the condition and on the Manager of

Total No. of Printed Pages: 21

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# В

## Ph.D./URS-EE-Jan-2022

## SUBJECT : Pharmaceutical Science

10018

SET-X

		Sr. No
Time: 11/4 Hours	Max. Marks : 100	Total Questions: 100
Roll No. (in figures)	(in words)	
Name	Father's Name	
Mother's Name	Date of Examination_	
(Signature of the Candidate)	_	(Signature of the Invigilator)

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- 1. All guestions are compulsory.
- 2. The candidates must return the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfairmeans / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
- 3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
- 4. Question Booklet along with answer key of all the A, B, C & D code will be got uploaded on the University website after the conduct of Entrance Examination. In case there is any discrepancy in the Question Booklet/Answer Key, the same may be brought to the notice of the Controller of Examination in writing/through E.Mail within 24 hours of uploading the same on the University Website. Thereafter, no complaint in any case, will be considered.
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- There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
- Use only Black or Blue Ball Point Pen of good quality in the OMR Answer-Sheet.
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17 7

Which Lind C		
	arough a pore transport?	
(1) Low Molecular weight molecules		
(2) Water-soluble drugs		
(3) Molecules upto 400 Dalton		
(4) Molecules greater than 400 Dalton		
Non-linear pharmacokinetics can also b	e identified as pharmacokinoti	00
(1) dose dependent		CS.
(3) saturation	(4) All of the above	
Which of the following is the characteri	stic of non-linear pharmacokinetics?	
(2) Elimination half-life remains consta	nt	
(3) Area under the curve is not proportion	onal to the dose	
(4) Amount of drug excreted through re	mains constant	
The Non-linear pharmacokinetic arises d	ue to	
<ol> <li>Pathological alteration at any one absorption, distribution and/or elimination</li> </ol>	of the various pharmacokinetic steps, nation.	such as
(2) Capacity-limited metabolism.		
(3) Alteration in protein binding charact	eristics	
(4) All of the above		
Which of the following applies to non-co	mpartmental pharmacokinetics?	
(1) $MRT = AUMC/AUC$		
(2) $AUMC = MRT/AUC$		
(3) $MRT = AUC/AUMC$		
(4) $AUC = AUMC/MRT$		
RS-EE-2022/(Pharmaceutical Science)(	SET-X)/(B)	P. T. O.
	<ol> <li>(1) Low Molecular weight molecules</li> <li>(2) Water-soluble drugs</li> <li>(3) Molecules upto 400 Dalton</li> <li>(4) Molecules greater than 400 Dalton</li> <li>Non-linear pharmacokinetics can also be</li> <li>(1) dose dependent</li> <li>(3) saturation</li> <li>Which of the following is the characteris</li> <li>(1) Area under the curve is proportional</li> <li>(2) Elimination half-life remains constat</li> <li>(3) Area under the curve is not proportional</li> <li>(4) Amount of drug excreted through remains</li> <li>The Non-linear pharmacokinetic arises of</li> <li>(1) Pathological alteration at any one of absorption, distribution and/or eliminal</li> <li>(2) Capacity-limited metabolism.</li> <li>(3) Alteration in protein binding character</li> <li>(4) All of the above</li> <li>Which of the following applies to non-content of the fo</li></ol>	(2) Water-soluble drugs (3) Molecules upto 400 Dalton (4) Molecules greater than 400 Dalton  Non-linear pharmacokinetics can also be identified as

6.	The Wagner-Nelson-Method in compa	artment modelling is employed for the		
	(1) absorption rate constant (Ka) from %	ARA Vs time curve		
	(2) elimination rate constant (Ke) from %			
	(3) absorption rate constant (Ka) from %			
	(4) Determination of plasma half life			
_	While Call City and January by Linear	position is not conjugation?		
7.	Which of the following drug metabolism			
		(2) Sulfate formation		
	(3) Hydrolysis	(4) Methylation		
8.	Identify the characteristic feature of colon	ic release systems.		
	(1) They release the drug along the entire	length of GIT		
	(2) They use enteric coating.			
	(3) They employ polymers that dissolve only in the alkaline pH of colon			
	(4) Both (2) and (3)			
9.	Arhydrous lastose offers adventors of	aven la -t 1 - 1 - 1		
Э.	Anhydrous lactose offers advantage of (1) better flow properties	over factose nydrate.		
	(2) absence of maillard reaction			
	(3) better compressibility			
	(4) none of the above			
	(1) 1010 01 110 10010			
10.	The B tooling and D tooling of tablet made	chine have different		
	(1) punch and die length			
	(2) die length but same punch length			
	(3) punch and die diameter			
	(4) die diameter but same punch diamete	r		
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11.	What is the term used for small molecules that bind to different regions of a binding site?			
	(1) epimers	(2) isomers	(3) isotopes	(4) epitopes
12.	Which of the follo	owing is <i>not</i> an end	ogenous lead compou	nd?
	(1) neurotransmit	ter	(2) modulator	
	(3) alkaloid		(4) hormone	
13.	What bacterial en	zyme aids the survi	val of Helicobacter p	ylori in the stomach?
	(1) carbonic anhy	rdrase	(2) urease	
	(3) β-lactamase		(4) transpeptidas	e
14.	What sort of recep	otor is the nicotinic	receptor ?	
	(1) A G-protein c	oupled receptor		
	(2) A kinase linke	ed receptor		
	(3) An intracellula	ar receptor		
	(4) An ion channe	el .		
15.	Which feature of by hydrogen bond		acts with the binding	site of cholinergic receptors
	(1) The acyl meth	yl group		
	(2) The ester			
	(3) The quaternary	nitrogen /		
	(4) All three N-me	ethyl groups		
16.	Which of the folloneed theory?	wing needs lie on	the top of the pyram	id as per Maslow's hierarchy
	(1) Physiological r	needs	(2) Safety needs	
	(3) Self-actualizati	on needs	(4) Esteem needs	S
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17.	The Theory of Leadership which stadeveloped is:	tes that the excellent leaders are born, not
	(1) The Trait Theory	
	(2) The Great Man Theory	
	(3) The Behavioural Theory	
	(4) The Transformational Theory	
18.	Which heterocyclic ring system is presen	nt in Rofecoxib?
	(1) Furan	(2) Indole
	(3) Pyridine	(4) Pyrrole
19.	The drying process where Eutectic point	is involved:
	(1) Fluid bed drying	
	(2) Tray drying	
	(3) Freeze-drying	
	(4) Both fluid bed and freeze drying	
20.	During distillation of mixtures of liquids	, the one which evaporates first is
	(1) more volatile liquid	(2) less volatile liquid
	(3) non-volatile liquid	(4) immiscible liquid
21.	Identify the incorrect statement from am	ong the following:
	(1) Aromatic compounds are Planar	
	(2) Aromatic compounds are cyclic	
	(3) Aromatic compounds have 4n electr	ons
	(4) Aromatic compounds are generally l	ess reactive than similarly substituted alkenes.
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22.	In electrophilic aro	matic substitution re	eactions the halides a	re:		
	(1) Ortho/para directing and activating					
	(2) Ortho/para dir	recting and deactivat	ing			
	(3) Meta directing	and activating				
	(4) Meta directing	and deactivating				
23.		n of drug solution is		constant $k_0=0.70$ / day. The bould be the concentration of		
	(1) 70.9 mg/ml		(2) 71.8 mg/ml			
	(3) 72.9 mg/ml		(4) 59.1 mg/ml			
24.	How many grams w/v solution?	of active ingredient	would be required t	to prepare 920 ml of 0.95%		
	(1) 8.74 gm	(2) 874 mg	(3) 9.5 gm	(4) 950 mg		
25.	How many grams (1% w/v) cream to	of the zinc oxide prepare 450 gm of z	(10%, w/v) cream, inc oxide (5% w/v) c	be mixed with zinc oxide cream?		
	(1) 200 gm	(2) 250 gm	(3) 50 gm	(4) 150 gm		
26.	How many ml of al	cohol would be requ	nired to prepare 750 r	ml of 1 in 20 solution .?		
	(1) 2 ml	(2) 3.75 ml	(3) 20 ml	(4) 37.5 ml		
27.	A pseudoplastic liqu					
	(1) becomes less viscous as the rate of shear increases					
	(2) becomes more			race is applied		
			en a constant shear st			
	(4) becomes more	viscous over time wi	hen a constant shear			
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- 28. What is the kinematic viscosity of a liquid that has a density of 1.2 g cm<sup>-3</sup> and a dynamic viscosity of 2cP?
  - (1)  $0.6 \text{ m}^2 \text{ s}^{-1}$

(2)  $1.67 \times 10^{-6} \text{ m}^2 \text{ s}^{-1}$ 

(3)  $1.67 \text{ m}^2 \text{ s}^{-1}$ 

- (4)  $0.6 \times 10^{-6} \,\mathrm{m}^2 \,\mathrm{s}^{-1}$
- 29. Choose the incorrect statement:
  - (1) Different polymorphic forms of a drug can have different melting points
  - (2) Different polymorphic forms of a drug can have different molecular formulae
  - (3) Different polymorphic forms of a drug can have different solubility
  - (4) Different polymorphic forms of a drug can have different crystal habit
- 30. Which of the following represent the strongest intermolecular force of interaction?
  - (1) Hydrogen bond

(2) Covalent bond

(3) London dispersion

- (4) Dipole-diploe interaction
- 31. Stomatal number is defined as average number of stomata .....
  - (1) per leaf blade
  - (2) per mm<sup>2</sup> area of leaf epidermis
  - (3) per cm<sup>2</sup> area of leaf epidermis
  - (4) per inch<sup>2</sup> area of leaf epidermis
- 32. Match the crude drugs with their respective trichome types.

### Crude drug

## Trichome types

P Cassia

I Lignified trichomes

Q Datura

II Appresed trichomes

R Stropanthus

III Multiseriate trichomes

S Nux-Vomica

- IV Unicellular covering trichomes
- (1) P-IV, Q-III, R-II, S-I,
- (2) P-I, Q-III, R-II, S-IV
- (3) P-IV, Q-I, R-II, S-III
- (4) P-II, Q-I, R-IV, S-III

33.	Which of the following crude drugs contain Eugenol?		
	(1) Coriander	(2) Fennel	
	(3) Tulsi	(4) Cardamom	
34.	Ginkgo biloba is used for its	activity.	
	(1) expectorant	(2) lipid lowering	
	(3) PAF antagonistic	(4) antidepressant	
35.	Inulin renal clearance is used for measu	rement of	
	(1) effective renal blood flow		
	(2) glomerular filtration rate		
	(3) renal drug excretion rate		
	(4) active renal secretion		
36.	Which of the following is characterized	by presence of anisocy	rtic stomata?
	(1) Senna	(2) Belladona	
	(3) Digitalis	(4) Coca	
37.	One mg of Lycopodium spores used in	quantitative microsco	py contain an average of
	spores.		
	(1) 94,000	(2) 92,000	¥ <u>€</u> 1
	(3) 90,000	(4) 9,200	
	Classical desired	through	
38.	Glass transition temperature is detected	through	
	(1) X-ray diffraction		
	(2) Solution calorimetry		
	(3) Thermogravimetry		
	(4) Differential scanning calorimetry		
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39.	Tī	iterpenoids are th	e active constituents	of		
	(1)	) Jaborandi	(2) Rhubarb	(3)	Stramonium	(4) Brahmi
						hangas in tama
40.				s mo	st sensitive to c	changes in temperature
		Refractive index				
	(2)	Photo Diode Ar	ray detector			
		Fluorescence de				
	(4)	Electrochemica	l detector			
41.	Th	e cancer cells in s	stage 2			
	(1)	have spread to o	other parts of the bod	ly		
			have spread to lymp		des	
			he lymph nodes above			
		are not spreadin				
42.	The	e most common t	ype of angina is:			
		Stable angina		(2)	Microvascular	angina
	(3)	Variant angina			Unstable angir	
43.	Ma	tch the following	phytoconstituents w	vith t	heir chemical t	
		Alkaloid		, 1011	Ring system	ests.
	I	Tropane		P	Cocaine	
	П	Indole		Q	Reserpine	
	Ш	Isoquinoline		R	Emetine	
	IV	Diterpene		S	Aconine	
	(1)	I-S, II-P, III-Q, I	IV-R	5	Acomine	
	(2)	I-Р, II-Q, III-R,	IV-S			
		I-S, II-Р, III-R, I				
		I-S, II-R, III-P, I				Dorgivery .
		, , , , ,	· · · · · ·			

44.	Match th	e following	diuretics	with	their	appropriate category.
-----	----------	-------------	-----------	------	-------	-----------------------

	Diuretic		Category
	P Furosemide	1	Carbonic anhydrase inhibitor
	Q Spironolactone	H	Phenoxyacetic acid derivative
	R Ethacrynic acid	Ш	Potassium sparing
	S Acetazolamide	IV	Sulphamoyl derivative
	(1) P-IV, Q-III, R-II, S-I,		
	(2) P-I, Q-III, R-II, S-IV		
	(3) P-IV, Q-I, R-II, S-III		
	(4) P-IV, Q-II, R-I, S-III		
45.	Which of the following drugs can antage	onise	5-HT ?
	(1) Cinnarizine	(2)	Cyproheptadine
	(3) Ondansetron	(4)	All of the above
46.	Which of the following antidiabetic ager	nt car	cause lactic acidosis?
	(1) Chlorpropamide	(2)	Phenformin
	(3) Glipizide	(4)	Metformin
47.	Which of the following is a preffered dr by high-dose use of glucocorticoids?	ug fo	or the management of osteoporosis caused
	(1) Alendronate	(2)	Calcitonin
	(3) Mestranol	(4)	Vitamin D
48.	Identify the potassium channel opener from	om aı	mong the following:
	(1) Pinacidil	(2)	Hydralazine
	(3) Glibenclamide	(4)	Amiloride
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49.	Metronidazole is least likely to be	effective in the treatment of:
	(1) Amebiasis	
	(2) Giardiasis	
	(3) Psudomembranous colitis	
	(4) Pneumocystosis	
50.	Identify the drug whose concurren	at use is likely to cause failure of oral contraception:
	(1) Isoniazid	(2) Rifampicin
	(3) Cimetidine	(4) Propranolol
51.	Which of the following states that directly proportional to the area at to the length of the path of flow:	at the rate of heat flow through a uniform material is and temperature gradient, while inversely proportional
	(1) Rittinger's Law	(2) Zeroth Law
	(3) Fourier Law	(4) Fick's Law
52.	A powder is called the corase penominal mesh aperture of	owder if all the particles pass through a sieve with and not more than 40% by weight through a sieve
	(1) $710  \mu m$ , $250  \mu m$	
	(2) 350 μm, 180 μm	
	(3) 180 μm, 125 μm	
	(4) $1700 \mu m$ , $355 \mu m$	
53.	What is observed during mixing of speed?	of solids in V-Cone Blender, if the speed kept to high
	(1) Segregation	
	(3) Uniform dispersion	(2) Sedimentation
РНD/г		(4) None of these
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54.	Corrosion of metals is fairly high in one	e of the following medium:
	(1) Acidic	(2) Alkaline
	(3) Neutral	(4) Non-Aqueous
55.	The list of authoritative books of Ayurv	redic, Sidhha and Unani Tibb system is given in t 1940.
	(1) Schedule T	(2) First Schedule
	(3) Schedule M <sub>1</sub>	(4) Schedule P
56.	deals with the list of drug manufacture and sale of drugs.	s exempted from certain provisions governing
	(1) Schedule K	(2) Schedule D
	(3) Schedule X	(4) Schedule P
57.	The label on containers for drugs for intefollowing information:	ernal use, listed in Schedule X must contain the
	(1) Symbol XRx in red letters on the top	o left corner
	(2) Manufacturing licence No.	
	(3) Warning: To be sold by retail practitioner only	on the prescription of Registered Medical
	(4) All of these	
58.	Which type of the bond geometry is assonumber 4?	ociated with the complexes having coordination
	(1) Tetrahedral	(2) Trigonal
	(3) Square planar	(4) Linear

	59	. Id	Identify the derived property of powders:				
		(1	) Surface area	(2	) Solubility		
		(3	) Size distribution	(4	) Porosity		
	60.	. Which of the following statement is NOT TRUE for Passive diffusion ?					
		(1)	It can be explained by Fick's Law				
		(2)	It is an energy independent process				
		(3) Drugs moves against the concentration gradient					
		(4)	It is non saturable process				
	61.	Ma	Match the drugs with their mechanism of action.				
			Drug		Mechanism		
		P	Methotrexate	I	Competitive inhibition of PABA uptake		
		Q	Para Aminosalicyclic acid	П	Nucelic acid binding to viral enzymes		
		R	Acyclovir	Ш	Inhibition of dihydrofolate reductase		
		S	Rifampicin	IV	Inhibition of DNA dependent RNA polymerase		
		(1)	P-IV, Q-III, R-II, S-I,				
		(2)	P-I, Q-III, R-II, S-IV				
		(3)	P-IV, Q-II, R-III, S-I				
		(4) P-III, Q-I, R-II, S-IV					
	62.	Which of the following is GABAB agonist?					
			Muscimol Muscimol		teritoria.		
			Picrotoxin		Baclofen		
Yev	Bicuculline						
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63.	Which of the following drug is used clinically for enuresis and chronic pain?			
	(1) Bupropion	(2) Fluvoxamine		
	(3) Imipramine	(4) Phenelzine		
64.	4. Which of the following is used in methanol poisoning?			
	(1) Ethanol	(2) Naltrexone		
	(3) Disulfiram	(4) None of the above		
65.	Which of the following is inverse agonist of benzodiazepine receptors?			
	(1) Flumazenii	(2) β-Carbolines		
	(3) Chlordiazepoxide	(4) Glutethimide		
66.	In which of the following types of seizures Phenytoin is ineffective?			
	(1) Generalized tonic-clonic	(2) Simple partial		
	(3) Complex partial	(4) Absence		
67.	Fluoxetine blocks the transport of			
	(1) Serotonin	(2) Norepinephrine		
	(3) Dopamine	(4) GABA		
68.	<ul> <li>Which of the following is true for Isoniazid?</li> <li>(1) It requires pyridoxine supplementation</li> <li>(2) It may discolor the tears, saliva, urine or feces orange-red</li> <li>(3) It causes ocular complications that are reversible if the drug is discontinued</li> </ul>			
	(4) It may be ototoxic and nephrotoxic			
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**69.** Match the followings:

#### Vitamin

Chemical name

P Vitamin B1

I Riboflavin

Q Vitamin B2

II Thiamine

R Vitamin B6

III Hydroxycobalamine

S Vitamin B12

- IV Pyridoxine
- (1) P-IV, Q-III, R-II, S-I,
- (2) P-I, Q-III, R-II, S-IV
- (3) P-IV, Q-I, R-II, S-III
- (4) P-II, Q-I, R-IV, S-III
- 70. Match the crude drugs with their chemical tests.

#### Drug

**Chemical Test** 

P Senna

I Meconic acid test

Q Digitalis

II Borntrager test

R Opium

III Fluorescence test

S Ergot

- IV Keller-Killiani test
- (1) P-IV, Q-III, R-II, S-I,
- (2) P-I, Q-III, R-II, S-IV
- (3) P-II, Q-IV, R-I, S-III
- (4) P-II, Q-I, R-IV, S-III
- **71.** TheC-24 glycosides give the following test positive :
  - (1) Liberman's sterol test
- (2) Baljet test

(3) Legal test

(4) All of the above

72.	The IR spectrum of the organic liquid polished plate made of:	d can be taken up by placing it betwee	n a pair of
	(1) Sodium chloride		
	(2) Potassium bromide		
	(3) Aluminium chloride		
	(4) Both (1) and (2)		
73.	Which of the following cannot be used	as reference electrode?	
	(1) Calomel electrode		
	(2) Glass electrode		
	(3) Silver/silver chloride electrode		
	(4) Standard Hydrogen electrode		
74.	Which of the following act as precurso	rs for the biosynthesis of Atropine?	
	(1) Ornithine and Phenylalanine	(2) Tyrosine and Tryptophan	
	(3) Tyrosine and Dopamine	(4) Tryptophan and Dopamine	
75.	The biological source of Star Anise is:		
	(1) Pimpinella anisum	(2) Illicium anisum	
	(3) Illicium verum	(4) Illicium religiosum	
76.	Peruvoside is naturally obtained from the	ne following :	
	(1) Dioscorea	(2) Ginseng	
	(3) Liquorice	(4) Thevetia	
77.	Sapogenins are characterized by		
	(1) Spiroketal side chain	(2) 27 cholestane system	
	(3) Spirostane structure	(4) all of the above	
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Date:	(3) Ethanoyl chloride  ORS-EE-2022/(Pharmaceutical Science)	(4) Butan-2-one	
	(1) Ethanal	(2) Ethanoic acid	
84.	Which of the following carbonyl compo	und reacts violently with water?	
	(3) HETP	(4) Relative retention factor	
	(1) Retention time	(2) Resolution factor	
	of substances in chromatography?	, quantitative recommenders	
83.	Which of the following is the most appr	opriate parameters for qualitative identification	
	(3) E-isomer	(4) racemic mixture	
	(1) (S)-enantiomer	(2) (R)-enantiomer	
82.	Esomeprazole is the of omep	prazole.	
	(3) one acetyl group	(4) one methyl group	
	(1) two methyl groups	(2) two acetyl groups	
81.	Diamorphine differs from morphine by t	he presence of :	
	(3) Anthraquinones	(4) Lipids	
	(1) Alkaloids	(2) Flavanoids	
80.	Shinoda test is used for chemical evaluate		
	(3) Coumesterol		
	(1) Genistein (3) Coursestarel	(4) Diethylstillbesterol	
79.	All are phytoestrogens except:	(2) Daidzein	
	(5) Briogerian		
	<ul><li>(1) Gitogenin</li><li>(3) Ditogenin</li></ul>	(4) Estrogenin	
78.		(2) Diosgenin	
79	Steroidal estrogens are produced semi-synthetically from the following plant sterol.		

85.	The reaction of conversion of an aldehy	de to alcohol is	
	(1) Oxidation	(2) Polymerization	
	(3) Reduction	(4) Esterification	
86.	Which one of the following compounds	does not absorb light in the UV-Vis spec	etrum ?
	(1) Paracetamol	(2) Diclofenac	
	(3) Curcumin	(4) Chloral hydrate	
87.	The primary site for amino acid cataboli	sm is	
	(1) Kidney	(2) Liver	
	(3) Brain	(4) Adipose tissue	
88.	The tertiary structure of protein refers to	:	
	(1) the overall 3D shape		
	(2) the sequence of amino acids		
	(3) the sequence of nucleotides		
	(4) the arrangement of subunits		
89.	Identify the <i>correct</i> statement for glycol		
	(1) The gluconeogenesis is the exact opposite of glycolysis.		
	(2) In glycolysis, the glucose is formed from pyruvate.		
	(3) Glycolysis can take place under anaerobic conditions.		
	(4) The mitochondria is the primary site	of grycorysis.	
90.	What is the term used for drugs that are are used for the same purpose?	similar in structure to a known drug and	which
		(2) 'me-too' drugs	
	<ul><li>(1) copycat' drugs</li><li>(3) derivative' drugs</li></ul>	(4) 'analogue' drugs	
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	(2) Indirect acting sympathomimetic				
	(3) Direct acting parasympathomimetic				
	(4) Indirect acting parasympathomimet	ic			
92.	Which of the following physiological response of the body?	processes are not parts of the 'fight and flight'			
	(1) Vasodilatation in skeletal muscle	(2) Increased gut motility			
	(3) Bladder relaxation	(4) Sweating			
93.	Where is the hormone erythropoietin pr	oduced in the body?			
	(1) Spleen	(2) Liver			
	(3) Thyroid	(4) Kidney			
94.	Partial agonists are molecules that				
	(1) can always cause a maximal respon	se irrespective of the presence of antagonists.			
	(2) have affinity toward the target recep	otor but no efficacy.			
	(3) have affinity and efficacy toward th	e target receptor.			
	(4) have an agonistic effect on the response	eceptor, but only ever achieve a submaximal			
95.	Which of the following statement is <i>cor</i>	rect for bioavailability ?			
		oportion of the drug administered that is not available to induce a physiological effect.			
upir.	undesirable physiological effects.	of the administered drug metabolites to cause			
(		the fraction of the dose of drug administered acilitates the desired physiological effects.			
(	(4) Bioavailability is the length of tim and thus is available to cause a phys	e an administered drug is present in the body iological effect.			
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**91.** Which of the following describes salbutamol, a  $\beta$ 2-adrenoceptor agonists ?

(1) Direct acting sympathomimetic

**96.** Microorganisms on culturing in nutrient broth show growth at different locations in the test tube. Match the location of growth with the characteristics of microbes.

### **Growth location** Microbial characteristics Bottom of the test tube Facultative anaerobe Il Whole of the test tube Q Obligate aerobes III Top of the test tube R Microaerophile IV Slightly below the top S Obligate anaerobes of the test tube. (1) I-S, II-P, III-Q, IV-R (2) I-P, II-Q, III-R, IV-S (3) I-S, II-P, III-R, IV-Q (4) I-S, II-R, III-P, IV-Q

**97.** Match the following drugs with their therapeutic category.

Drugs		Therapeutic Indications			
I Alogliptin	P	MDR-Tuberculosis			
II Bedaquiline	Q	Cushing's disease			
III Roflumilast	R	Chronic obstructive pulmonary disease			
IV Pasireotide	S	Type 2 Diabetes mellitus			
(1) I-S, II-P, III-Q, IV-R					
(2) I-P, II-Q, III-R, IV-S					
(3) I-S, II-P, III-R, IV-Q					
(4) I-S, II-R, III-P, IV-Q					

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98. Match the following NSAIDs with their chemical class:

### Chemical class **NSAIDs** Propionic acid derivative Indomethacin Pyrrolo-pyrrole derivative 0 Ibuprofen Indole derivative III Diclofenac R Arylacetic acid derivative IV Ketorolac S (1) I-R, II-P, III-S, IV-Q (2) I-P, II-Q, III-R, IV-S (3) I-S, II-P, III-R, IV-Q (4) I-S, II-R, III-P, IV-Q In which of the following conditions Ketoacidosis is **not** present: 99. (1) Diabetes mellitus (2) Starvation (3) Dehydration (4) Diabetes insipidus Which of the following are *not* the signs of inflammation? 100. (1) Swelling (2) Pallor (3) Redness (4) Pain

Total No. of Printed Pages: 21

# (DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)



# Ph.D./URS-EE-Jan-2022

SET-X

SUBJECT: Pharmaceutical Science 10011

		Sr. No
Time : 1¼ Hours Roll No. (in figures)	Max. Marks : <b>100</b> (in words)	Total Questions : 100
Name		
Mother's Name		
(Signature of the Candidate)	_	(Signature of the Invigilator)

# CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

- 1. All questions are compulsory.
- 2. The candidates must return the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfairmeans / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
- 3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
- 4. Question Booklet along with answer key of all the A, B, C & D code will be got uploaded on the University website after the conduct of Entrance Examination. In case there is any discrepancy in the Question Booklet/Answer Key, the same may be brought to the notice of the Controller of Examination in writing/through E.Mail within 24 hours of uploading the same on the University Website. Thereafter, no complaint in any case, will be considered.
- 5. The candidate must not do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers must not be ticked in the question booklet.
- There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
- 7. Use only Black or Blue Ball Point Pen of good quality in the OMR Answer-Sheet.
- 8. Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 minutes after starting of the examination.

1	1. Diamorphine differs from morphine by the presence of :		
	(1) two methyl groups	(2) two acetyl groups	
	(3) one acetyl group	(4) one methyl group	
2	2. Esomeprazole is the of omeprazole.		
	(1) (S)-enantiomer	(2) (R)-enantiomer	
	(3) E-isomer	(4) racemic mixture	
3.	<b>3.</b> Which of the following is the most appropriate parameters for qualitative identification of substances in chromatography?		
	(1) Retention time	(2) Resolution factor	
	(3) HETP	(4) Relative retention factor	
4.	4. Which of the following carbonyl compound reacts violently with water?		
	(1) Ethanal	(2) Ethanoic acid	
	(3) Ethanoyl chloride	(4) Butan-2-one	
5.	The reaction of conversion of an aldehy	de to alcohol is	
	(1) Oxidation	(2) Polymerization	
	(3) Reduction	(4) Esterification	
6.	Which one of the following compounds	does not absorb light in the UV-Vis spectrum?	
	(1) Paracetamol	(2) Diclofenac	
	(3) Curcumin	(4) Chloral hydrate	
7.	The primary site for amino acid cataboli	sm is	
	(1) Kidney	(2) Liver	
	(3) Brain	(4) Adipose tissue	
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8	. Т	he tertiary structure of protein refers to	);	
	(1	) the overall 3D shape	(2)	the sequence of amino acids
	(3	3) the sequence of nucleotides	(4)	the arrangement of subunits
9.	Id	lentify the <i>correct</i> statement for glycol	ysis	:
	(1	) The gluconeogenesis is the exact op	posi	te of glycolysis.
	(2	) In glycolysis, the glucose is formed	fron	n pyruvate.
	(3	) Glycolysis can take place under ana	erob	ic conditions.
	(4	) The mitochondria is the primary site	of g	glycolysis.
10.	W	That is the term used for drugs that are e used for the same purpose?	simi	ilar in structure to a known drug and which
	(1	) copycat' drugs	(2)	'me-too' drugs
	(3	) derivative drugs	(4)	'analogue' drugs
11.	St	omatal number is defined as average n	umb	per of stomata
		per leaf blade		
	(2)	per mm <sup>2</sup> area of leaf epidermis		
	(3)	per cm <sup>2</sup> area of leaf epidermis		
	(4)	per inch <sup>2</sup> area of leaf epidermis		
12.	Ma	atch the crude drugs with their respect	ive t	richome types.
		Crude drug		Trichome types
	P	Cassia	I	Lignified trichomes
	Q	Datura	П	Appresed trichomes
	R	Stropanthus	Ш	Multiseriate trichomes
	S	Nux-Vomica	ΓV	Unicellular covering trichomes
	(1)	P-IV, Q-III, R-II, S-I,	(2)	P-I, Q-III, R-II, S-IV

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(3) P-IV, Q-I, R-II, S-III

(4) P-II, Q-I, R-IV, S-III

13.	Which of the following crude drugs contain Eugenol?				
	(1) Coriander	(2) Fennel			
	(3) Tulsi	(4) Cardamom			
14.	Ginkgo biloba is used for its activity.				
	(1) expectorant	(2) lipid lowering			
	(3) PAF antagonistic	(4) antidepressant			
15.	rement of				
	(1) effective renal blood flow				
	(2) glomerular filtration rate				
	(3) renal drug excretion rate				
	(4) active renal secretion				
16.	Which of the following is characterized by presence of anisocytic stomata?				
	(1) Senna	(2) Belladona			
	(3) Digitalis	(4) Coca			
17.	One mg of Lycopodium spores used in spores.	n quantitative microscopy contain an average of			
	(1) 94,000	(2) 92,000			
	(3) 90,000	(4) 9,200			
18.	Glass transition temperature is detected	l through			
	(1) X-ray diffraction				
	(2) Solution calorimetry				
	(3) Thermogravimetry				
	(4) Differential scanning calorimetry				
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19.	Triterpenoids are the active constituents of			
	(1) Jaborandi (2) Rhubarb			
	(3)	Stramonium	(4)	Brahmi
20.	D. Which of the following HPLC detector is most sensitive to changes in temperature ?			
	(1)	Refractive index detector		
	(2) Photo Diode Array detector			
	(3)	Fluorescence detector		
	(4)	Electrochemical detector		
21.	Ma	atch the drugs with their mechanism of	f act	ion
		Drug		Mechanism
	P	Methotrexate	I	Competitive inhibition of PABA uptake
	Q	Para Aminosalicyclic acid	П	Nucelic acid binding to viral enzymes
	R	Acyclovir	Ш	Inhibition of dihydrofolate reductase
	S	Rifampicin	IV	Inhibition of DNA dependent RNA polymerase
	(1)	P-IV, Q-III, R-II, S-I		
	(2)	P-I, Q-III, R-II, S-IV		
	(3)	P-IV, Q-II, R-III, S-I		
	(4)	P-III, Q-I, R-II, S-IV		
22.	Wh	ich of the following is GABAB agoni	st?	
	(1)	Muscimol	(2)	Baclofen
	(3)	Picrotoxin	(4)	Bicuculline
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23.	Which of the following drug is used clinically for enuresis and chronic pain?		
	(1) Bupropion	(2) Fluvoxamine	
	(3) Imipramine	(4) Phenelzine	
24.	Which of the following is used in metha	nol poisoning ?	
	(1) Ethanol	(2) Naltrexone	
	(3) Disulfiram	(4) None of the above	
25.	Which of the following is inverse agonis	st of benzodiazepine receptors?	
	(1) Flumazenil	(2) β-Carbolines	
	(3) Chlordiazepoxide	(4) Glutethimide	
26.	In which of the following types of seizur	res Phenytoin is ineffective?	
	(1) Generalized tonic-clonic	(2) Simple partial	
	(3) Complex partial	(4) Absence	
27.	Fluoxetine blocks the transport of		
	(1) Serotonin	(2) Norepinephrine	
	(3) Dopamine	(4) GABA	
28.	Which of the following is true for Isonia	zid ?	
	(1) It requires pyridoxine supplementati	on	
	(2) It may discolor the tears, saliva, urin	ne or feces orange-red	
	(3) It causes ocular complications that a	re reversible if the drug is discontinued	
	(4) It may be ototoxic and nephrotoxic		
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### 29. Match the followings:

# Vitamin B1 I Riboflavin Q Vitamin B2 II Thiamine R Vitamin B6 III Hydroxycobalamine S Vitamin B12 IV Pyridoxine (1) P-IV, Q-III, R-II, S-I, (2) P-I, Q-III, R-II, S-IV (3) P-IV, Q-I, R-II, S-III (4) P-II, Q-I, R-IV, S-III

**30.** Match the crude drugs with their chemical tests.

	Drug		<b>Chemical Test</b>
P	Senna	I	Meconic acid test
Q	Digitalis	$\Pi$	Borntrager test
R	Opium	Ш	Fluorescence test
S	Ergot	IV	Keller-Killiani test
(1)	P-IV, Q-III, R-II, S-I,		
(2)	P-I, Q-III, R-II, S-IV		
(3)	P-II, Q-IV, R-I, S-III		
(4)	P-II, Q-I, R-IV, S-III		

- **31.** Which of the following describes salbutamol, a β2-adrenoceptor agonists?
  - (1) Direct acting sympathomimetic
  - (2) Indirect acting sympathomimetic
  - (3) Direct acting parasympathomimetic
  - (4) Indirect acting parasympathomimetic

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	response of the body?
	(1) Vasodilatation in skeletal muscle
	(2) Increased gut motility
	(3) Bladder relaxation
	(4) Sweating
33.	Where is the hormone erythropoietin produced in the body?
	(1) Spleen (2) Liver
	(3) Thyroid (4) Kidney
34.	Partial agonists are molecules that
	(1) can always cause a maximal response irrespective of the presence of antagonists.
	(2) have affinity toward the target receptor but no efficacy.
	(3) have affinity and efficacy toward the target receptor.
	(4) have an agonistic effect on the receptor, but only ever achieve a submaxima response
35.	Which of the following statement is <i>correct</i> for bioavailability?
	<ol> <li>Bioavailability describes the proportion of the drug administered that i metabolised very quickly and thus is not available to induce a physiological effect.</li> </ol>
	(2) Bioavailability describes the ability of the administered drug metabolites to cause undesirable physiological effects.
	(3) Bioavailability is used to describe the fraction of the dose of drug administered that is present within the body and facilitates the desired physiological effects.
	(4) Bioavailability is the length of time an administered drug is present in the bod and thus is available to cause a physiological effect.

32. Which of the following physiological processes are not parts of the 'fight and flight'

**36.** Microorganisms on culturing in nutrient broth show growth at different locations in the test tube. Match the location of growth with the characteristics of microbes.

### Microbial characteristics Growth location Facultative anacrobe Bottom of the test tube Obligate aerobes 0 Whole of the test tube Microaerophile III Top of the test tube R Obligate anaerobes IV Slightly below the top of the test tube (1) I-S, II-P, III-Q, IV-R (2) I-P, II-Q, III-R, IV-S (3) I-S, II-P, III-R, IV-Q (4) I-S, II-R, III-P, IV-Q

37. Match the following drugs with their therapeutic category.

	Drugs		Therapeutic Indications
I	Alogliptin	P	MDR-Tuberculosis
П	Bedaquiline	Q	Cushing's disease
Ш	Roflumilast	R	Chronic obstructive pulmonary disease
IV	Pasireotide	S	Type 2 Diabetes mellitus
(1)	I-S, II-P, III-Q, IV-R		
(2)	I-P, II-Q, III-R, IV-S		
(3)	I-S, II-P, III-R, IV-Q		
(4)	I-S, II-R, III-P, IV-Q		

38. Match the following NSAIDs with their chemical class:

		NSAIDs		Chemical class
	I	Indomethacin	P	Propionic acid derivative
	П	Ibuprofen	Q	Pyrrolo-pyrrole derivative
	Ш	Diclofenac	R	Indole derivative
	IV	Ketorolac	S	Arylacetic acid derivative
	(1)	I-R, II-P, III-S, IV-Q	(2)	I-P, II-Q, III-R, IV-S
	(3)	I-S, II-P, III-R, IV-Q	(4)	I-S, II-R, III-P, IV-Q
39.	In v	which of the following conditions Ket	oaci	dosis is <i>not</i> present :
	(1)	Diabetes mellitus	(2)	Starvation
	(3)	Dehydration	(4)	Diabetes insipidus
40.	. Which of the following are <i>not</i> the signs of inflammation ?			
	(1)	Swelling (2) Pallor	(3)	Redness (4) Pain
41.	• Which of the following states that the rate of heat flow through a uniform material directly proportional to the area and temperature gradient, while inversely proportion to the length of the path of flow:			
	(1)	Rittinger's Law	(2)	Zeroth Law
	(3)	Fourier Law	(4)	Fick's Law
42.	A powder is called the corase powder if all the particles pass through a sieve with nominal mesh aperture of			
	(1)	$710\mu m$ , $250\mu m$	(2)	$350~\mu m$ , $180~\mu m$
	(3)	180 μm, 125 μm	(4)	1700 μm, 355 μm

43	13. What is observed during mixing of solids in V-Cone Blender, if the speed kept to be				
	speed? (1) Segregation		(2) Sedimentation		
	(3) Uniform dispe	rsion	(4) None of these		
44	Corrosion of metal	s is fairly high in on	e of the following me	dium:	
	(1) Acidic	0.0.1	(2) Alkaline		
	(3) Neutral		(4) Non-Aqueous		
45.		ative books of Ayur		ani Tibb system is given in	
	(1) Schedule T		(2) First Schedule		
	(3) Schedule M <sub>1</sub>		(4) Schedule P		
46.	deals with the list of drugs exempted from certain provisions governing manufacture and sale of drugs.				
	(1) Schedule K	(2) Schedule D	(3) Schedule X	(4) Schedule P	
47.	The label on containers for drugs for internal use, listed in Schedule X must contain the following information:				
	(1) Symbol XRx in	red letters on the to	op left corner		
	(2) Manufacturing	licence No.			
	(3) Warning: To practitioner only	be sold by retai	l on the prescription	on of Registered Medical	
	(4) All of these				
48.	Which type of the bonumber 4?	and geometry is ass	sociated with the com	plexes having coordination	
	(1) Tetrahedral	(2) Trigonal	(3) Square planar	(4) Linear	
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49.	Identify the derived property of powders	s :		
	(1) Surface area	(2) Solubility		
	(3) Size distribution	(4) Porosity		
50.	Which of the following statement is NO	T TRUE for Passive diffusion?		
	(1) It can be explained by Fick's Law			
	(2) It is an energy independent process			
	(3) Drugs moves against the concentrat	ion gradient		
	(4) It is non saturable process			
51.	What is the term used for small molecules that bind to different regions of a binding site?			
	(1) epimers	(2) isomers		
	(3) isotopes	(4) epitopes		
52.	Which of the following is <i>not</i> an endogenous lead compound?			
	(1) neurotransmitter	(2) modulator		
	(3) alkaloid	(4) hormone		
53.	What bacterial enzyme aids the survival	of Helicobacter pylori in the stomach?		
	(1) carbonic anhydrase	(2) urease		
	(3) β-lactamase	(4) transpeptidase		
54.	What sort of receptor is the nicotinic rec	ceptor ?		
	(1) A G-protein coupled receptor			
	(2) A kinase linked receptor			
	(3) An intracellular receptor			
	(4) An ion channel			
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55.		s with the binding site of cholinergic receptors		
	by hydrogen bonding?			
	(1) The acyl methyl group			
	(2) The ester			
	(3) The quaternary nitrogen			
	(4) All three N-methyl groups			
56.	Which of the following needs lie on the need theory?	top of the pyramid as per Maslow's hierarchy		
	(1) Physiological needs	(2) Safety needs		
	(3) Self-actualization needs	(4) Esteem needs		
57.	The Theory of Leadership which states that the excellent leaders are born, no developed is:			
	(1) The Trait Theory			
	(2) The Great Man Theory			
	(3) The Behavioural Theory			
	(4) The Transformational Theory			
58.	Which heterocyclic ring system is presen	nt in Rofecoxib ?		
	(1) Furan	(2) Indole		
	(3) Pyridine	(4) Pyrrole		
		(1) = jiiolo		
59.	The drying process where Eutectic point	is involved:		
	(1) Fluid bed drying			
	(2) Tray drying			
	(3) Freeze-drying			
	(4) Both fluid bed and freeze drying			
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60.	During distillation of mixtures of liquids, the one which evaporates first is					
	(1) more volatile liquid	(2) less volatile liquid				
	(3) non-volatile liquid	(4) immiscible liquid				
61.	Which kind of molecules cannot pass th	rough a pore transport ?				
	(1) Low Molecular weight molecules					
	(2) Water-soluble drugs					
	(3) Molecules upto 400 Dalton					
	(4) Molecules greater than 400 Dalton					
62.	Non-linear pharmacokinetics can also be	e identified as pharmacokinetics.				
	(1) dose dependent	(2) enzyme capacity limited				
	(3) saturation	(4) All of the above				
63.	3. Which of the following is the characteristic of non-linear pharmacokinetics?					
	(1) Area under the curve is proportional to the dose					
	(2) Elimination half-life remains constant					
	(3) Area under the curve is not proportional to the dose					
	(4) Amount of drug excreted through re	mains constant				
64.	The Non-linear pharmacokinetic arises of	lue to				
	<ol> <li>Pathological alteration at any one of the various pharmacokinetic steps, such a absorption, distribution and/or elimination.</li> </ol>					
	(2) Capacity-limited metabolism.					
	(3) Alteration in protein binding character					
	(4) All of the above					
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65.	Which of the following applies	o non-compartmental pharmacokinetics?
	(1) MRT = AUMC/AUC	
	(2) AUMC = MRT/AUC	
	(3) $MRT = AUC/AUMC$	
	(4) $AUC = AUMC/MRT$	
66.	The Wagner-Nelson-Method determination of	in compartment modelling is employed for the
	(1) absorption rate constant (Ka	) from % ARA Vs time curve
	(2) elimination rate constant (Ke	e) from % ARA Vs time curve
	(3) absorption rate constant (Ka	from % ARA. Vs Concentration curve
	(4) Determination of plasma hal	f life
67.	Which of the following drug men	abolism reaction is <i>not</i> conjugation?
	(1) Glucuronidation	(2) Sulfate formation
	(3) Hydrolysis	(4) Methylation
68.	Identify the characteristic feature	of colonic release systems.
	(1) They release the drug along	he entire length of GIT
	(2) They use enteric coating.	
	(3) They employ polymers that of	dissolve only in the alkaline pH of colon
	(4) Both (2) and (3)	
69.	Anhydrous lactose offers advanta	ge of over lactose hydrate.
	(1) better flow properties	Landing Royal
	(2) absence of maillard reaction	The state of the s
	(3) better compressibility	
	(4) none of the above	
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70.	The	B tooling and D tooling of tablet made	chine	e have different		
		punch and die length		Surrence .		
	(2)	die length but same punch length				
		punch and die diameter				
	(4)	die diameter but same punch diamete	Γ			
71.	The	cancer cells in stage 2				
	(1)	have spread to other parts of the body	7			
		may or may not have spread to lympl		des		
		have spread to the lymph nodes abov				
	(4)	are not spreading				
72.	The	e most common type of angina is:				
	(1)	Stable angina				
	(2)	Microvascular angina				
	(3)	Variant angina				
	(4)	Unstable angina				
73.	Ma	tch the following phytoconstituents w	ith t	their chemical tes	sts.	
		Alkaloid		Ring system		
	I	Tropane	P	Cocaine		
	П	Indole	Q	Reserpine		
	Ш	Isoquinoline	R	Emetine		
	ΙV	Diterpene	S	Aconine		
	(1)	I-S, II-P, III-Q, IV-R				
	(2)	I-P, II-Q, III-R, IV-S				
	(3)	I-S, II-P, III-R, IV-Q				
	(4)	I-S, II-R, III-P, IV-Q				
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74.	. Match the following diuretics with their appropriate category.			ropriate category.		
		Diuretic		Category		
	P	Furosemide	I	Carbonic anhydrase inhibitor		
	Q	Spironolactone	П	Phenoxyacetic acid derivative		
	R	Ethacrynic acid	Ш	Potassium sparing		
	S	Acetazolamide	IV	Sulphamoyl derivative		
	(1) P-IV, Q-III, R-II, S-I,					
	(2)	P-I, Q-III, R-II, S-IV				
	(3)	P-IV, Q-I, R-II, S-III				
	(4)	P-IV, Q-II, R-I, S-III				
75.	Wh	ich of the following drugs can antago	onisc	: 5-HT ?		
		Cinnarizine		Cyproheptadine		
		Ondansetron				
	(3)	Oldanscholi	(4)	All of the above		
76.	Which of the following antidiabetic agent can cause lactic acidosis?					
	(1)	Chlorpropamide	(2)	Phenformin		
	(3)	Glipizide	(4)	Metformin		
77.	Which of the following is a preffered drug for the management of osteoporosis cause by high-dose use of glucocorticoids?					
	(1)	Alendronate	(2)	Calcitonin		
	(3)	Mestranol	(4)	Vitamin D		
78.	Iden	tify the potassium channel opener fro	om a	among the following -		
		Pinacidil		Hydralazine		
	(3) (	Glibenclamide		Amiloride		
			, ,	- Table		

79.	Metronidazole is least likely to be effecti	ve in the treatment of:
	(1) Amebiasis	
	(2) Giardiasis	
	(3) Psudomembranous colitis	
	(4) Pneumocystosis	
80.	Identify the drug whose concurrent use is	s likely to cause failure of oral contraception:
	(1) Isoniazid	(2) Rifampicin
	(3) Cimetidine	(4) Propranolol
81.	Identify the incorrect statement from am	ong the following:
	(1) Aromatic compounds are Planar	
	(2) Aromatic compounds are cyclic	
	(3) Aromatic compounds have 4n electr	ons
	(4) Aromatic compounds are generally	less reactive than similarly substituted alkenes.
82.	In electrophilic aromatic substitution rea	actions the halides are:
	(1) Ortho/para directing and activating	
	(2) Ortho/para directing and deactivation	ng
	(3) Meta directing and activating	
	(4) Meta directing and deactivating	
83.	A drug follow zero order degradation initial concentration of drug solution is solution after seven days?	kinetics with rate constant $k_0=0.70$ / day. The 75 mg/ml. What would be the concentration of
	(1) 70.9 mg/ml	(2) 71.8 mg/ml
	(3) 72.9 mg/ml	(4) 69.1 mg/ml
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84.	How many grams w/v solution?	of active ingredie	nt would be require	ed to prepare 920 ml of 0.	95%			
	(1) 8.74 gm	(2) 874 mg	(3) 9.5 gm	(4) 950 mg				
85.	How many grams (1% w/v) cream to	of the zine oxid	e (10%, w/v) crea f zinc oxide (5% w/	m, be mixed with zinc ov) cream?	xide			
	(1) 200 gm	(2) 250 gm	(3) 50 gm	(4) 150 gm				
86.	How many ml of a	Icohol would be re	quired to prepare 7:	50 ml of 1 in 20 solution?				
	(1) 2 ml	(2) 3.75 ml	(3) 20 ml	(4) 37.5 ml				
87.	A pseudoplastic lic	quid						
	(1) becomes less viscous as the rate of shear increases							
	(2) becomes more viscous as the rate of shear increases							
	(3) becomes less v	viscous over time v	when a constant shea	ar stress is applied				
	(4) becomes more	viscous over time	when a constant she	ear stress is applied				
88.	What is the kinen dynamic viscosity		a liquid that has a	density of 1.2 g cm <sup>-3</sup> ar	nd a			
	(1) $0.6 \text{ m}^2 \text{ s}^{-1}$		(2) $1.67 \times 10^{-6}$	$m^{2} s^{-1}$				
	(3) $1.67 \text{ m}^2 \text{ s}^{-1}$		(4) $0.6 \times 10^{-6}$ I	$m^2 s^{-1}$				

### 89. Choose the incorrect statement:

- (1) Different polymorphic forms of a drug can have different melting points
- (2) Different polymorphic forms of a drug can have different molecular formulae
- (3) Different polymorphic forms of a drug can have different solubility
- (4) Different polymorphic forms of a drug can have different crystal habit

90.	Which of the following represent the strongest intermolecular force of interaction?		
	(1) Hydrogen bond	(2) Covalent bond	
	(3) London dispersion	(4) Dipole-diploe interaction	
91.	TheC-24 glycosides give the following	test positive :	
	(1) Liberman's sterol test	(2) Baljet test	
	(3) Legal test	(4) All of the above	
92.	The IR spectrum of the organic liquid of polished plate made of :	can be taken up by placing it between a pair of	
	(1) Sodium chloride		
	(2) Potassium bromide		
	(3) Aluminium chloride		
	(4) Both (1) and (2)		
93.	Which of the following cannot be used a	as reference electrode?	
	(1) Calomel electrode		
	(2) Glass electrode		
	(3) Silver/silver chloride electrode		
	(4) Standard Hydrogen electrode		
94.	Which of the following act as precursors	for the biosynthesis of Atropine?	
	(1) Ornithine and Phenylalanine	(2) Tyrosine and Tryptophan	
	(3) Tyrosine and Dopamine	(4) Tryptophan and Dopamine	
95.	The biological source of Star Anise is:		
	(1) Pimpinella anisum	(2) Illicium anisum	
	(3) Illicium verum	(4) Illicium religiosum	
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96.	Peruvoside is naturally obtained from the following:		
	(1) Dioscorea	(2) Ginseng	
	(3) Liquorice	(4) Thevetia	
97.	Sapogenins are characterized by		
	(1) Spiroketal side chain	(2) 27 cholestane system	
	(3) Spirostane structure	(4) all of the above	
98.	Steroidal estrogens are produced semi-sy	ynthetically from the following plant sterol.	
	(1) Gitogenin	(2) Diosgenin	
	(3) Ditogenin	(4) Estrogenin	
99.	All are phytoestrogens except :		
	(1) Genistein	(2) Daidzein	
	(3) Coumesterol	(4) Diethylstillbesterol	
100.	Shinoda test is used for chemical evalua	tion of	
	(1) Alkaloids	(2) Flavanoids	
	(3) Anthraquinones	(4) Lipids	

Total No. of Printed Pages: 21

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# Ph.D./URS-EE-Jan-2022

SET-X

10004

SUBJECT: Pharmaceutical Science

		Sr. No
Time: 11/4 Hours	Max. Marks: 100	Total Questions: 100
Roll No. (in figures)Name		
Mother's Name		
	_	
(Signature of the Candidate)		(Signature of the Invigilator)

# CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

- 1. All questions are compulsory.
- 2. The candidates *must return* the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfairmeans / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
- 3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
- 4. Question Booklet along with answer key of all the A, B, C & D code will be got uploaded on the University website after the conduct of Entrance Examination. In case there is any discrepancy in the Question Booklet/Answer Key, the same may be brought to the notice of the Controller of Examination in writing/through E.Mail within 24 hours of uploading the same on the University Website. Thereafter, no complaint in any case, will be considered.
- 5. The candidate *must not* do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers *must not* be ticked in the question booklet.
- There will be no negative marking. Each correct answer will be awarded one full mark.
   Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated
   as incorrect answer.
- 7. Use only Black or Blue Ball Point Pen of good quality in the OMR Answer-Sheet.
- 8. Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 minutes after starting of the examination.

1.	Match the	drugs with	their mec	hanism of	action.
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		Drug		Mechanism
	P	Methotrexate	1	Competitive inhibition of PABA uptake
	Q	Para Aminosalicyclic acid	П	Nucelic acid binding to viral enzymes
	R	Acyclovir	Ш	Inhibition of dihydrofolate reductase
	S	Rifampicin	IV	
	(1)	P-IV, Q-III, R-II, S-I,		
	(2)	P-I, Q-III, R-II, S-IV		
	(3)	P-IV, Q-II, R-III, S-I		
	(4)	P-III, Q-I, R-II, S-IV		
2.	Wh	ich of the following is GABAB agon	ist?	
	(1)	Muscimol	(2)	Baclofen
	(3)	Picrotoxin	(4)	Bicuculline
3.	Whi	ich of the following drug is used clini	cally	for enuresis and chronic pain?
	(1)	Bupropion	(2)	Fluvoxamine
	(3)	Imipramine	(4)	Phenelzine
4.	Whi	ch of the following is used in methan	ol po	pisoning ?
	(1)	Ethanol	(2)	Naltrexone
	(3)	Disulfiram	(4)	None of the above
5.	Whi	ch of the following is inverse agonist	of be	enzodiazepine receptors ?
				B-Carbolines
	(3)	Chlordiazepoxide	(4) (	Glutethimide

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6.	In which of the following types of seizures Phenytoin is ineffective?				
	(1	) Generalized tonic-clonic	(2	) Simple partial	
	(3)	Complex partial	(4	) Absence	
7.	Fli	uoxetine blocks the transport of			
	(1)	Serotonin	(2	) Norepinephrine	
	(3)	Dopamine	(4)	) GABA	
8.	W	hich of the following is true for Isonia	azid	?	
	(1)	It requires pyridoxine supplementati	ion		
	(2)	It may discolor the tears, saliva, urir	ne or	feces orange-red	
	(3)	It causes ocular complications that a	re re	eversible if the drug is discontinued	
	(4)	It may be ototoxic and nephrotoxic			
9.	Ma	atch the followings:			
		Vitamin		Chemical name	
	P	Vitamin B1	I	Riboflavin	
	Q	Vitamin B2	П	Thiamine	
	R	Vitamin B6	Ш	Hydroxycobalamine	
	S	Vitamin B12	IV	Pyridoxine	
	(1)	P-IV, Q-III, R-II, S-I,			
	(2)	P-I, Q-III, R-II, S-IV			
	(3)	P-IV, Q-I, R-II, S-III		Doy.	
	(4)	DII O I D IV S III			

10.	Match	the	crude	drugs	with	their	chemical	tests.
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		Drug		Chemical Test
	P	Senna	I	Meconic acid test
	Q	Digitalis	П	Borntrager test
	R	Opium	Ш	Fluorescence test
	S	Ergot	IV	Keller-Killiani test
	(1)	P-IV, Q-III, R-II, S-I,	(2)	P-I, Q-III, R-II, S-IV
	(3)	P-II, Q-IV, R-I, S-III	(4)	P-II, Q-I, R-IV, S-III
11.	Wh	ich of the following describes salbuta	amol	, a β2-adrenoceptor agonists ?
		Direct acting sympathomimetic		
	(2)	Indirect acting sympathomimetic		
	(3)	Direct acting parasympathomimetic		
	(4)	Indirect acting parasympathomimetic	С	
12.		ich of the following physiological ponse of the body?	roce	esses are <i>not</i> parts of the 'fight and flight'
	(1)	Vasodilatation in skeletal muscle	(2)	Increased gut motility
	(3)	Bladder relaxation	(4)	Sweating
13.	Who	ere is the hormone erythropoietin pro	duce	ed in the body ?
	(1)	Spleen (2) Liver	(3)	Thyroid (4) Kidney
14.	Part	ial agonists are molecules that		
	(1)	can always cause a maximal respons	e irr	espective of the presence of antagonists.
	(2)	have affinity toward the target recept	tor b	ut no efficacy.
		have affinity and efficacy toward the		
				or but only ever achieve a submaximal

response

- 15. Which of the following statement is *correct* for bioavailability?
  - (1) Bioavailability describes the proportion of the drug administered that is metabolised very quickly and thus is not available to induce a physiological effect.
  - (2) Bioavailability describes the ability of the administered drug metabolites to cause undesirable physiological effects.
  - (3) Bioavailability is used to describe the fraction of the dose of drug administered that is present within the body and facilitates the desired physiological effects.
  - (4) Bioavailability is the length of time an administered drug is present in the body and thus is available to cause a physiological effect.
- **16.** Microorganisms on culturing in nutrient broth show growth at different locations in the test tube. Match the location of growth with the characteristics of microbes.

### **Growth location** Microbial characteristics Bottom of the test tube. Facultative anaerobe II Whole of the test tube Q Obligate aerobes III Top of the test tube R Microaerophile IV Slightly below the top Obligate anaerobes of the test tube (1) I-S, II-P, III-Q, IV-R (2) I-P, II-Q, III-R, IV-S (3) I-S, II-P, III-R, IV-O (4) I-S, II-R, III-P, IV-Q

17. Match the following drugs with their therapeutic category.

# Therapeutic Indications I Alogliptin P MDR-Tuberculosis II Bedaquiline Q Cushing's disease III Roflumilast R Chronic obstructive pulmonary disease IV Pasireotide S Type 2 Diabetes mellitus (1) I-S, II-P, III-Q, IV-R (2) I-P, II-Q, III-R, IV-S (3) I-S, II-P, III-R, IV-Q (4) I-S, II-R, III-P, IV-Q

18. Match the following NSAIDs with their chemical class:

	NSAIDs		Chemical class
Ι	Indomethacin	P	Propionic acid derivative
П	Ibuprofen	Q	Pyrrolo-pyrrole derivative
Ш	Diclofenac	R	Indole derivative
IV	Ketorolac	S	Arylacetic acid derivative
(1)	I-R, II-P, III-S, IV-Q		•
(2)	I-P, II-Q, III-R, IV-S		
(3)	I-S, II-P, III-R, IV-Q		
(4)	I-S, II-R, III-P, IV-Q		

19. In which of the following conditions Ketoacidosis is *not* present:

(1) Diabetes mellitus

(2) Starvation

(3) Dehydration

(4) Diabetes insipidus

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20.	Which of the following are not the signs	of inflammation?
	(1) Swelling	(2) Pallor
	(3) Redness	(4) Pain
21.		rate of heat flow through a uniform material is appearature gradient, while inversely proportional
	(1) Rittinger's Law	(2) Zeroth Law
	(3) Fourier Law	(4) Fick's Law
22.	•	if all the particles pass through a sieve with not more than 40% by weight through a sieve
	(1) 710 μm, 250 μm	(2) 350 μm, 180 μm
	(3) 180 μm, 125 μm	(4) 1700 μm, 355 μm
23.	What is observed during mixing of solid speed?	ds in V-Cone Blender, if the speed kept to high
	(1) Segregation	(2) Sedimentation
	(3) Uniform dispersion	(4) None of these
24.	Corrosion of metals is fairly high in one	of the following medium:
	(1) Acidic	(2) Alkaline
	(3) Neutral	(4) Non-Aqueous
25.	The list of authoritative books of Ayurv of the Drugs and Cosmetics Ac	edic, Sidhha and Unani Tibb system is given in t 1940.
	(1) Schedule T	(2) First Schedule
	(3) Schedule M <sub>1</sub>	(4) Schedule P

 $\label{phd} \begin{picture}(2000) \put(0,0){\line(1,0){100}} \put(0,0){\l$ 

26.	manufacture and sale of drugs.	gs exempted from certain provisions g	governing
	(1) Schedule K	(2) Schedule D	
	(3) Schedule X	(4) Schedule P	
27.	The label on containers for drugs for in following information:	ternal use, listed in Schedule X must co	ontain the
	(1) Symbol XRx in red letters on the to	p left corner	
	(2) Manufacturing licence No.		
	(3) Warning: To be sold by retail practitioner only	on the prescription of Registered	Medical
	(4) All of these		
28.	Which type of the bond geometry is ass number 4?	ociated with the complexes having coor	rdination
	(1) Tetrahedral	(2) Trigonal	
	(3) Square planar	(4) Linear	
29.	Identify the derived property of powders	s :	
	(1) Surface area	(2) Solubility	
	(3) Size distribution	(4) Porosity	
30.	Which of the following statement is NO	T TRUE for Passive diffusion ?	
	(1) It can be explained by Fick's Law		
	(2) It is an energy independent process		
	(3) Drugs moves against the concentration	on gradient	
	(4) It is non saturable process		
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31.	Diamorphine differs from morphine by	the presence of:
	(1) two methyl groups	(2) two acetyl groups
	(3) one acetyl group	(4) one methyl group
32.	Esomeprazole is the of ome	eprazole
	(1) (S)-enantiomer	(2) (R)-enantiomer
	(3) E-isomer	(4) racemic mixture
33.	Which of the following is the most app of substances in chromatography?	propriate parameters for qualitative identification
	(1) Retention time	(2) Resolution factor
	(3) HETP	(4) Relative retention factor
34.	Which of the following carbonyl compo	ound reacts violently with water?
	(1) Ethanal	(2) Ethanoic acid
	(3) Ethanoyl chloride	(4) Butan-2-one
35.	The reaction of conversion of an aldehy	de to alcohol is
	(1) Oxidation	(2) Polymerization
	(3) Reduction	(4) Esterification
36.	Which one of the following compounds	does not absorb light in the UV-Vis spectrum?
	(1) Paracetamol	(2) Diclofenac
	(3) Curcumin	(4) Chloral hydrate
37.	The primary site for amino acid catabol	ism is
	(1) Kidney	(2) Liver
	(3) Brain	(4) Adipose tissue

38.	Th	e tertiary structure of protein refers to	:	
	(1)	the overall 3D shape	(2)	the sequence of amino acids
	(3)	the sequence of nucleotides	(4)	the arrangement of subunits
39.	lde	entify the <i>correct</i> statement for glycoly	ysis :	
	(1)	The gluconeogenesis is the exact op	posit	e of glycolysis.
	(2)	In glycolysis, the glucose is formed	from	pyruvate.
	(3)	Glycolysis can take place under anac	erobi	c conditions.
	(4)	The mitochondria is the primary site	of g	lycolysis.
40.		nat is the term used for drugs that are used for the same purpose?	simi	lar in structure to a known drug and which
	(1)	copycat' drugs	(2)	'me-too' drugs
	(3)	derivative' drugs	(4)	'analogue' drugs
41.	Sto	omatal number is defined as average n	umb	er of stomata
	(1)	per leaf blade		
	(2)	per mm <sup>2</sup> area of leaf epidermis		
	(3)	per cm <sup>2</sup> area of leaf epidermis		
	(4)	per inch <sup>2</sup> area of leaf epidermis		
42.	Ma	atch the crude drugs with their respect	ive t	richome types.
		Crude drug		Trichome types
	P	Cassia	I	Lignified trichomes
	Q	Datura	П	Appresed trichomes
	R	Stropanthus	Ш	Multiseriate trichomes

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S Nux-Vomica

(1) P-IV, Q-III, R-II, S-I,

(3) P-IV, Q-I, R-II, S-III

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IV Unicellular covering trichomes

(2) P-I, Q-III, R-II, S-IV

(4) P-II, Q-I, R-IV, S-III

43.	Which of the following crude drugs contain Eugenol?	
45.	(1) Coriander	(2) Fennel
	(3) Tulsi	(4) Cardamom
44.	Ginkgo biloba is used for its	
	(1) expectorant	(2) lipid lowering
	(3) PAF antagonistic	(4) antidepressant
45.	Inulin renal clearance is used for measu	rement of
	(1) effective renal blood flow	
	(2) glomerular filtration rate	
	(3) renal drug excretion rate	
	(4) active renal secretion	
46.	Which of the following is characterized	by presence of anisocytic stomata?
	(1) Senna	(2) Belladona
	(3) Digitalis	(4) Coca
47.	One mg of Lycopodium spores used in	quantitative microscopy contain an average of
	spores.	
	(1) 94,000	(2) 92,000
	(3) 90,000	(4) 9,200
48.	Glass transition temperature is detected	through
	(1) X-ray diffraction	
	(2) Solution calorimetry	
	(3) Thermogravimetry	
	(4) Differential scanning calorimetry	

49.	Triterpenoids are the active constituents of			
	(1)	Jaborandi	(2)	Rhubarb
	(3)	Stramonium	(4)	Brahmi
50.	Wh	ich of the following HPLC detector is	mo	st sensitive to changes in temperature?
	(1)	Refractive index detector		
	(2)	Photo Diode Array detector		
	(3)	Fluorescence detector		
	(4)	Electrochemical detector		
51.	The	cancer cells in stage 2		
	(1)	have spread to other parts of the body	у	
	(2)	may or may not have spread to lymp	h no	des
	(3)	have spread to the lymph nodes above	e co	llar bone
	(4)	are not spreading		
52.	The	e most common type of angina is:		
	(1)	Stable angina	(2)	Microvascular angina
	(3)	Variant angina	(4)	Unstable angina
53.	Ma	tch the following phytoconstituents w	ith t	heir chemical tests.
		Alkaloid		Ring system
	I	Tropane	P	Cocaine
	П	Indole	Q	Reserpine
	Ш	Isoquinoline	R	Emetine
	IV	Diterpene	S	Aconine
	(1)	I-S, II-P, III-Q, IV-R		I-P, II-Q, III-R, IV-S
	(3)	I-S, II-P, III-R, IV-Q	(4)	I-S, II-R, III-P, IV-Q

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54	54. Match the following diurctics with their appropriate category.			
		Diuretic		Category
	P	Furosemide	1	Carbonic anhydrase inhibitor
	Q	Spironolactone	П	Phenoxyacetic acid derivative
	R	Ethacrynic acid	Ш	Potassium sparing
	S	Acetazolamide	IV	Sulphamoyl derivative
	(1)	P-IV, Q-III, R-II, S-I,		
	(2)	P-I, Q-III, R-II, S-IV		
	(3)	P-IV, Q-I, R-II, S-III		
	(4)	P-IV, Q-II, R-I, S-III		
55.	Wh	ich of the following drugs can antag	onise	5-HT ?
	(1)	Cinnarizine	(2)	Cyproheptadine
	(3)	Ondansetron	(4)	All of the above
56.	. Which of the following antidiabetic agent can cause lactic acidosis?		cause lactic acidosis ?	
		Chlorpropamide		Phenformin
	(3)	Glipizide	(4)	Metformin
57.	Whi	ch of the following is a preffered di igh-dose use of glucocorticoids?	rug fo	or the management of osteoporosis caused
	(1)	Alendronate	(2)	Calcitonin
	(3)	Mestranol	(4)	Vitamin D
58.	Iden	tify the potassium channel opener from	om ar	mong the following:
		Pinacidil		Hydralazine

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(3) Glibenclamide

(4) Amiloride

59.	Metronidazole is least likely to be effect	tive in the treatment of:	
	(1) Amebiasis		
	(2) Giardiasis		
	(3) Psudomembranous colitis		
	(4) Pneumocystosis		
60.	Identify the drug whose concurrent use	is likely to cause failure	of oral contraception:
	(1) Isoniazid	(2) Rifampicin	
	(3) Cimetidine	(4) Propranolol	
61.	TheC-24 glycosides give the following	test positive :	
	(1) Liberman's sterol test	(2) Baljet test	
	(3) Legal test	(4) All of the above	
62.	The IR spectrum of the organic liquid polished plate made of :	can be taken up by place	cing it between a pair of
	(1) Sodium chloride		
	(2) Potassium bromide		
	(3) Aluminium chloride		
	(4) Both (1) and (2)	·	
63.	Which of the following cannot be used	as reference electrode?	
	(1) Calomel electrode		
	(2) Glass electrode		
	(3) Silver/silver chloride electrode		
	(4) Standard Hydrogen electrode		
oun/	IIDS-FF-2022/(Pharmaceutical Science	ce)(SET-X)/(D)	P. T. O

64		sors for the biosynthesis of Atropine?  (2) Tyrosine and Tryptophan
	(1) Ornithine and Phenylalanine	
	(3) Tyrosine and Dopamine	(4) Tryptophan and Dopamine
65	. The biological source of Star Anise is	11
03	(1) Pimpinella anisum	(2) Illicium anisum
	(3) Illicium verum	(4) Illicium religiosum
	(3) Itticium verum	(4) Itticium retigiosum
66.	. Peruvoside is naturally obtained from	the following:
	(1) Dioscorea	(2) Ginseng
	(3) Liquorice	(4) Thevetia
67.	Sapogenins are characterized by	
	(1) Spiroketal side chain	
		(2) 27 cholestane system
	(3) Spirostane structure	(4) all of the above
68.	Steroidal estrogens are produced semi-	synthetically from the following plant sterol.
	(1) Gitogenin	(2) Diosgenin
	(3) Ditogenin	(4) Estrogenin
69.	All are phytoestrogens except:	, and agoing
	(1) Genistein	
	(3) Coumesterol	(2) Daidzein
	(5) Couriesterol	(4) Diethylstillbesterol
70.	Shinoda test is used for chemical evaluation (1) Alkaloids	
	(1) Alkaloids	
	(3) Anthraquinones	(2) Flavanoids
PHD/U	RS-EE-2022/(Pharmaceutical C.	(4) Lipids
PHD/URS-EE-2022/(Pharmaceutical Science)(SET-X)/(D)		

	(1) Aromatic compounds are Planar	
	(2) Aromatic compounds are cyclic	
	(3) Aromatic compounds have 4n electr	ons
	(4) Aromatic compounds are generally I	ess reactive than similarly substituted alkenes.
72.	In electrophilic aromatic substitution rea	ctions the halides are :
	(1) Ortho/para directing and activating	
	(2) Ortho/para directing and deactivating	ıg
	(3) Meta directing and activating	
	(4) Meta directing and deactivating	
73.		kinetics with rate constant $k_0$ =0.70 / day. The 75 mg/ml. What would be the concentration of
	(1) 70.9 mg/ml	(2) 71.8 mg/ml
	(3) 72.9 mg/ml	(4) 69.1 mg/ml
74.	How many grams of active ingredient w/v solution?	would be required to prepare 920 ml of 0.95%
	(1) 8.74 gm	(2) 874 mg
	(3) 9.5 gm	(4) 950 mg
75.	How many grams of the zinc oxide (1% w/v) cream to prepare 450 gm of zi	(10%, w/v) cream, be mixed with zinc oxide nc oxide (5% w/v) cream?
	(1) 200 gm	(2) 250 gm
		(4) 150 gm
	(3) 50 gm	V(SFT-X)/(D) P. T. O
PHD/U	JRS-EE-2022/(Pharmaceutical Science	

**71.** Identify the incorrect statement from among the following:

(1) 2 ml

(3) 20 ml

77. A pseudoplastic liquid ......

	(1) becomes less viscous as the rate of shear increases			
	(2) becomes more viscous as the rate of shear increases			
	(3) becomes less viscous over time when a constant shear stress is applied			
	(4) becomes more	e viscous over time	when a constant she	ear stress is applied
78.	What is the kines dynamic viscosity		a liquid that has a	density of 1.2 g $\mathrm{cm}^{-3}$ and a
	(1) $0.6 \text{ m}^2 \text{ s}^{-1}$		(2) $1.67 \times 10^{-6}$	$m^2 s^{-1}$
	(3) $1.67 \text{ m}^2 \text{ s}^{-1}$		(4) $0.6 \times 10^{-6}$ n	$^{2} s^{-1}$
79.	Choose the incorr	ect statement:		
	(1) Different poly	morphic forms of a	drug can have diffe	erent melting points
				rent molecular formulae
			drug can have diffe	
			drug can have diffe	•
80.	Which of the follo	wing represent the	strongest intermolec	cular force of interaction?
	(1) Hydrogen bon	d	(2) Covalent bo	ond
	(3) London disper	rsion	(4) Dipole-diplo	oe interaction
81.	What is the term to site?	used for small mol	ecules that bind to	different regions of a binding
	(1) epimers	(2) isomers	(3) isotopes	(4) epitopes
PHD/U	RS-EE-2022/(Pha	rmaceutical Scien	ce)(SET-X)/(D)	and Delivery

**76.** How many ml of alcohol would be required to prepare 750 ml of 1 in 20 solution?

(2) 3.75 mJ

(4) 37.5 ml

82	Which of the following is <i>not</i> an endogenous lead compound?		
	(1) neurotransmitter	(2) modulator	1 /
	(3) alkaloid	(4) hormone	
83.	What bacterial enzyme aids the	survival of <i>Helicobacter pyl</i>	ori in the stomach?
	(1) carbonic anhydrase	(2) urease	
	(3) β-lactamase	(4) transpeptidase	
84.	What sort of receptor is the nice	otinic receptor ?	
	(1) A G-protein coupled recept	tor	
	(2) A kinase linked receptor		
	(3) An intracellular receptor		
	(4) An ion channel		
85.	Which feature of acetylcholine by hydrogen bonding?	e interacts with the binding s	site of cholinergic receptors
	(1) The acyl methyl group		
	(2) The ester		
	(3) The quaternary nitrogen		
	(4) All three N-methyl groups		
86.	Which of the following needs need theory?	lie on the top of the pyramic	d as per Maslow's hierarchy
	(1) Physiological needs		
	(2) Safety needs		
	(3) Self-actualization needs		
	(4) Esteem needs		
PHD/(	JRS-EE-2022/(Pharmaceutical	Science)(SET-X)/(D)	P. T. C

87	. The Theory of Leadership which s developed is:	tates that the excellent leaders are born, not
	(1) The Trait Theory	
	(2) The Great Man Theory	
	(3) The Behavioural Theory	
	(4) The Transformational Theory	
88.	Which heterocyclic ring system is pres	ent in Rofecoxib?
	(1) Furan	(2) Indole
	(3) Pyridine	(4) Pyrrole
89.	The drying process where Eutectic point	nt is involved :
	(1) Fluid bed drying	
	(2) Tray drying	
	(3) Freeze-drying	
	(4) Both fluid bed and freeze drying	
90.	During distillation of mixtures of liquid	s, the one which evaporates first is
	(1) more volatile liquid	(2) less volatile liquid
	(3) non-volatile liquid	(4) immiscible liquid
91.	Which kind of molecules cannot pass th	rough a pore transport ?
	(1) Low Molecular weight molecules	Photograms and
	(2) Water-soluble drugs	
	(3) Molecules upto 400 Dalton	the track of the
	(4) Molecules greater than 400 Dalton	
PHD/U	RS-EE-2022/(Pharmaceutical Science	(SET-X)/(D)
		(OZA-A)I(D)

92	2. Non-linear pharmacokinetics can also be identified as pharmacokinetics.
	(1) dose dependent (2) enzyme capacity limited
	(3) saturation (4) All of the above
93	s are characteristic of non-linear pharmacokinetics?
	(1) Area under the curve is proportional to the dose
	(2) Elimination half-life remains constant
	(3) Area under the curve is not proportional to the dose
	(4) Amount of drug excreted through remains constant
94.	The Non-linear pharmacokinetic arises due to
	(1) Pathological alteration at any one of the various pharmacokinetic steps, such as absorption, distribution and/or elimination.
	(2) Capacity-limited metabolism.
	(3) Alteration in protein binding characteristics
	(4) All of the above
95.	Which of the following applies to non-compartmental pharmacokinetics?
	(1) $MRT = AUMC/AUC$ (2) $AUMC = MRT/AUC$
	(3) $MRT = AUC/AUMC$ (4) $AUC = AUMC/MRT$
96.	The Wagner-Nelson-Method in compartment modelling is employed for the determination of
	(1) absorption rate constant (Ka) from % ARA Vs time curve
	(2) elimination rate constant (Ke) from % ARA Vs time curve
	(3) absorption rate constant (Ka) from % ARA. Vs Concentration curve
	(4) Determination of plasma half life
	P. T. C

97	Which of the following drug metabolism reaction is <i>not</i> conjugation.			
	(1) Glucuronidation (	2) Sulfate formation		
	(3) Hydrolysis	4) Methylation		
98.	3. Identify the characteristic feature of coloni	dentify the characteristic feature of colonic release systems.		
	(1) They release the drug along the entire	1) They release the drug along the entire length of GIT		
	(2) They use enteric coating.			
	(3) They employ polymers that dissolve o	nly in the alkaline pH of colon		
	(4) Both (2) and (3)			
		1 - Louis Louis		
99.	. Anhydrous lactose offers advantage of	over lactose hydrate.		
	(1) better flow properties			
	(2) absence of maillard reaction			
	(3) better compressibility	(3) better compressibility		
	(4) none of the above			
100.	The B tooling and D tooling of tablet mach	nine have different		
	(1) punch and die length			
	(2) die length but same punch length			
	(3) punch and die diameter			
	(4) die diameter but same punch diameter			

ph D/LIRS entrance	exam	answer	key	2021-22
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2	2	3	4	3
3	1,	4	3	1
4	1	1	3	2
5	4	1	4	4
7	1.	3	2	1
8	2	3	1	1
9	2	2	3	4
10	1	3	2	3
11	2	4	2	1
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13	4	2	3	4
14	3,	4	3	4
15	.3	2	2	3
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17	2	2	1	3
18	1,	1	4	1
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21	4	3	4	3
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23	2	1	3	1
24	4	1	1	1
25	2	1	2	2
26	3	4	4	1
27	2	1	1	4
28	1	2	1	1
29	3	2	4	4
30	1	1	3	
31	3	2	1	2
32	4	1	2	1
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34	1	3	4	3
35	2	2	3	3
36	1	2	1	4
37	4	1	3	2
38	1	4	1	1
39	4	4	4	3
40	,3	1	2	2
41	4	2	3	2
42	4	1	4	1
43	3	2		3
44	4		1	3
45	1	1	2	2
	1	4	2	2



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93	3 .	4	2	2
94	3	4	1	3
95	2	3	3	1
96	2	1	4	1
97	1	3	4	3
98	4	1	2	3
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