



# **OSCE/OSPE**

## **Objective Structured Clinical/Practical Examination**

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# **Learning objective**

- Basics of OSCE/OSPE
- Definition of OSCE/OSPE
- The scope of practical/clinical assessment
- Different types
- Steps of organization of OSCE/OSPE
- Examples of OSCE/OSPE

# Final Professional Examination



**Written**

2 papers



**OSPE**

Total 10  
stations



**Clinical**

Long &  
Short Case



**Oral &  
Practical**

# Definition

- **Clinical or practical assessments** where candidates **rotate round** and perform **specific tasks** in different stations until they complete a cycle
- **Competencies** are assessed using standardized **scoring instruments** by well briefed or trained **observer and assessors**



3

4

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10

# Paediatrics

2

1

**O** Objective

**S** Structured

**C** Clinical

**E** Examination

**O Objective**

**S Structured**

**P Practical**

**E Examination**



O

S

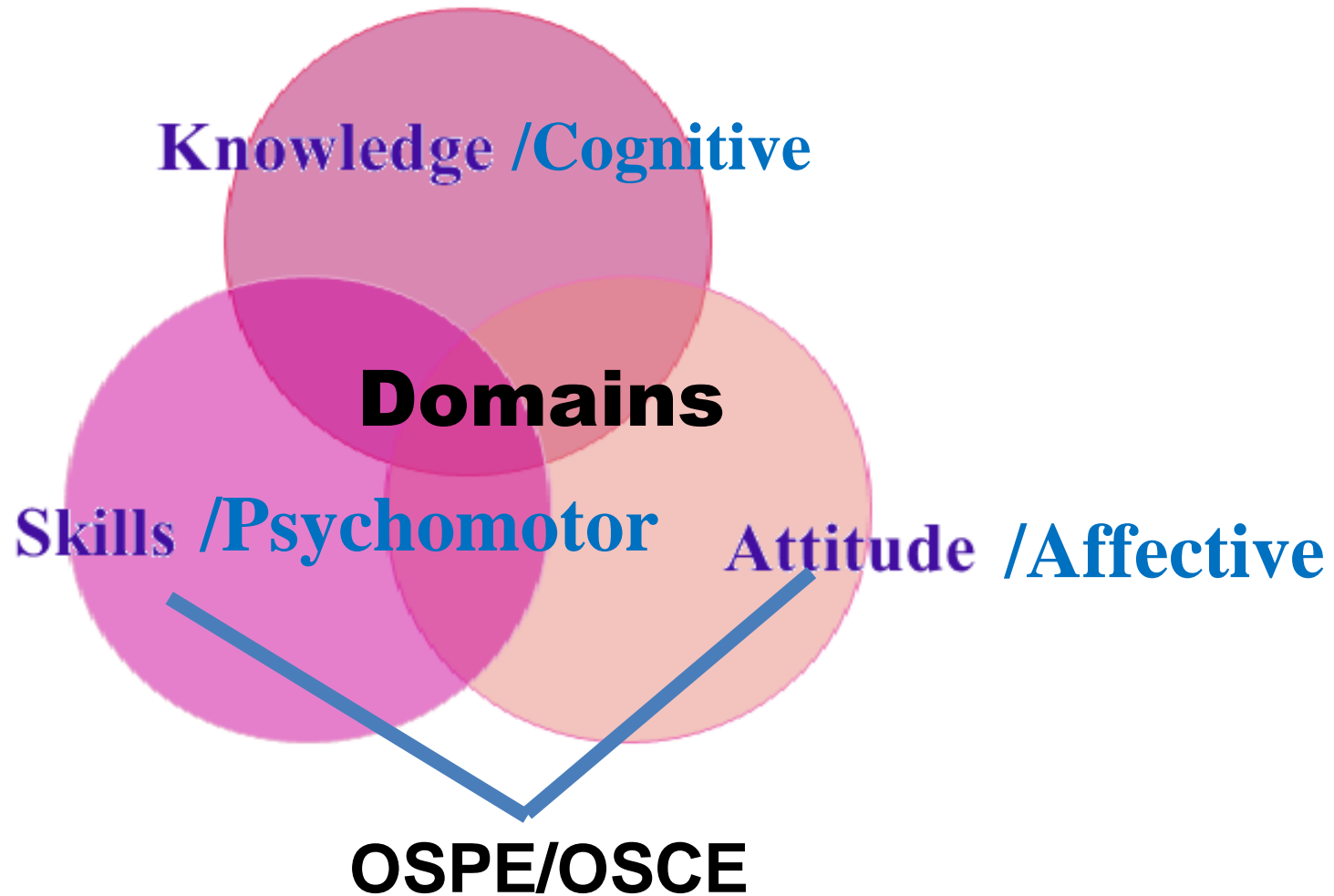
C/

P

E

- **Objective:**  
(Not influenced by personal feelings or opinion)  
As examiners use a pre-determined checklist with marking scheme for evaluation
- **Structured:**  
Because task is specified as well the marks, every student will face same problem & perform the same task within same time frame
- **Clinical :** Because the tasks are representative of real clinical situation other than direct patient contact
- **Practical:**  
Because the tasks are representative of practical aspects of those faced in real clinical situation other than direct patient contact
- **Examination**

# Educational Domains



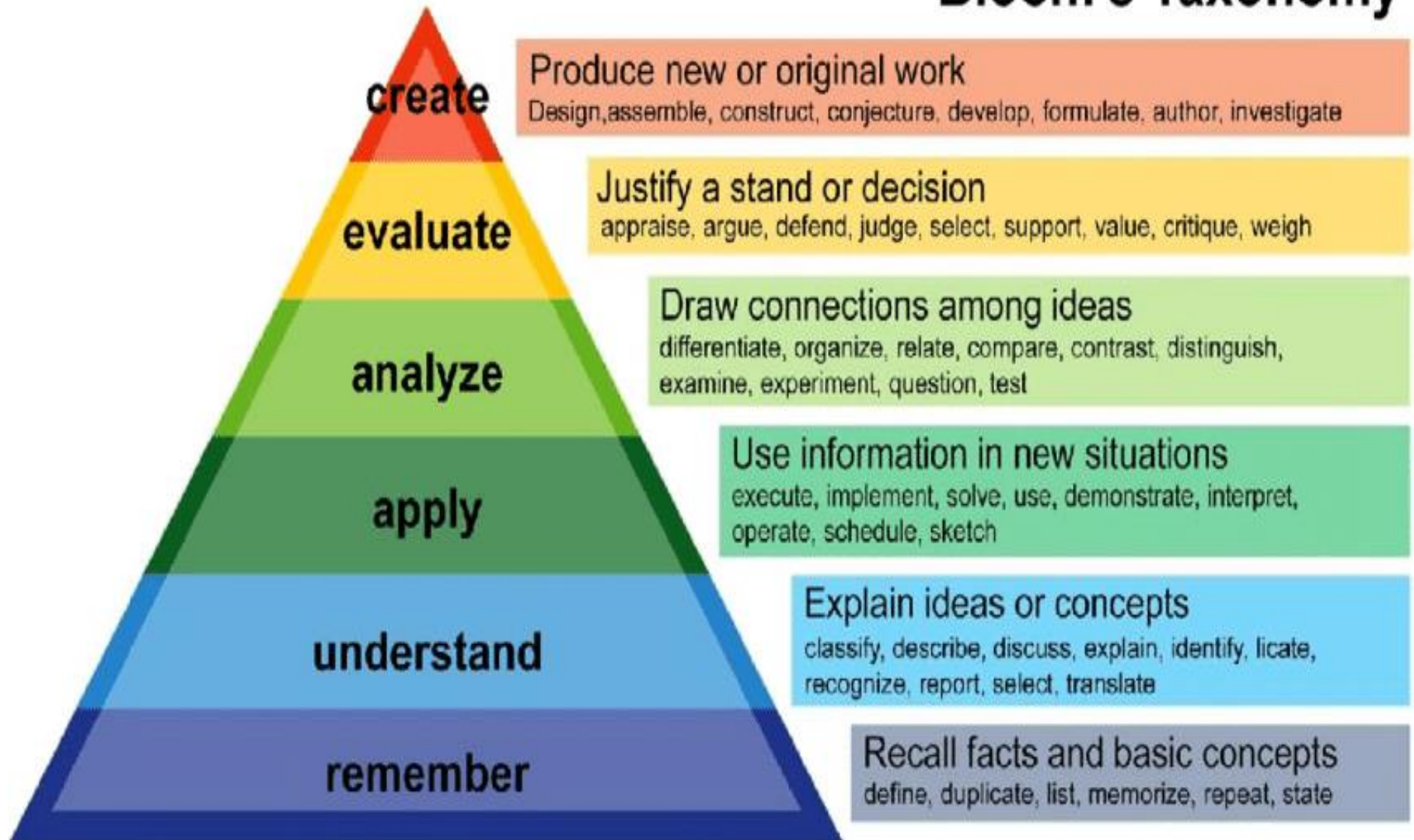
# **Educational Domains cont.**

## **Knowledge/Cognitive-**

- is organized in a hierarchy
- Begins with acquisition of knowledge followed by more sophisticated cognitive tasks

# Hierarchy of Knowledge/ Cognitive domain

## Bloom's Taxonomy



**Use of action verbs**

# **Educational Domains cont.**

- **Psychomotor Domain/Skill**
- Physical movement, coordination, use of motor skill areas
- Development of these skills requires practice
- Simple manual tasks to more complex tasks

# **Educational Domains cont.**

## **Affective Domain/Skill**

- Describes a feeling tone, an emotion
- Interest, attitude, appreciations, values
- Motivation, communication styles- verbal, nonverbal

# Affective Domain/Skill cont.

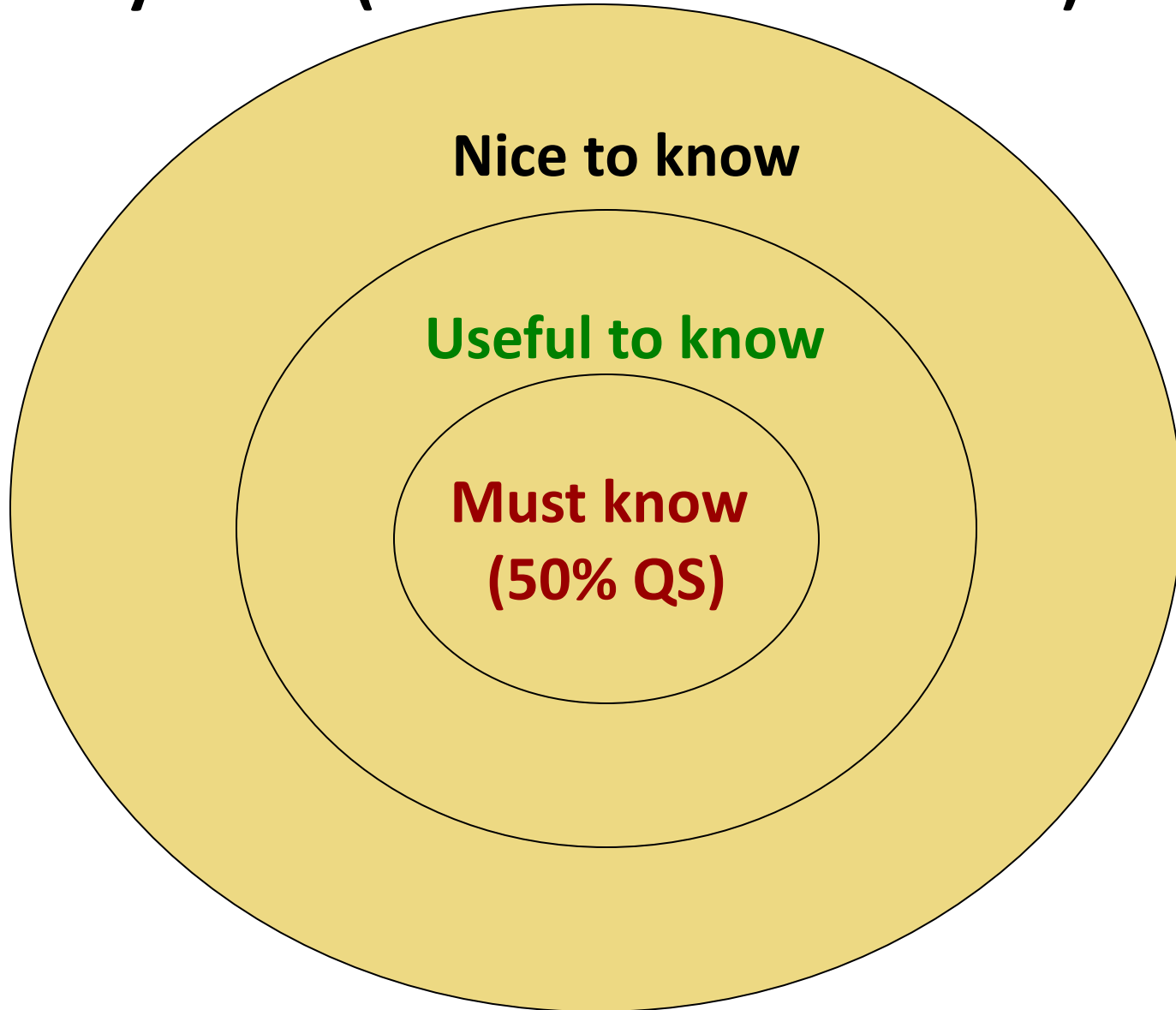
- Mainly aimed to assess psychomotor and affective domain
  - Practical skills
  - Clinical skills
  - Communication skills
  - Behavior
- Part of the tests might assess cognitive domain that are beyond the scope of written and oral tests

# Principles of OSPE/OSCE

- Questions are prepared on the basis of the objectives of the course
- **Task/ skill** to be tested is given to the student in the form of a specific question in a **Station** (Task assigned to the student)
- Time and task should be consistent.
- **Each station focuses on testing a particular skill/ area of competency**
- Preparation of 50% stations from must know part



# Syllabus (Contents of the course)



# Principle cont.

- Station should be screened or roomed
- Observer should not ask any question-  
Keen and silent
- Candidates must wear roll /code number  
badge

# Checklist



**Checklist is the heart of OSPE**

# Checklist cont.

- **Checklist** is prepared in advance during moderation of questions
- Checklist is prepared by breaking the skill into vital components
- All students are assessed on the same set of questions to make the assessment uniform & to ensure standardization.

# **Types of OSCE/OSPE stations**

- Procedure station
- Question station
- Linked station
- Rest station
- Must pass/guillotine station
- Extra length(double or triple time station)

# **Question station/unobserved station/response station**

Practically oriented questions are asked (**data interpretation, image, picture, X-ray, write a prescription**)

- Answers to be written on an answer sheet
- Scoring is done using a standard answer & marking scheme

# Question station cont.

- Material should be on the table
- Questions are linked with the material(s)
- Never give the question alone( without material)
- There is no observer
- Hall invigilator invigilate the question stations
- Candidates use separate sheet for answering
- Put the answer sheet in a narrow opening box
- Scoring is done by assessor using checklist with mark scheme.

# Procedure stations

- Students are asked to perform a **procedure/** task (history taking, system exam, **communication skill**)
- Requires an **observer**

## Two checklist

Checklist for observer- contain done and not done

Checklist for assessor- Contain mark scheme



# Procedure station cont.

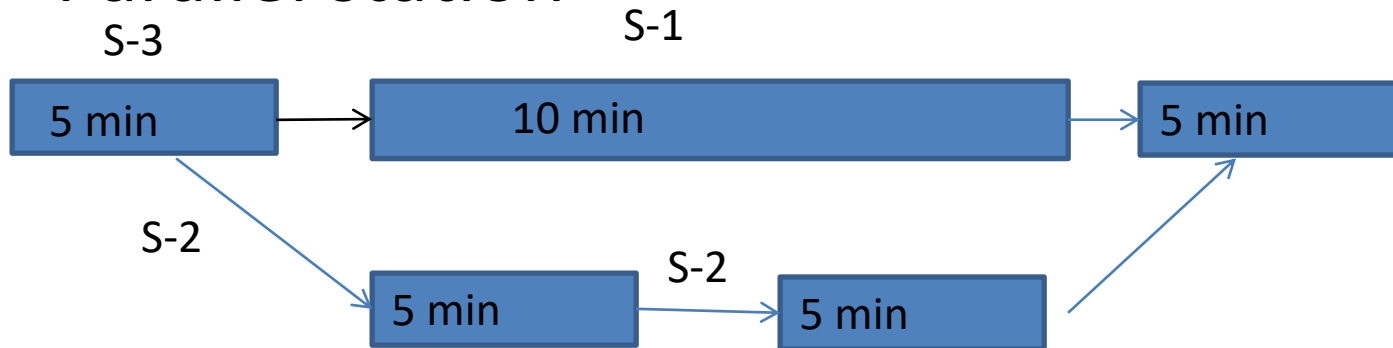
- Candidates perform the procedure
- Trained observer carefully observe each area of performance
- Observer rates the correct performance by right (✓) in the done of checklist.
- Concurrently rates the faults by tick the not done

# **Linked station**

- Linked with previous station
- Measure blood pressure of this 10-year-old boy using appropriate calf. Note down in the supplied page for the next linked station
- Linked station – plot the blood pressure in the appropriate chart and tell your interpretation to observer

# Extra length station

- When double time/triple needed to perform the task e.g. prepare and stain the slide or measure the blood pressure and plot it in growth chart
- Parallel station



# **Rest station**

- Station to accommodate excess candidates
- Not for taking rest or for writing the incomplete answer

# **Must pass/guillotine station**

- A candidate will fail if fail at that station
- Not practicing in our situation

# Competencies addressed by OSPE in final professional exam

## ➤ **Data interpreting**

- Patient studies
- Lab studies

## ➤ **Clinical reasoning**

- Formulating provisional/ diff diagnosis
- Planning investigation

## ➤ **Therapeutic decision making**

- Outline management
- Patient education

# Competencies cont'

Not yet in MBBS

## **Data gathering skill**

- Interviewing
- Physical examination

## **Procedural skill**

- Diagnostic, therapeutic, life saving & preparatory (preoperative, pre-procedural)

## **Communication skill (verbal & written)**

# Materials for OSPE

## Given in Final MBBS

**Clinical data (Case scenario)**

**Laboratory Data**

**Photograph**

**X-Ray**

**ECG**

**Instruments**

## Not yet in MBBS

CT/MRI

Patient /Simulated patients

Procedure

Models

Specimens

Communication skill

Prescription

writing



# Organization

- Advance planning and preparation- moderate the stations, select the place, select and inform observer and assessor.
- Activities on the day before the exam
- Activities on the day of exam
- Activities after the exam

# Planning of an individual station

- Identify competencies to be assessed (learning objectives /domains)
- Identify content / material / problem
- Write appropriate task for candidates related to learning objectives
- Write instructions for candidates/ observers
- Develop checklist / standard answer
- Marking scheme

# Planning cont.







- Select the simulated or real patients
- Train/brief the simulated or real patients to standardized them
- Use models/ simulator if possible

# Planning cont.

- ❑ Language should be clear, simple, precise and easily understandable
- ❑ Instruction must be specific
- ❑ Proper Weight should be given to the important points in the checklist

# Planning cont.

## Test matrix (blueprint)

Competency Catagories	CVS	RS	Neuro	GI	Renal	Nutrition	Neonatology	Haem/Oncology
Data interpretation (Clinical)								
Photograph								
X-Ray								
Data interpretation ( Laboratory)								
Instrument								
ECG								

# Planning cont.

## Example

- **Objective** : To interpret the ECG
- **Domain** : Knowledge
- **Content/ material** : ECG
- **Task** :interpretation of ECG
- **Instruction** :Please read the ECG  
& answer the questions
- **Checklist**
- **Marking with weight**

# **Activities on the day before the exam**

## **Check**

- The examination hall and station
- Number of materials, questions and checklist, necessary equipments should be ready according to number of students
- Environment of examination hall
- Arrangement of refreshment for observer, accessor and students

# **Activities on the day of exam**

- Brief the observer, assessor, simulated/real patient
- Brief the students regarding rules and regulation
- Quarantine the assessed students
- Conduct the examination in same day



# **Activities after the exam**

- Collect answer sheets
- Send to assessors
- Compute the results
- Preserve the questions, checklist, materials and other documents

# **EXAMPLES OF OSPE**

**X- rays**

# Station-1



**Please write down the station no & your roll number at the top**

**Instruction:** Please study the X-Ray of a 2-year- old boy & answer the questions given below.

**Time:** 05 minutes

### **Questions**

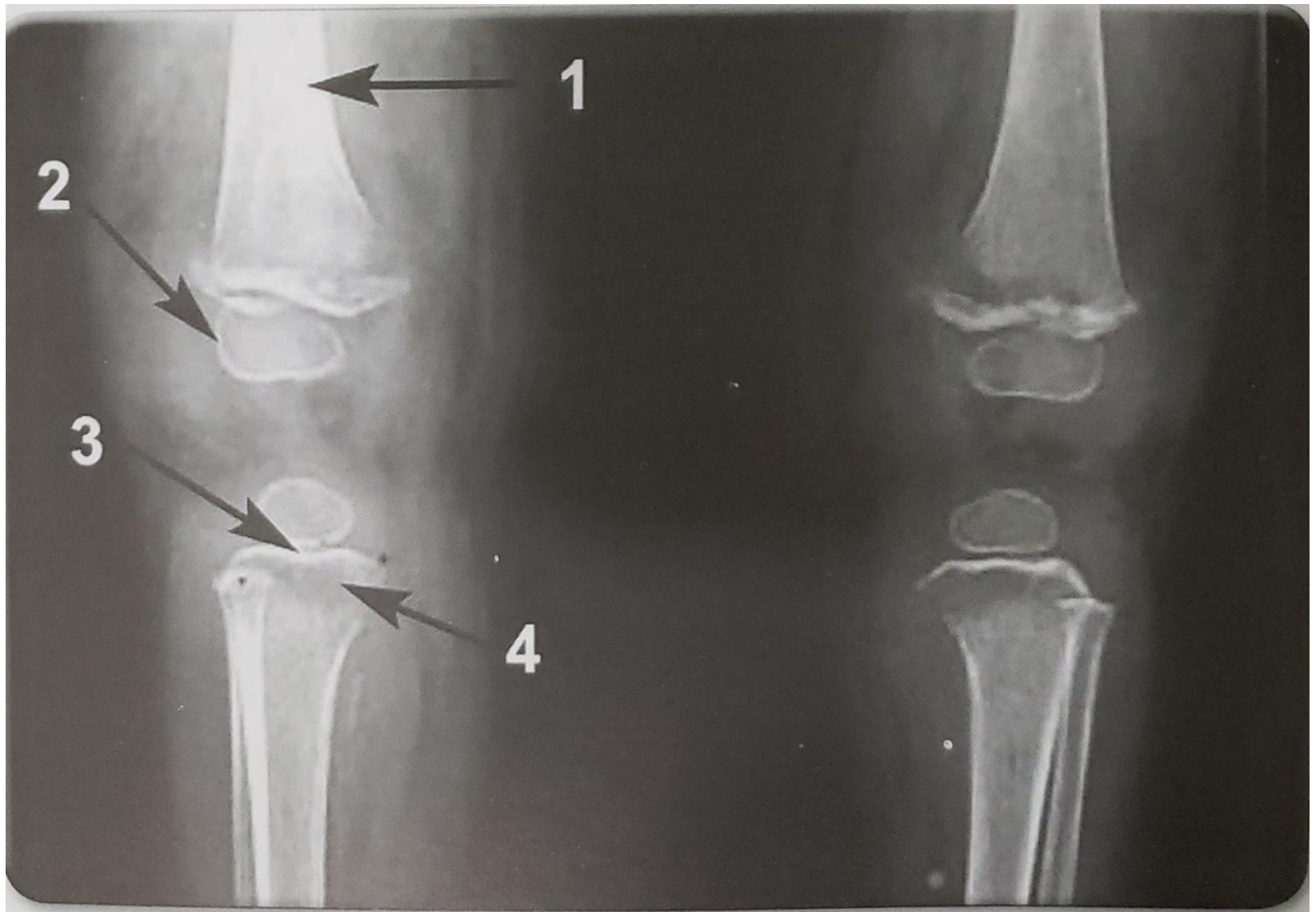
1. Write down 3(three) radiological findings.
2. What is your diagnosis?
3. Advise 4 (four) other important investigations to reach the diagnosis.

**After completion of your task, put the answer script in the box**

# Checklist-1

	Components	Marks
Answer-1	i. Widening, cupping & fraying of lower ends of tibia & fibula	1.5
	ii. Increased distance/ wide gap between epiphysis & metaphysis	1.0
	iii. Generalized osteopenia	0.5
Answer-2	Rickets	1.0
Answer-3 ( Any four)	i. Serum calcium level ii. Serum phosphate level iii. Serum alkaline phosphatase level iv. Serum parathormone level v. Vitamin D level	0.25X4 =1.0
Total		5.0

# Station-2



**Please write down the station no & your roll number at the top**

**Instruction:** Please study the X-Ray of a 2-year- old boy who cries while touched & answer the questions given below

**Time:** 05 minutes

### **Questions**

1. Write down radiological findings marked 1,2,3 and 4
2. What is your diagnosis?

**After completion of your task, put the answer script in the box**



# Checklist-2

	Components	Marks
Answer-1	1 Ground glass appearance of shaft 2 Ringing of epiphysis 3 White line of Fraenkels 4 Zone of tranlucency	0.75x4= 3.0
Answer-2	Scurvy	2.0
Total		5.0

## Station-3



**Please write down the station no & your roll number at the top**

**Instructions:** This is an X-ray of a 5 -year- old boy who has been suffering from shortness of breath since 1 year of age. Answer the following questions-

**Time:** 05 minutes

### **Questions**

Q1. Write down 3 (three) abnormal radiological findings you see in this X-ray.

Q2. What is the most likely diagnosis?

**After completion of your task, put the answer script in the box**

# Checklist-3

	Components	Marks
Answer-1 ( Any 2)	i. Boot shaped heart /tilted apex ii. Concave pulmonary conus iii. Oligaemic lung field	1.0 1.0 1.0
Answer-2	Tetralogy of Fallot	2.0
Total		5.0

# Station-4



**Please write down the station no & your roll number at the top**

**Instructions:** This is an X-ray chest of 8 -year -old boy who has been suffering from shortness of breath. Answer the following questions-

**Time:** 05 minutes

### **Questions**

Q. 1. Write down 4 (four) abnormal findings in the X-ray.

Q.2. What is the radiological diagnosis?

Q.3. Write down 2 underlying causes for this condition in children.

**After completion of your task, put the answer script in the box**

# Checklist-4

	Components	Marks
Answer-1	<ul style="list-style-type: none"><li>i. Homogeneous opacity in lower zone of both lungs</li><li>ii. Crescentic upper border of opacity.</li><li>iii. Both costophrenic angles are obliterated.</li><li>iv. Both cardiophrenic angles are obliterated.</li></ul>	.05x4=2.0
Answer-2	Bilateral pleural effusion	1.0
Answer-3 (Any 2)	<ul style="list-style-type: none"><li>i. Nephrotic syndrome</li><li>ii. Cirrhosis of liver</li><li>iii. Congestive cardiac failure</li><li>iv. Connective tissue diseases</li></ul>	0.5x2=1.0
Total		5.0

**Photograph**



# Station-5



**Please write down the station no & your roll number at the top**

**Instructions:** The 5 -year -old boy in this picture has been suffering from shortness of breath since 1 year of age.

Answer the following questions-

**Time:** 05 minutes

### **Questions**

Q1. Write down 2 (two) abnormal physical signs you see in this picture.

Q2. What is the most likely diagnosis?

**After completion of your task, put the answer script in the box**

## Checklist-5

	Components	Marks
Answer-1	i) Centralcyanosis (2)/Cyanosis (1)	2.0
	ii) clubbing of fingers	1.0
Answer-2	Tetralogy of Fallot/ Congenital cyanotic heart disease	2.0 /1.0
Total		5.0

## Station-6



**Please write down the station no & your roll number at the top**

**Instruction:** This is a photograph of a 3-year- old boy. Please study the photograph and answer the questions given below

**Time:** 05 minutes

### **Questions**

- Q1. Mention 4 important features observe in this boy?
- Q2. What is the most probable diagnosis?
- Q3. Enumerate 2 investigations that will help you to achieve the diagnosis.

**After completion of your task, put the answer script in the box**

# Checklist-6

	Components	Marks
Answer-1	i. Coarse face ii. Protruded tounge iii. Depressed nasal bridge iv. Umbilical hernia	0.25x4= 1.0
Answer-2	Hypothyroidism	1.0
Answer-3	i. T3, T4, TSH / T4, TSH/ FT4, TSH/ Thyroid Hormon assay( Carry 0.5 marks)	1.0
	i. X-ray Knee joint	1.0
	ii. USG of thyroid gland/ thyroid scan	1.0
Total		5.0

# **DATA INTERPRETATION**

## **(Clinical data)**

## Station-7

**Please write down the station no & your roll number at the top**

**Instructions:** A 4 - year- old boy weighing 11 kg admitted in the hospital. Her height was 92 cm. Please answer the following questions-

**Time:** 05 minutes

### **Questions**

Q.1. Plot the anthropometric values on the supplied growth chart

Q.2. Calculate the weight for height z score of this child?

Q.3. Write your diagnosis according to WHO classification.

**After completion of your task, put the answer script in the box**

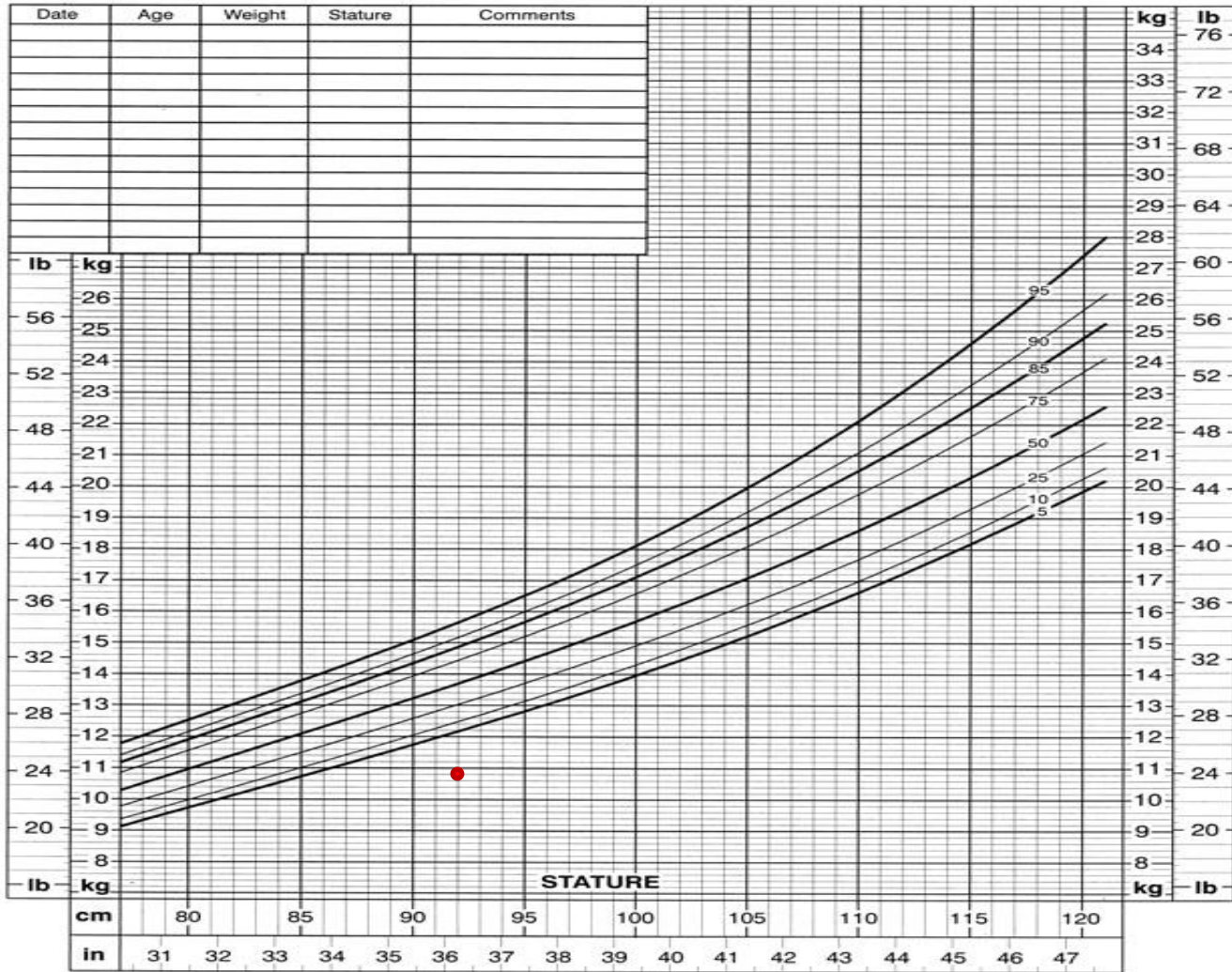


# Plotting on supplied growth chart

## Weight-for-stature percentiles: Boys

NAME \_\_\_\_\_

RECORD # \_\_\_\_\_



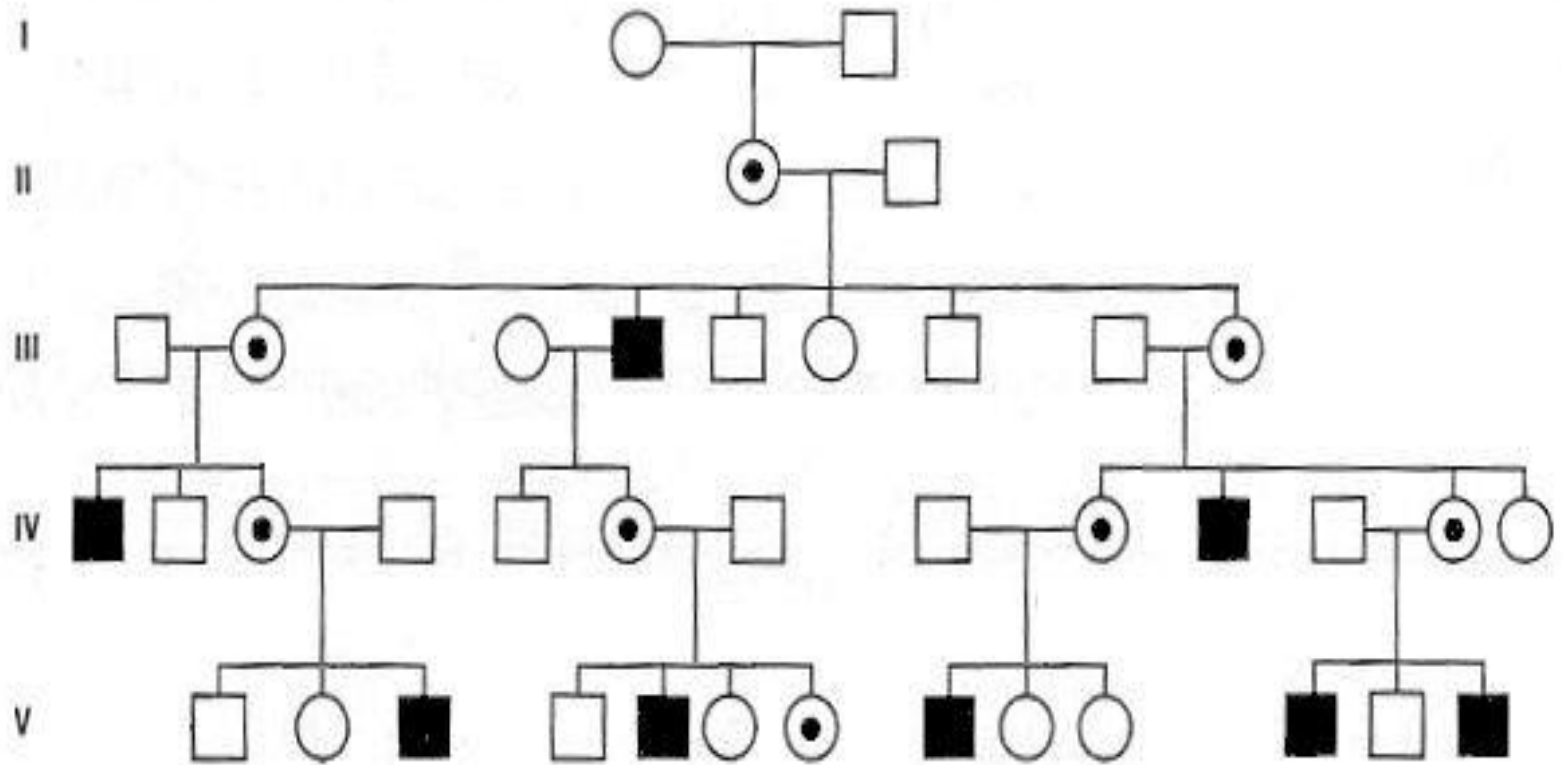
Published May 30, 2000 (modified 10/16/00).  
 SOURCE: Developed by the National Center for Health Statistics in collaboration with  
 the National Center for Chronic Disease Prevention and Health Promotion (2000).  
<http://www.cdc.gov/growthcharts>



# Checklist-7

	Components	Marks
Answer-1	Plotting on supplied growth chart	2.0
Answer-2	1 SD = $13.5-12.3/2=0.6$  Z score= $13.5-11=2.5/0.6= - 4.1$ For calculation Result	1.0  1.0
Answer-3	Severe acute malnutrition(SAM)	1.0
Total		5.0

# Station-8



**Please write down the station no & your roll number at the top**

**Instruction:** Please study the Pedigree of a 2-year- old boy & answer the questions given below.

**Time:** 05 minutes

### **Questions**

Q1. Who are carriers in this pedigree?

Q2. Who are sufferer/affected in this pedigree?

Q3. Write down the mode of inheritance.

Q4. Mention 3(three) diseases having this mode of inheritance

**After completion of your task, put the answer script in the box**

# Checklist-8

	Components	Marks
Answer-1	Females	1.0
Answer-2	Males	1.0
Answer-3	X-linked recessive	1.5
Answer-4 (Any three)	Hemophilia Duchenne muscular dystrophy Becker muscular dystrophy G6PD deficiency	0.5X3= 1.5
Total		5.0

# **DATA INTERPRETATION**

## **(Laboratory data)**

# Station-9

**Please write down the station no & your roll number at the top**

**Instructions:** A 10- month- old boy with acute watery diarrhoea presented with abdominal distension. S. Electrolyte shows Na 138 mmol/l, K 1.9 mmol/l, Cl 117 mmol/l, HCO<sub>3</sub> 25 mmol/l.

Study the laboratory data and answer the following questions.

**Time:** 05 minutes

## **Questions**

Q.1. Mention the abnormality in the electrolyte report.

Q.2. Enumerate three clinical features those may develop this boy.

**After completion of your task, put the answer script in the box**

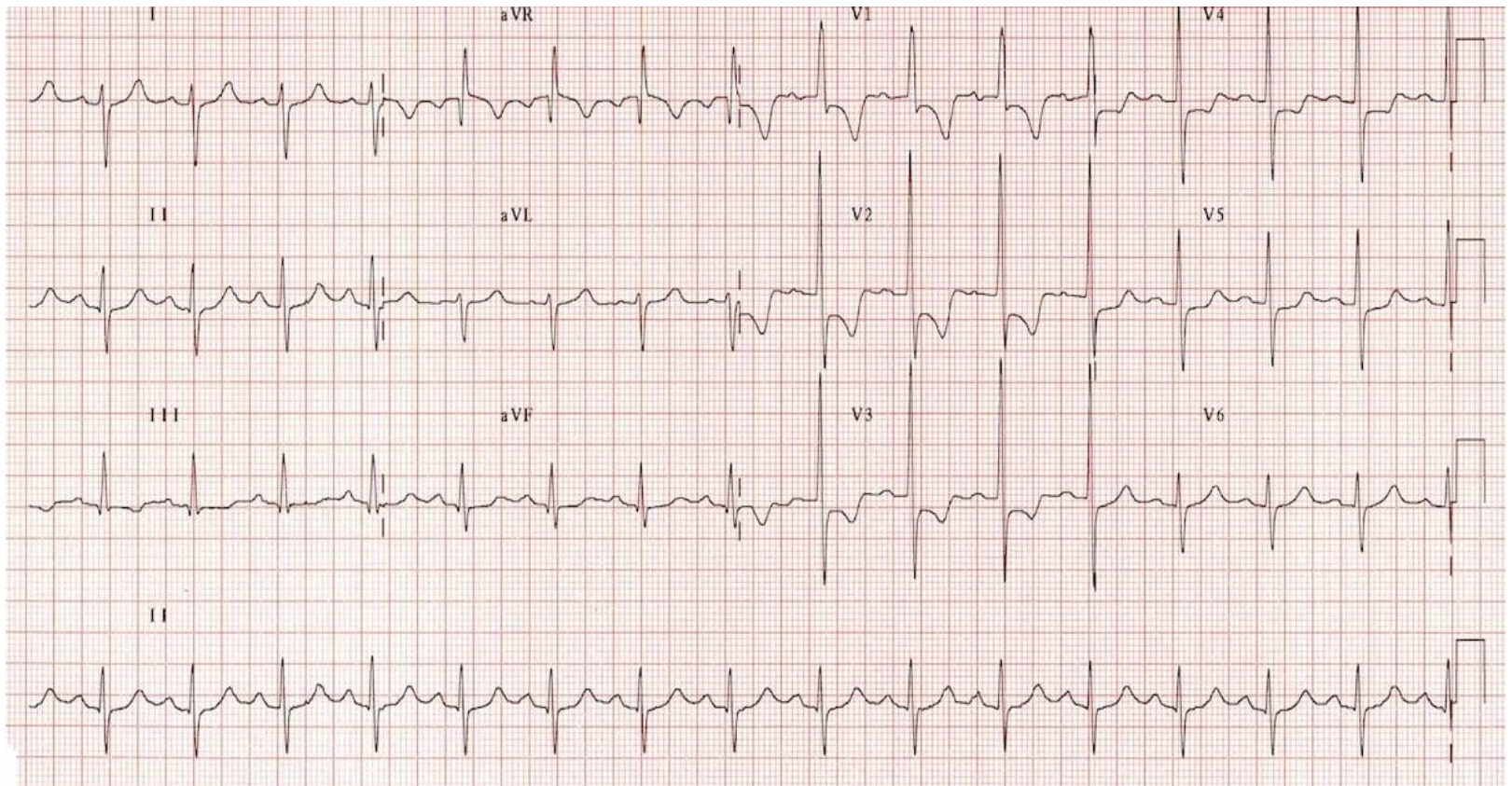
# Checklist-9

	Components	Marks
Answer-1	Hypokalemia	2.0
Answer-3 (Any three)	i. Paralytic ileus ii. Weakness and fatigue iii. Muscle cramps iv. Heart palpitation	1.0X3= 3.0
Total		5.0



# Station-10

## ECG



**Please write down the station no & your roll number at the top**

**Instruction:** Please read the ECG of a 3-year-old child and answer the following questions

**Questions**

Q1. Calculate the rate.

Q2. Comment on the rhythm of the strip.

Q3. Write down the diagnosis.

Q4. Name 2 important congenital heart diseases where such abnormality is found

**After completion of your task, put the answer script in the box**

# Checklist-10

	Components	Marks
Answer-1	100/min	1.5
Answer-2	Regular	1.0
Answer-3	Right ventricular hypertrophy/ RVH	1.5
Answer-4 (Any Two)	i) Tetralogy of Fallot ii) Atrial septal defect iii) Pulmonary stenosis iv) Pulmonary hypertension	0.5x2= 1.0
Total		5.0

# **Instruments**

# Station-11



**Please write down the station no & your roll number at the top**

**Instructions:** Please see the supplied instrument and answer the following questions.

**Time:** 05 minutes

### **Questions**

Q1. Name supplied instrument.

Q2. Mention 3 (three) indications of its use in paediatric practice.

Q3. How will you measure the length of the tube when you plan to introduce in an infant.

**After completion of your task, put the answer script in the box**

# Checklist-11

	Components	Marks
Answer-1	Nasogastric tube/ feeding tube	2.0
Answer-2 ( Any three)	i. Feeding ii. Medication iii. Nasogastric suction iv. Gastric lavage	0.5x3= 1.5
Answer-3	From tragus to tip of the nose then to Xiphoid process of sternum	1.5
Total		5.0

# Station-12





**Please write down the station no & your roll number at the top**

**Instructions:** Please see the supplied instrument and answer the following questions.

**Time:** 05 minutes

### **Questions**

Q1. Name the supplied instrument.

Q.2. Mention the parts of it.

Q2. Mention 2 important diseases where this instrument is used to reach the diagnosis.

Q3. What is the preferred site of introduction in a 10- year-old boy?

**After completion of your task, put the answer script in the box**

# Checklist-12

	Components	Marks
Answer-1	Bone marrow aspiration needle/ Salah	1.5
Answer-2	i. Trocar ii. Cannula iii. Guard	0.5X3=1.5
Answer-2 ( Two from the list)	i. Leukaemia ii. Aplastic anaemia iii. Kalaazar iv. Lymphoma v. Idiopathic thrombocytopenic purpura (iii ,iv & v carry 50% marks)	0.5x2=1.0
Answer-3	Posterior superior iliac crest	1
Total		5.0

# **Station-13**

## **(Procedure)**

- **Instruction:** Please do the heat coagulation tests and tell your interpretation to the observer

Time: 05 minute  
**Time: 5 min**

**Total marks: 10**

# Checklist-13 (For observer)

	Components/task	Done	Not-Done
1.	Taking the test tube and setting it in holder		
2.	Filling the test tube upto 2/3 <sup>rd</sup> with urine		
3.	Flaming the lamp		

4.	Heating on upper 1/3 <sup>rd</sup> of the tube over flame upto boiling point		
5.	Adding few drops of 5% Acetic acid after haziness appears and boiling again		
6.	Interpretation		
7.	Off the flame Wash & Keep the test tube in rack		
8	Overall technique		
	Total		

# Checklist-13

## (Mark scheme for assessor)

	Components/task	Marks
1.	Taking the test tube and setting it in holder	0.5
2.	Filling the test tube upto 2/3 <sup>rd</sup> with urine	1.5
3.	Flaming the lamp	0.5

4.	Heating on upper 1/3 <sup>rd</sup> of the tube over flame upto boiling point	02
5.	Adding few drops of 5% Acetic acid after haziness appears and boiling again	1.5
6.	Interpretation	02
7.	Off the flame	0.5
	Wash & Keep the test tube in rack	0.5
8	Overall technique	1.0
	Total	10

# **Station-14**

## **(Communication skill)**

**Instruction:** A-7-year-old girl is diagnosed as pulmonary tuberculosis. Now you have to treat the child. She has a younger sister of 2 –year-old. So counsel the parents on management.

**Time:5min**

**Total Marks: 10**



# Checklist-14 (For observer)

No	Tasks	Done	Not done
1	Greetings		
2	Rapport building		
3	Asking the mother what she knows about the illness		
4	Listen carefully what she says and praise her		

<b>5</b>	<b>Advice for anti-TB drugs:</b>		
	a) Number of drugs to be given		
	a) Dose & duration		
	a) Time of intake of drugs		
	a) Where the drugs are available		
<b>6</b>	<b>Inform mother about problems arises during treatment &amp; measure</b>		
	a) If orange color urine, assurance		
	a) If jaundice, stop drugs & consults immediately		
	a) Visual problem, stop drugs & consults immediately		

<b>7</b>	Risk of patient in noncompliance of drugs => TBM/resistance to drugs		
<b>8</b>	INH prophylaxis for younger sib with duration		
<b>9</b>	Any query of parents		
<b>10</b>	Feedback a) Eye to eye contact b) Use easy language c) Thanks given		
	Total		

# Checklist-14

## (Mark scheme for assessor)

No	Tasks	Marks
1	Greetings	0.5
2	Rapport building	0.5
3	Asking the mother what she knows about the illness	0.5
4	Listen carefully what she says and praise her	0.5

<b>5</b>	<b>Advice for anti-TB drugs:</b>	
	a) Number of drugs to be given	0.5
	a) Dose & duration	0.5
	a) Time of intake of drugs	0.5
	a) Where the drugs are available	0.5
<b>6</b>	<b>Inform mother about problems arises during treatment &amp; measure</b>	
	a) If orange color urine, assurance	0.5
	a) If jaundice, stop drugs & consults immediately	0.5
	a) Visual problem, stop drugs & consults immediately	0.5

<b>7</b>	Risk of patient in noncompliance of drugs => TBM/resistance to drugs	1.0
<b>8</b>	INH prophylaxis for younger sib with duration	1.5
<b>9</b>	Any query of parents	0.5
<b>10</b>	Feedback	0.5
	a) Eye to eye contact	0.5
	b) Use easy language	0.5
	c) Thanks given	0.5
	Total	10

## **Contributors**

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