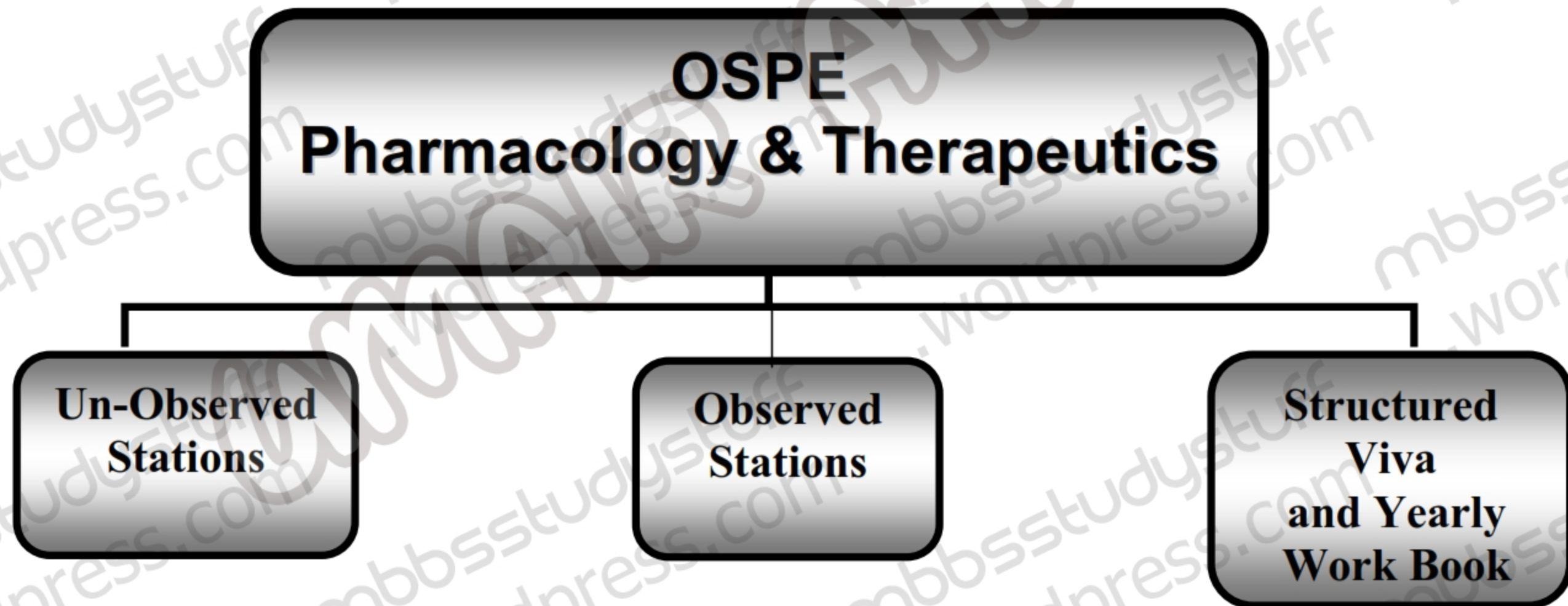


Format (Practical Examination / OSPE)

MBBS Second Professional Examination

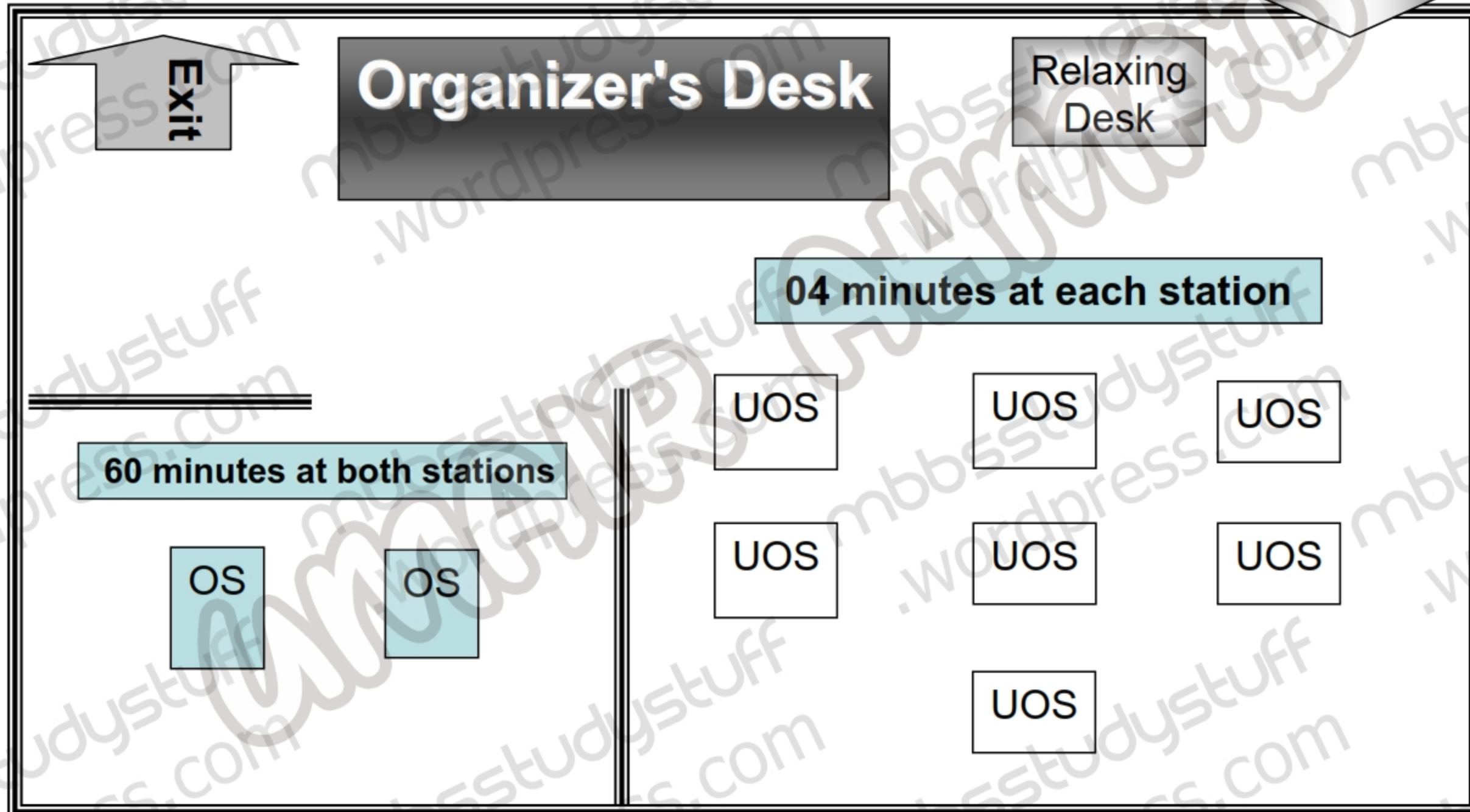
PHARMACOLOGY AND THERAPEUTICS



Waiting Area for Candidates

Hall
1

Entrance



UOS= Unobserved Station; OS= Observed Station

Waiting Area for Viva Voce at

Hall

2

Entrance

Internal
Examiner

External Examiner

As per TOS

Details of the Model:

Check List:

Must be agreed type prepared by at least two experienced examiners.

2nd Professional MBBS

Pharmacology / Annual Examination, 2009

I. Theory:

SEQs: 10, each of 7 marks = 70

MCQs: 65, each of 1 mark = 65

Total:135 marks

II. Practical:

Total:135 marks

24 students daily each for Viva-Voce & OSPE;

Structured Viva-Voce = 24 students; (on separate day)

(Each Internal & External Examiner with 30 marks).....60 marks

Structured OSPE = 24 students (on separate day)75 marks

For at least 12 students during first half an hour;

Remaining 12 students will be isolated in waiting room.

i. *Non-observed Stations* :(35 marks)

- a). Pharmacy Calculation5 marks
- b). Dose Calculation5 marks
- c). Prescription Writing, with parts of prescription 10 marks
- d). P-drug, with list of drugs to be used & reason for selection of drug10 marks
- e). Biostatistics (SEM, SD)5 marks

During next one hour these 12 students will go to:

ii. *Observed Stations*:(35 marks)

Setup for both types of Practicals is made on the same table

- a). Experimental Pharmacology Practical Performance
(With Viva-Voce)20 marks
- b). Pharmacy Practical Preparation:15 marks

iii. *Yearly work Book* :(5 marks)

III. Internal Assessment:

Theory + Viva-voce & Practical: 15 + 15 marks

Total:30 marks:

Grand Total: 135 + 135 + 30 = 300 marks

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MBBS SECOND PROFESSIONAL EXAMINATION

PHARMACOLOGY AND THERAPEUTICS

TOS FOR OSPE

Stations	Topics	Marks	Time
01. Non-Observed Stations (NOS) – 35 Marks			
UOS No. 1	Pharmacy Calculations	05	04 mins
UOS No. 2	Dose Calculations	05	04 mins
UOS No. 3	Prescription Writing With Parts Of Prescription	05	04 mins
UOS No. 4	Prescription Writing With Parts Of Prescription	05	04 mins
UOS No. 5	P-drug, with list of drugs to be used & reason for selection of the drug	05	04 mins
UOS No. 6	P-drug, with list of drugs to be used & reason for selection of the drug	05	04 mins
UOS No. 7	Biostatistics (SEM, SD etc.)	05	04 mins
02. OBSERVED STATIONS (O.S) – 35 Marks			
O.S No. 8	Experimental Pharmacology Practical Performance (With Viva-Voce)	20	60 mins
O.S No. 9	Pharmacy Practical Preparation	15	
03. Yearly Workbook – 5 Marks			

MBBS Second Professional Examination

PHARMACOLOGY AND THERAPEUTICS

Objectively Structured Performance Evaluation (OSPE)

Model Paper

(Questions will be provided by the University for each Practical Examination day.)

Types of Question: Direct or Fill in the blanks or Clinical Scenario or correct the wrong Statement/data)

UOS No. 1

Calculation Related to Pharmacy

Time: 05 min

Marks: 08

Question:

“Write down the calculation to prepare 500ml of 5% dextrose in Normal Saline.”

Key:

5% dextrose means 5 G of dextrose dissolved in sufficient quantity of water to make it 100ml; Normal Saline = 0.9% saline; it mean 0.9 G (or 900 mg) of sodium chloride dissolved in sufficient quantity of water to make it 100ml.

So for 500 ml;

$$\text{Dextrose} = \frac{5}{100} \times 500 = 25 \text{ G}$$

3

2

$$\text{Sodium Chloride} = \frac{9}{10} \times \frac{500}{100} = 4.5 \text{ G}$$

1

So 25 G of Dextrose and 4.5 G of sodium chloride will be dissolved in sufficient quantity of water to make the volume 500 ml.

2

UOS No. 2

Calculation Related to Pharmacokinetics

Time: 05 min

Marks: 08

Question:

Calculate the dose of Amoxicillin for a child of 3 years (adult dose= 250 – 500 mg 8 hourly).

Key:

For calculation of dose according to age:

$$\text{Young's Formula} = \text{Adult Dose} \times \frac{\text{Age (years)}}{\text{Age} + 12} \quad 2$$

So the dose of Amoxicillin for the child of 3 years would be

$$\begin{aligned} \text{Dose of 3 years child} &= 250 \times \frac{3}{3 + 12} \quad 2 \\ &= 250 \times \frac{3}{15} \\ &= 250 \times \frac{1}{5} \\ &= 50 \text{ mg} \quad 2 \end{aligned}$$

Thus the dose of this child of 3 years will be 50 – 100 mg 8 hourly. 2

UOS No. 3

Prescription writing for a systemic disease and to indicate one of the parts of a prescription

Time: 05 min

Marks: 08

Question:

A 20 year old male patient has been diagnosed as suffering from an acute attack of malaria (not knowing the causative types of malarial parasite)

- Q1. What initial pharmacological therapy will be prescribed? 3**
Q2. Give the "Signature" of this prescription. 5

Key:

Abdul Majid,
20 years, male,
700 Raza Block,
Allama Iqbal Town, Lahore

®

Tablet Chloroquine 250 mg, 10 tablets

Signature: 4 tablets stat initially, then
2 tablets after 6 hours,
1 tablet BID for two days.

Sd.
Dr. Aaa Bbb Ccc,
MBBS,
Registration No: 001
00 Bastami Road,
Samanabad, Lahore

UOS No. 4

Time: 05 min

Marks: 08

Question:

A 15 year old girl has been diagnosed to be having "Absence" seizures.

- Q1. What "P-Drug" will be prescribed for her? 3
- Q2. What is the Mechanism of Action of this drug 5

Key:

1. Ethosuximide.
2. With therapeutic levels at thalamic neurons it alters the Ca^{++} current reducing the low-threshold (T-type) current. The T-type calcium currents are thought to provide a pacemaker current responsible for generating the rhythmic cortical discharge of an absence attack.

UOS No. 5

General Pharmacology

Time: 05 min

Marks: 04+04

Part – I: (Pharmacokinetics)

Question:

1. **What is 'bioavailability'?**
2. **What is the most important factor affecting it?**
3. **How can we avoid it; give examples.**

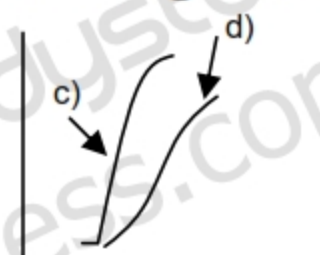
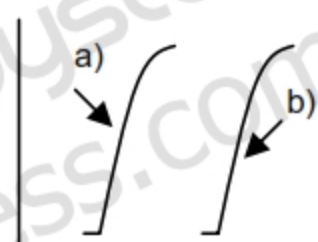
Key:

1. Bioavailability is the fraction or percentage of the administered dose of a drug that reaches into systemic circulation in unchanged form. **1**
2. First – Pass Metabolism **1**
3. **By: changing the route of administration, e.g., nitroglycerine**
Sublingual;
Inhibiting the responsible enzyme, e.g., Carbidopa
for L-dopa.
Increasing the dose, e.g., Propranolol. 2

Part – II (Pharmacodynamics)

Question:

1. What is drug-antagonism?
2. What are its various types?
3. Label the following figure showing “dose-response curve” of an agonist in the presence of two different types of antagonists.



Key:

1. Drug-Antagonism is a phenomenon in which one drug opposes or modulates the effects of the other drug by any mechanism. 1
2. **Types of antagonism: Physical, Chemical, Physiological and Pharmacological (Competitive & Noncompetitive)** 1
3. a) Agonist alone 1/2
b) Agonist plus competitive Antagonist 1/2
c) Agonist alone 1/2
d) Agonist plus Irreversible Antagonist 1/2

UOS No. 6

Autonomic Nervous System

Time: 05 min

Marks: 04 + 04

Part – I (Cholinergic System)

Question:

1. Put the following Anticholinestrases under their specific chemical groups of alcohol or carbamates.

Drugs: Ambenonium, Demacarium, Edrophonium, Neostigmine, Physostigmine, Pyridostigmine.

2. Name the three contraindications of Antimuscarinics.
3. Name the two clinical uses of neostigmine.

Key:

1. Alcohol : Edrophonium 1
Carbamates: Ambenonium, Demacrium, Neostigmine, Physostigmine, Pyridostigmine. 1
2. Glaucoma, Prostatic hyperplasia, young infants. 1
3. **Myasthenia Gravis, Paralytic Ileus.** 1

Part – II (Adrenergic System)

Question:

1. What is the 'life saving use' of Epinephrine.
2. Select the "specific α_1 -blocker' out of the following: Tolazoline, Prazosin, Phenoxybenzamine, Phentolamine.
3. What is the 'antihypertensive' mechanism of propranolol.

Key:

1. Acute anaphylactic shock. 1
2. Prazosin. 1
Propranolol decreases cardiac out put, blocks adrenergic receptors at brain, kidney (rennin activity) and peripheral neurons. 2

UOS No. 7

**Diuretics, or CVS, or Blood or Autacoids or
Drugs Acting on Respiratory System or GIT**

Time: 05 min

Marks: 04 + 04

Part – I

Question:

A 30 year old male has been diagnose as a case of Severe Lobar Pneumonia due to Strep. Pneumoniae.

- i. What is the drug of choice if non-complicated case?**
- ii. If allergic to first drug, what alternative drugs will be prescribed?**

Key:

- i. High doses of Benzylpenicillin I/V 6 hourly or Ceftriaxone I/V single dose or Cefuroxime 8 hourly. **2**
- ii. If allergic to penicillin high doses of:
Clarithromycin I/V 12 hourly or Erythromycin I/V 6 hourly. **2**

Part – II

Question:

A 35 year old patient with H-pylori positive peptic ulcer needs therapy:

- i. First choice is to give him:**
a) _____ b) _____ c) _____ d) _____
- ii. Two commonly used mucosal protective agents are:**
a) _____ and b) _____

Key:

- i. a) Omeprazole b) Clarithromycin
c) Amoxicillin d) Metronidazole **½ x 4**
- ii. a) Sucralfate b) Bismuth salts **1 x 2**

OS No. 8

To mount a piece of rabbit ileum

Time: 05 min

Marks: 08

Set up an apparatus used for observing the effects of a drug on rabbit ileum:

Check List: Tick or Cross

- | | | |
|------|--|---|
| i. | A terminal piece of ileum about 2cm in length is taken, | 2 |
| ii. | Thread is passed through the walls of both ends of ileum
keeping its lumen patent. | 4 |
| iii. | It is then tied up to the hook of lower end of oxygen tube
with the help of thread of one side and to the writing lever
with the thread of other side. | 2 |

Note:

Although 4-6 readings can easily be taken on one set of apparatus but please arrange 3-4 apparatuses at a time for all the observed stations to replace immediately for the next coming candidates.

OS No. 9

To Observe Drug-effect on a Tissue

Time: 05 min

Marks: 08

Observe the effects of Acetylcholine on a “stabalized” rabbit-ileum:

Check List: Tick or Cross

- i. Check the temperature of the solution/ water at 37°c and mark the starting point. 1
- ii. Record the tracing of 'Normal Contractions' for 30 seconds. 2
- iii. After 30 seconds add 0.5ml of the given concentration (e.g., 1µg) of Acetylcholine without stopping the drum and observe the response for 30 seconds. 3
- iv. Now, stop the drum, wash the tissue 2 to 3 times with Tyrode's solution and wait for 2-3 minutes till the lever touches the base line. 1
- v. Label the diagram showing different steps. 1

OS No. 10

To take the data and solve the Biostatic aspects

Time: 05 min

Marks: 08

Calculate the Arithmetic mean (\bar{x}) and $\sum x - \bar{x}$ ($\sum d$) of the six different pieces of white chalk.

Check List: Tick or Cross

- | | | |
|------|---|---|
| iv. | Weigh all the six pieces of white chalk and take the data with units. | 2 |
| v. | Make total of these figures and take the arithmetic mean of it. | 2 |
| vi. | Take d (difference of $x - \bar{x}$) of each individual figures. | 2 |
| vii. | Make total of these figures i.e. $\sum x - \bar{x}$. | 2 |