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Guiding Light, Smiling Bright.

2.3.2. Institution facilitates the use of clinical skill laboratory/ simulation based learning

INDEX SHEET

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DR. HARVEY THOMAS M.D.S.

PRINCIPAL

TO WHOMSOEVER IT MAY CONCERN

This is to certify that, Student-centric methods are used for enhancing learning experiences by Experiential learning / Integrated/interdisciplinary learning/ Participatory learning / Problem solving methodologies / Self-directed learning / Patient-centric and Evidence-Based Learning / Learning in the Humanities / Project-based learning / Role play details are mentioned.

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DEPARTMENT WISE TRAINING PROGRAMS

TRAINING PROGRAMMES

DEPARTMENT OF PUBLIC HEALTH DENTISTRY

TITLE: INTRODUCTION OF DENTIQUE APP PATENT

TYPE OF TOOL USED: SOFTWARE APPLICATION DOWNLOADED IN COMPUTER

TYPE OF TRAINING:DEMONSTRATION

11-4-2018:HANDS ON TRAINING ON HOW TO USE THE APPLICATION

NUMBER OF PARTICIPANTS:6

NAME OF PARTICIPANTS:BEULA

FABNA.K

NAZRIN.N

SNEHA SANJEEV

AMLA TOM

ALENT VARGHESE

FACULTY:DR. ABDUL ZAHEER

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TITLE: LECTURE ON HOW TO CONDUCT NEED ASSESSMENT

TYPE OF TOOL USED: POWERPOINT PRESENTATION

TYPE OF TRAINING: SCENARIO BASED NEED ASSESSMENT

21-08-2019:HOW TO CONDUCT NEED ASSESSMENT

NUMBER OF PARTICIPANTS:6

NAME OF PARTICIPANTS: AYSWARYA ASHOK

BILHA THOMAS

FATHIMA

ARUN JAYAKUMAR

LESSLY VARGHESE

LIYA SIJI

FACULTY:DR.ABDUL ZAHEER

TITLE: COMPREHENSIVE DENTAL CARE V/S INCREMENTAL DENTAL CARE

TYPE OF TOOL USED : LECTURE

TYPE OF TRAINING: PATIENT DEMONSTRATION & MODELLING

13-11-2019: LECTURE ON THE TOPIC DIFFERENCE BETWEEN COMPREHENSIVE & INCREMENTAL DENTAL CARE

NUMBER OF PARTICIPANTS:5

NAME OF PARTICIPANTS: JESNA LATHEEF

FATHIMA M A

FASEELA YOUSAF

JITHINSHAH

HARITHA R

FACULTY:DR.ABDUL ZAHEER

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TITLE: HOW TO MAKE AN INTERSTING POWERPOINT PRESENTATION

TYPE OF TOOL USED: LECTURE

TYPE OF TRAINING: HANDS ON TRAINING ON POWERPOINT PRESENTATION

01-01-2021: LECTURE ON HOW TO MAKE POWERPOINT PRESENTATION

NUMBER OF PARTICIPANTS:6

NAME OF PARTICIPANTS: ABHIRAMI R

AISHWARYA P.R

AJINSHA

AMAL ASHRAF

AMINA

ANAND

FACULTY:DR.ABDUL ZAHEER

TITLE: DIETARY COUNSELLING

TYPE OF TOOL USED : LECTURE

TYPE OF TRAINING: PATIENT CENTRIC DEMONSTRATION

21-02-2021: HANDS ON TRAINING ON DIETARY COUNSELLING

NUMBER OF PARTICIPANTS:6

NAME OF PARTICIPANTS: AATHIKA NASRIN

ADHILA V T

BABITHA BABY

CHRISTINA JOHN

BHAVYA

DALIYA DEVIS

FACULTY:DR.TENCY MATHEW

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TITLE: MOTIVATIONAL INTERVIEW

TYPE OF TOOL USED : LECTURE

TYPE OF TRAINING: PATIENT CENTRIC DEMONSTRATION

29-07-2021: HANDS ON TRAINING ON INTERVIEW

NUMBER OF PARTICIPANTS:5

NAME OF PARTICIPANTS:ANANYA K

LINITA

JOBITHA

BHAGYA

HASHMI

FACULTY: DR.TENCY MATHEW

TITLE: PROPER DOCUMENTATION OF AN OUTREACH REPORT – HOW TO DO PROGRAMME USING GEO-TAGGED APP & MOBILE TECHNOLOGY

TYPE OF TOOL USED: LECTURE

TYPE OF TRAINING: HANDS ON TRAINING FOR PROPER DOCUMENTATION

07-01-2022: DEMONSTRATION

NUMBER OF PARTICIPANTS:5

NAME OF PARTICIPANTS:ABHIRAMI S.K

AMALA JOSHY

AMEENA SHERIN

ANJAN RAVI

HASNA P.O

FACULTY:DR.PALLAVI AMMU THOMAS

TITLE: HOW TO DO CRITICAL EVALUATION

TYPE OF TOOL USED: LECTURE

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TYPE OF TRAINING: ARTICLE DISCUSSION AND STEPS EXPLAINED

07-01-2022: ARTICLE DISCUSSION

NUMBER OF PARTICIPANTS:5

NAME OF PARTICIPANTS:ABHIRAMI S.K

AMALA JOSHY

AMEENA SHERIN

ANJAN RAVI

HASNA P.O

FACULTY:DR.BHARATH SHEKHAR NAYANAR

TITLE: INTRODUCTION TO SYSTEMIC REVIEW

TYPE OF TOOL USED : LECTURE

TYPE OF TRAINING: HANDS ON TRAINING FOR SYSTEMIC REVIEW

13-4-2022: DEMONSTRATION

NUMBER OF PARTICIPANTS:5

NAME OF PARTICIPANTS:ALBY JOSE

AJMI

HIBA

SALMAN

MEGHA

FACULTY:DR.PALLAVI AMMU THOMAS

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TITLE : PURIFICATION OF WATER

TYPE OF TOOL USED:LECTURE

TYPE OF TRAINING:WORKING MODEL OF WATER PURIFICATION PLANT

15-3-2023:DEMONSTRATION

NUMBER OF PARTICIPANTS:5

NAME OF PARTICIPANTS:ARUNIMA MADHU

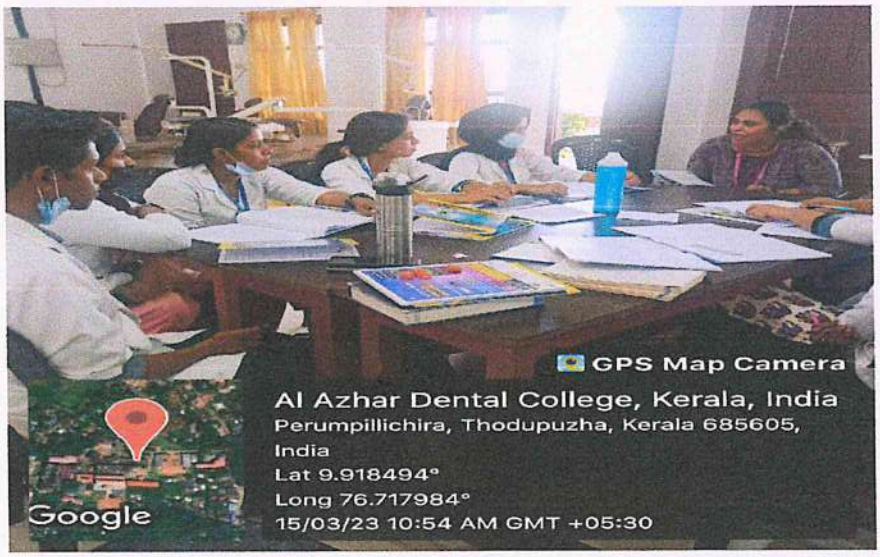
ANJANA SANDHOSH

ASWATHI S KUMAR

APARNA T NAIR

GREESHMA GS

FACULTY:DR.PALLAVI AMMU THOMAS



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TITLE: HOW TO DO PROBLEM SOLVING

TYPE OF TOOL USED: LECTURE

TYPE OF TRAINING: POWER POINT PRESENTATION

14-03-2023: DISCUSSION OF SCENARIOS

NUMBER OF PARTICIPANTS:5

NAME OF PARTICIPANTS: LAURA THOMAS

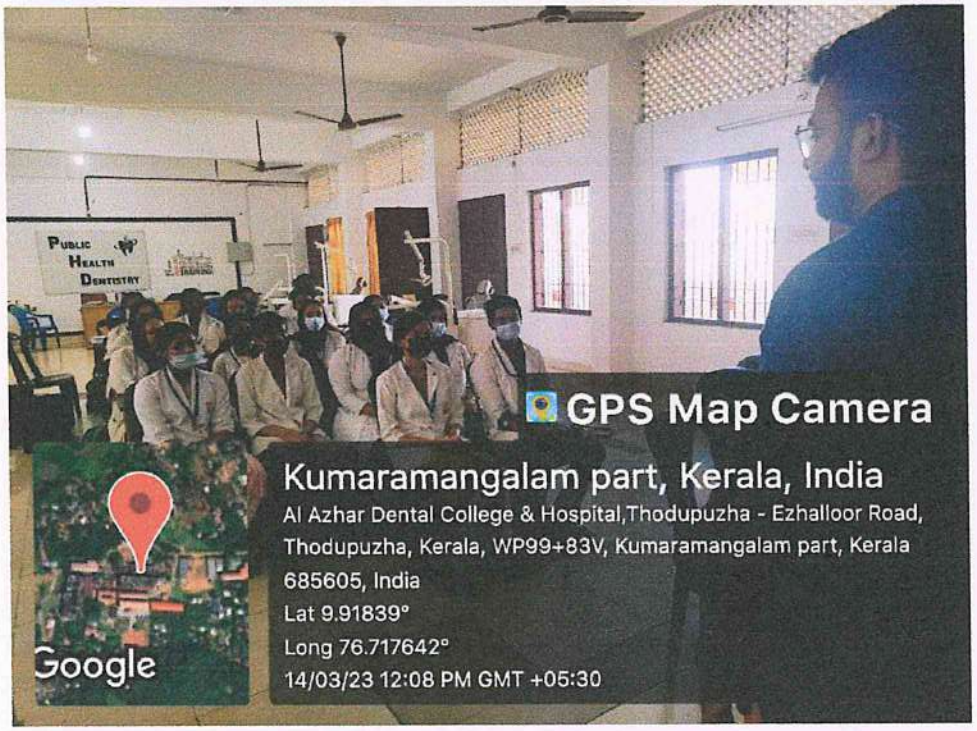
MAAJIDA NASEER

MALEEHA MUSAFER

MANISHA NELOFER

MARZUBAN SHAMIS.P

FACULTY:DR.BHARATH SHEKHAR NAYANAR



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LIST OF TEACHERS WHO ATTENDED TRAINING PROGRAMMES/WORKSHOPS/SEMINARS YEAR-WISE DURING THE LAST FIVE YEARS

SL.NO	DATE	PROGRAM TITLE	LIST OF ATTENDEES
	4-3-2023	IPR Speaker: Dr. Kavitha Chalakkal	1. Dr. Diana Kuraichan 2. Dr. Prijitha Alex 3. Dr. Afsal 4. Dr. Bharath Sekhar Nayanar 5. Dr. Abhilash Mathews 6. Dr. Jose Sunny 7. Dr. Wahada Pyarilal 8. Dr. Gayathri Anand 9. Dr. Jayesh Unnithan 10. Dr. Rahul J 11. Dr. Junu Henry 12. Dr. Jovin Cherian 13. Dr. Elizabeth Sojan
	6-2-2023	The You Factor: Interpersonal Skills Speaker: Sajan Pappachan	1. Dr. Stacey Thomas 2. Dr. Sharon Vincent 3. Dr. Binila S Babu 4. Dr. Hisham.M.I
	28-1-2023	Oral Health- A Window to Overall Health Speaker: Dr. Lidiya Thomas	1. Dr. Sreelakshmi G 2. Dr. Renu Ann Mathew 3. Dr. Stacey Thomas 4. Dr. Mazood Ahamad 5. Dr. Joe Manuel 6. Dr. Hisham M. I 7. Dr. Abhilash Thomas
	4-1-2023	Caries Management in Pediatric Clinical Practice Speaker: Dr. Joel Mathew	1. Dr. Hisham M I 2. Dr. Mohammed Afnan 3. Dr. Litto Manuel 4. Dr. Amal E A 5. Dr. Jayesh Unnithan 6. Dr. Moushmi C B 7. Dr. Renu Ann Mathew 8. Dr. Stacey Thomas 9. Dr. Sharon Vincent

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			47. Dr. Neetha Joy Arrakal 48. Dr. Basil N Jacob 49. Dr. Hasli Zulthana 50. Dr. Litto Manuel 51. Dr. Aby Kuruvilla 52. Dr. Binila S Babu 53. Dr. Nisha C 54. Dr. Greshma Salimkumar 55. Dr. Mazood Ahamad 56. Dr. Ciju A Paulose 57. Dr. Rosemary Francis
	16-6-2022	Do and Don'ts of Biopsy Procedure Speaker- Dr Jubin Thomas	1. Dr Shiny Joseph
	26-5-2022	An Insight into The Diagnosis of Periodontal Diseases Speaker: Dr. Linta Thomas	1. Dr. Cyril P 2. Dr. Moushmi C B 3. Dr. Joby Paulose 4. Dr. Nishin John 5. Dr. Muhammed Afnan 6. Dr. Renu Ann Mathew 7. Dr. Jayesh Unnithan 8. Dr. Sreelakshmi G 9. Dr. Elizabeth Sojan 10. Dr. Shiny Joseph 11. Dr. Archana V 12. Dr. Anu Mathew 13. Dr. Shreya
	12-4-2022	Dental Ethics and Jurisprudence Speaker: Adv. K P Mathew	1. Dr. Hisham M I 2. Dr. Bharath Sekhar 3. Dr. Abdul Saheer 4. Dr. Shanila Abdul Majid 5. Dr. Tency Mathew
	1-4-2022	Express Yourself: An Innovative Workshop On Life Skills Speaker: Dr. Civy V Pulayath	1. Dr. Surya Suprabhan 2. Dr. Athira Benny 3. Dr. Litto Manuel 4. Dr. Amal E A
	21-3-2022	Pediatric Exodontia: Tips and Tricks	1. Dr. Shanila Majid 2. Dr.Anjana Mohankumar

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		Speaker: Dr. Renju Raj A	3. Dr. Elizabeth Sojan 4. Dr. Sharon Vincent 5. Dr. Stacey Thomas 6. Dr. Renu Ann Mathew 7. Dr. Sreelakshmi G 8. Dr. Jayesh Unnithan 9. Dr, Muhammed Afnan
	4-3-2022	Steroids in Dental Practice; A Boon or A Scourge? Speaker: Dr. Anu Vijayan	1. Dr. Moushmi C B 2. 2. Dr. Elizabeth Sojan 3. Dr. Hima Raj 4. Dr. Binila S Babu 5. Dr.Anjana Mohankumar
	1-3-2022	Masquerade: Unveiling Some Clinical Scenarios Speaker: Dr. Arun Babu	1. Dr. Nishin K John 2. Dr. Moushmi C B 3. Dr. Abhilash Thomas 4. Dr. Renu Ann Mathew 5. Dr. Rema J 6. Dr. Shanila Majid 7. Dr. Basil Jacob 8. Dr. Hisham. M I 9. Dr. Augustine Daniel 10. Dr. Harvey Thomas
	24-2-2022	A Comprehensive Look On Sterilization and Infection Control in Dental Office Speaker: Dr. Mili James	1. Dr. Anu Mathew 2. Dr. Abhilash Thomas 3. Dr. Abin Ann Abraham 4. Dr. Moushmi C B 5. Dr. Hisham M I
	23-12-2021	Mental Wellbeing: The Role in Profession Speaker: Dr. Jose Joseph	1. Dr. Moushmi C B 2. Dr. Tency Mathew 3. Dr. Basil Jacob 4. Dr. Hisham M I 5. Dr. Jayesh Unnithan 6. Dr. Joe Manuel 7. Dr. Elizabeth Sojan
	21-12-2021	Recalibrate and Reboot: Dentist's Special Edition Speaker: Dr. Aparna Pandya	

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			14. Dr. Archana V 15. Dr. Anu Mathew 16. Dr. Binila S Babu 17. Dr. Mazood Ahamad 18. Dr. Stacey Thomas 19. Dr. Renu Ann Mathew 20. Dr. Sreelakshmi G 21. Dr. Nishin K John
	5-8-2022	Endodontics: In Auto Mode; Tips and Tricks to Cruise Control Speaker: Dr. Jojo Kotoor	1. Dr. Jayesh Unnithan 2. Dr. Shiny Joseph 3. Dr. Tency Mathew 4. Dr. Archana V 5. Dr. Surya Suprabhan 6. Dr. Mazood Ahamad 7. Dr. Junu Henry 8. Dr. Jovin Cherian 9. Dr. Rahul J 10. Dr. Ajay Soman 11. Dr. Nishin K John 12. Dr. Aby Kuruvilla 13. Dr. Moushmi Cb 14. Dr. Binila S Babu 15. Dr. Beulah Mary Bejoy 16. Dr Shreya M A 17. Dr. Mithu Mohan
	27-7-2022	Early Management of Malocclusion Speaker: Dr. Aby Abraham	1. Dr. Stacey Thomas 2. Dr. Sharon Vincent 3. Dr. Renu Ann Mathew 4. Dr. Jayesh Unnithan 5. Dr. Shiny Joseph 6. Dr. Litto Manuel 7. Dr. Mazood Ahamad
	7-7-2022	Faculty Development Program-Teach Wise Speaker- Dr. Jabimol C Maitheen	1. Dr Surya Suprabhan 2. Dr. Diana Kuriachan 3. Dr. Mazood Ahamad 4. Dr. Muhammed Afnan 5. Dr. Hisham M I 6. Dr. Rahul J

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			10. Dr. Sreelakshmi G
	14-12-2022	The Importance of Professional Ethics and Its Legal Implications Speaker: Dr. Elbe Peter	1. Dr. Jayesh Unnithan 2. Dr. Stacey Thomas 3. Dr. Abhilash Thomas 4. Dr. Binila S Babu 5. Dr. Gayathri Prakash Anand
	29-11-2022	Fundamentals of Scientific Publications Speaker: Dr. Subramanian R	1. Dr. Athira Benny
	23-11-2022	CBCT- Discovering New Roads in Diagnosis Speaker: Dr. Rema Jayalekshmy	1. Dr. Moushmi C B 2. Dr.Sreelakshmi G 3. Dr. Hisham M I 4. Dr. Jacob John Plackkal 5. Dr. Waheda Pyarilal 6. Dr. Tency Mathew 7. Dr. Shanila Abdul Majid 8. Dr. Anjana M K 9. Dr. Jayesh Unnithan 10. Dr. Athira Benny 11. Dr. Diana Kuriachan 12. Dr. Joe Manuel 13. Dr. Cyril P 14. Dr.PallaviAmmu Thomas 15. Dr. Sunil R 16. Dr. Binila S Babu
	5-11-2022 4-11-2022	Workshop On Outcome Based Education Speaker: Dr. Sunil Job And Dr. Mendus Jacob	1. Dr. Vinni Mary Oommen 2. Dr. Jovin Cherian 3. Dr. Jayesh Unnithan 4. Dr. Shanila Abdul Majid 5. Dr. Diana Kuriachan 6. Dr. Abhilash Thomas 7. Dr. Jose Sunny 8. Dr. Ajay Soman 9. Dr. Vishnu Thomas 10. Dr. Rahul J 11. Dr. Elizabeth Sojan 12. Dr. Waheda Pyarilal 13. Dr. Surya Suprabhan

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			7. Dr. Vishnu Thomas 8. Dr. Jovin Cherian 9. Dr. Archana V 10. Dr. Waheda Pyarilal 11. Dr Anjali V A 12. Dr. Sunil R 13. Dr. Jacob John 14. Dr. Stacey Thomas 15. Dr. Renu Ann Mathew 16. Dr. Sreelakshmi G 17. Dr.Vinni Mary Oommen 18. Dr. Moushbi C B 19. Dr. Beulah Mary Bejoy 20. Dr. Jose Sunny 21. Dr. Shanila Abdul Majid 22. Dr. Elizabeth Sojan 23. Dr. Shiny Joseph 24. Dr. Cyril.P 25. Dr. Joby Paulose 26. Dr. Nishin K John 27. Dr. Anu Mathew 28. Dr. Jayesh Unnithan 29. Dr. Augustine Daniel 30. Dr. Tency Mathew 31. Dr. Mithu Mohan 32. Dr. Shreya M A 33. Dr. Gayathri Anand 34. Dr. Junu Henry 35. Dr. Ajay Soman 36. Dr. Abhilash Thomas 37. Dr. Athira Benny 38. Dr. Pallavi Ammu Thomas 39. Dr. Sharon Vincent 40. Dr. Joe Manuel 41. Dr. Rema J 42. Dr. Aparna M 43. Dr. Anjana Mohankumar 44. Dr. Bharath Sekhar 45. Dr. Sreelakshmi G 46. Dr. Sajil John

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	15-12-2021	Tips and Tricks in Fixed Prosthodontics Speaker: Dr. Haby Mathew Somson	1. Dr. Litto Manuel 2. Dr. Sachin K C 3. Dr. Ajay Soman 4. Dr. Vishnu Thomas
	18-11-2021	Predictable Endodontics Speaker: Dr. Frency Joseph	1. Dr. Sharon Vincent
	16-11-2021	Workshop On Basic Life Support	1. Dr.Greshma Salimkumar 2. Dr. Moushmi C B 3. Dr. Anu Mathew 4. Dr. Shiny Joseph 5. Dr. Cini P Moideen 6. Dr. Amal E A 7. Dr. Ajay Soman

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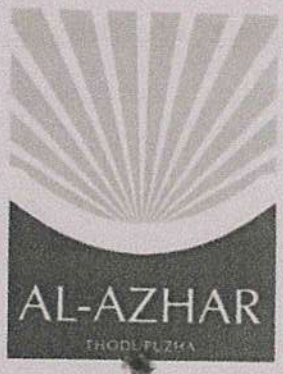
RECORD BOOK

DEPARTMENT OF CONSERVATIVE DENTISTRY
&
ENDODONTICS

AL-AZHAR DENTAL COLLEGE
THODUPUZHA



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DEPARTMENT OF BIOCHEMISTRY
BIOCHEMISTRY PRACTICAL RECORD

INDEX

SL. NO.	DATE	NAME OF EXPERIMENT	PAGE NO	GRADE	SIGNATURE
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2.	5/8/2021.	ANALYSIS OF ORGANIC CONSTITUENTS OF NORMAL URINE	16.	A	12/08/21
3.	16/9/2021	ANALYSIS OF ABNORMAL CONSTITUENTS OF URINE	22.	A	24/9/21
4	24/9/2021	ANALYSIS OF ABNORMAL CONSTITUENTS OF UNKNOWN URINE.	35.	A	7/10/21
		QUANTITATIVE EXPERIMENTS			
5.	7/10/2021	ESTIMATION OF BLOOD GLUCOSE BY GLUCOSE-OXIDASE METHOD.	39.	A.	28/10/2021
6.	28/10/2021	ESTIMATION OF SERUM TOTAL PROTEIN BY BIURET METHOD	47.	A	6/11/21
7.	6/11/2021	ESTIMATION OF SERUM ALBUMIN BY BROMOCRESOL GREEN (BSG) METHOD	53.	A	7/11/2021
8.	11/11/2021	ESTIMATION OF BLOOD UREA BY DIACETYL MONOXIME METHOD	59.	A	18/11/2021
9.	18/11/2021	ESTIMATION OF SERUM CREATININE BY JAFFE'S METHOD.	67.	A	18/11/21

18/11/21

I ANALYSIS OF NORMAL CONSTITUENTS OF URINE

INTRODUCTION:

Urine is an ultra filtrate of plasma formed by the kidneys. It carries the waste and toxic substances from the blood. Glomerulus of the kidneys filters plasma and the volume of glomerular filtrate formed in a healthy adult is around 180L/day. Whereas the kidney tubules reabsorbs the essential constituents from the glomerular filtrate and secrete water and solutes to produce a final urine volume of 1.5 - 2 L/day. By this process kidneys not only helps in the excretion of waste products but also to maintain the acid base balance of the body.

The composition of urine is an indicative of renal function and many other physiological and metabolic processes occuring in the body. Thus, the clinical laboratory examination of urine sample may help to the diagnosis of kidney dysfunction (eg: nephrotic syndrome, glomerulonephritis) and several metabolic and systemic diseases (eg: phenyl ketonuria, diabetes mellitus).

EXAMINATION OF URINE:

Urine examination includes:

A. Physical Examination
B. Chemical Examination.
C. Microscopic Examination

SPECIMEN COLLECTION:

→ Urine should be collected in clean sterile containers.
→ First voided urine (morning specimen) is desirable for normal analysis since it is most concentrated.
→ Fresh midstream specimen of 10-20 mL is preferred
→ Random urine sample can be collected at any time of the day. It is normally used for most of the qualitative tests like the detection of glucose & ketone bodies in urine sample.
→ A 24 hour urine is collected for the assays of certain parameters, as their concentrations vary at different times of the day (eg: total urinary proteins, uric acid, calcium, ketosteroids, and certain hormones).

PRESERVATION OF URINE SAMPLES

Several changes occurs for urine sample if it is kept for long periods, especially during the collection of 24 hours urine sample. Key changes include:-
→ Due to bacterial action urea converts to ammonia and it may be evaporated.

It makes the urine sample unsuitable for the determination of urea, ammonia, pH, total N_2, etc

→ Precipitation of phosphates.
→ Crystallization of uric acid.
→ Oxidation of urobilinogen to urobilin
→ Action of microorganisms (bacteria/yeast) on glucose, etc

Urine samples may also become alkaline, if it is kept for long time, due to the precipitation of uric acid and urates. Thus collection of urine may require preservatives to prevent these changes.

SELECTION OF PRESERVATIVES

There is no single all-purpose preservative for urine sample. The appropiate preservative must be chosen according to the substance to be measured. Eg: 2N HCl, Concentrated H_2SO_4, Toluene, liquid petroleum crystals of thymol, 10% acetic acid etc

→ For determination of urea, ammonia, nitrogen and calcium - Hydrochloric acid is used (2N or concentrated HCl) as preservative.
→ Thymol is a best recommended preservative if the sample needs to be assayed for sodium, potassium, chloride, bicarbonate, calcium, phosphorus, urea, ammonia, amino acids, creatinine, proteins, reducing substances and ketone bodies.
→ Acetic acid can be used as a preservative for the determination of ascorbic acid in urine sample.

The most suitable form of preservation is refrigeration at 4°C combined with chemical preservation. Before carrying out any estimation in urine sample, the deposits settled at the bottom of sample container (if any) must be well mixed with urine.

A PHYSICAL CHARACTERISTICS

1. VOLUME:

→ Normal healthy adult excretes around 0.8 to 2.5 L/day with an average of 1.5 L/day.
→ It is influenced by the amount of fluid intake, fluid loss (urine output is low in high physical activity or in hot climate due to excessive sweating), type of diet (a high protein diet caused an increased output of urine due to the diuretic effect of urea, the end product of protein metabolism), functional status of cardiovascular and renal systems etc.
→ A minimum of 500mL per urine per day is required to remove the daily waste products formed in a healthy individual.

2. APPEARANCE:

→ Freshly voided normal urine is clear (transparent) and devoid of any turbidit

or sediment.

→ On standing urine sample may become turbid due to bacterial action. Owing to bacterial activity, urea is converted into ammonium carbonate and it makes the urine alkaline and results in the precipitation of phosphates/oxalated urates.

3. COLOUR:

→ The colour of fresh normal urine varies from colorless to deep yellow. The intensity of the colour differs with degree of dilution (or inversely proportional to the volume of urine) i.e dilute urine is pale yellow in colour and concentrated urine is deep yellow.

→ The normal straw colour of urine is mainly conferred by the pigment urochrome.

→ Consumption of B complex vitamin may also results in deep yellow coloured urine.

4. ODOUR:

→ Fresh normal urine has a faint aromatic smell due to the presence of volatile organic acids.

→ On standing, urine undergoes decomposition and develop an unpleasant ammoniacal smell due to the formation of ammonia from urea by microbial action.

5. pH:-

→ Usually, fresh urine is acidic in reaction. Most often it is around 6.0 due to the presence of sulfates, phosphates, chlorides and non-volatile organic acids.

→ In a healthy individual, the pH of urine varies from 4.8 to 8.0 depending on various factors like the nature of diet, physical activity etc.

→ Protein rich diets makes the urine more acidic because more sulfates and phosphates are eliminated from the protein catabolism.

→ Vegetarian diets makes the urine alkaline because of the production of bicarbonates from the organic acids of fruits and vegetables.

6. SPECIFIC GRAVITY:-

→ Specific gravity is the measure of dissolved constituents in urine. It is directly proportional to the concentration of solutes excreted.

→ It indicates the concentrating ability of the kidneys.

→ Under normal conditions, the specific gravity of urine varies in the range of 1.015–1.025.

→ Physiologically, the specific gravity may increase with low fluid intake where the urine volume is decreased and it may decrease with increased water intake where the urine volume is high.

→ Specific gravity can be as high as 1.040 when water intake is restricted and as low as 1.001 when water intake is very high.

DETERMINATION OF SPECIFIC GRAVITY:-

Specific gravity of urine is measured by an instrument called Urinometer. As the urinometer is weighed with some fixed amount of mercury, it floats in the urine. Urinometer consists of a thin stalk at its upper end. This portion of urinometer is graduated from 1000 to 1060 corresponding to specific gravity of 1.0 to 1.06. Urinometer is caliberated at 15°C and therefore temperature correction is applied depending upon the actual room temperature.

→ Procedure:-

Fill the urine jar (provided with urinometer) with urine sample to about 3/4th of its length. Gently place the urinometer in the urine jar and allow it to dip into the urine sample. Care should be taken that it does not touch the walls of urine jar. Observe the reading at the meniscus corresponding to the urine level. This gives the observed specific gravity at 15°C, the temperature at which the urinometer is calibrated. Then record the urine temperature (room temperature).

→ Calculation:-

Assume that the meniscus of the urine coincides with the reading 1015 (1.015) and the room temperature is 36°C. It should be remembered that the urinometer is caliberated at 15°C. As the room temperature is higher than the caliberated temperature of urinometer, a temperature correction has to be applied.

For every 3°C rise over the temperature of calibration (15°C), a correction factor of 0.001 is added to the last digit of the observed reading.

The difference between 36°C and 15°C is 21°C. This when divided by 3 gives 7.

Thus, the corrected specific gravity = 1.015 + 0.007 = 1.022.

If the room temperature is below 15°C, a correction factor of 0.001 should be subtracted from the last digit for every 3°C difference in temperature.

→ Correction factor for Protein:-

Proteinuria increases the specific gravity. Thus, subtract a correction factor of 0.003 from the specific gravity reading, for each 1 gm of protein/dL of urine.

→ Correction factor for glucose:-

Glucosuria also increases the Specific gravity. Thus, subtract a correction factor of 0.004 from the Specific gravity reading, for each 1 gm of glucose/dL of urine.

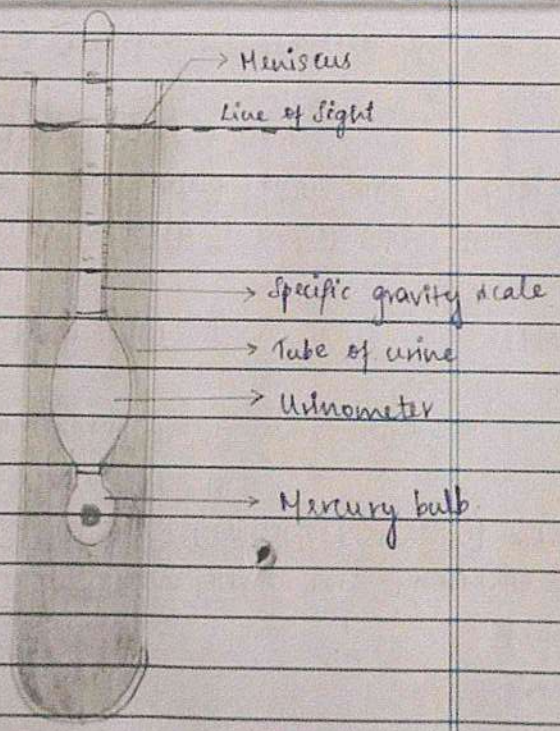
Fixed specific gravity:-

In the late stages of chronic renal failure, kidneys fail to concentrate or dilute the urine and thus in patients with chronic kidney disease (CKD), the specific gravity of urine is identical to the specific gravity of

glomerular filtrate (around 1.010).

B. CHEMICAL CHARACTERISTICS

Normal urine contains both inorganic and organic constituents. The major inorganic constituents include sodium, potanium, chloride, magnesium, calcium, phosphorous, inorganic sulfate and ammonia. Urea, uric acid, creatinine, amino acids, urobilinogen, hippuric acid etc, are the main normal organic constituents of urine. Among these organic constituents, the normal non-protein nitrogenous substances are urea, uric acid and creatinine. In addition to these major organic substances, detoxified products like indican and ethereal sulphate are also found in urine. Routine urine analysis includes the tests of chloride, sulphate, phosphate, calcium, ammonia urea, uric acid and creatinine.



TESTS FOR INORGANIC CONSTITUENTS OF URINE

EXPERIMENT No: 1

Sl. No. 1

EXPERIMENT	OBSERVATION	INFERENCE
15/07/21.		
A. PHYSICAL CHARACTERISTICS		
1. Appearance	Clear (transparent)	
2. Colour	Pale yellow	
3. Odour	Aromatic	
4. pH	Acidic	
5. Specific Gravity: observed value = 1.012; Temperature correction = [Room Temperature − Calibrated Temp] i.e, 36 − 15/3 = 7 (correction factor = 0.001) ⇒ 7 × 0.001 ∴ Specific Gravity = 1.012 + 0.007 = 1.019		
B. CHEMICAL CHARACTERISTICS		
(i) Tests for inorganic constituents of urine.		

EXPERIMENT	OBSERVATION	INFERENCE
1. Test for Chloride: To 2ml of urine sample in a test tube add 0.5 ml of concentrated nitric acid and 1 mL of 3% silver nitrate.	Formation of curdy white precipitate	Presence of chloride.

Principle:- The reaction of acidified urine with silver nitrate results in the precipitation of white coloured silver chloride.

2,3 Tests for Phosphates and Calcium.

To 10 mL of urine sample add 3mL of ammonium hydroxide solution and boil till the white precipitates of calcium phosphate and magnesium phosphate are formed. Filter the contents through a filter paper and discard the filtrate. Wash the residue on filter paper just by pouring few mL of distilled water through the filter paper. Transfer the funnel with filter paper having the precipitate over a dry test tube. Add 3 mL of hot 20% glacial acetic acid through the filter paper to dissolve the precipitate and to collect it in the test tube underneath. Then divide the filtrate collected into two parts.

2) Test for phosphates
To one part of the filtrate, add a few drops of concentrated nitric acid and 2ml of ammonium molybdate solution and boil.
Principle: On boiling with ammonium hydroxide, phosphates of calcium and magnesium are precipitated from urine sample. These are then filtered and redissolved in hot 20% glacial acetic acid. Phosphates present in the filtrate react with ammonium molybdate to form canary yellow precipitate of ammonium phosphomolybdate in the presence of concentrated nitric acid.

Formation of canary yellow (lemon yellow) precipitate

Presence of inorganic phosphates

3. Test for Calcium (Sulkowaski's Test)
To the second part of the filtrate, add 2ml of 2% potassium oxalate solution

Development of white precipitate

Presence of calcium

Principle: Calcium forms a white precipitate of calcium oxalate on addition of potassium oxalate in acidic condition.

4. Test for Sulfates
To 3ml of urine sample add 4 drops of concentrated hydrochloric acid. Mix well and add 2ml of 10% barium chloride.

White precipitate

Presence of inorganic sulfates

Principle:- Acidified urine forms a white precipitate of barium sulfate by reacting with barium chloride solution.

5. Test for Ammonia
To 3ml of urine sample add 1-2 drops of phenolphthalein indicator. Mix well and make the solution alkaline by adding 2% sodium carbonate drop by drop with constant mixing till the colour of the solution turns faint pink. Then boil the contents by holding a piece of red litmus paper at the mouth of the test tube.

Red litmus changes to blue.

Presence of ammonia

Principle:- In alkaline medium, heating of urine sample caused the release of ammonia from ammonium salts. The emerging

ammonium vapours changes the colour of red litmus to blue since ammonia is alkaline.
Note: Red litmus changed to blue in alkaline pH.

RESULT:
Chloride, phosphate, Calcium, sulfate and Ammonium are the Inorganic constituents present in the given sample of normal urine.

EXPERIMENT No: 2

EX No: 2 ANALYSIS OF ORGANIC CONSTITUENTS OF NORMAL URINE

8/2021.	EXPERIMENT	OBSERVATION	INFERENCE
No. A.	PHYSICAL CHARACTERISTICS		
1.	Appearance	clear (transparent)	
2.	Colour	Pale Yellow	
3.	Odour	Aromatic	
4.	pH	Acidic.	
5.	Specific Gravity :-		

Observed value = 1.012
Temperature correction = (Room Temperature - Caliberated Temperature)
i.e 36 - 15/3 = 7 [Correction factor = 0.001].
7 x 0.001 = 0.007
Corrected specific Gravity = 1.012 + 0.007 = 1.019.

B CHEMICAL CHARACTERISTICS

(1) Tests for Organic Constituents of Urine.

EXPERIMENT	OBSERVATION	INFERENCE
1 Test for urea.		
a. Alkaline hypobromite Test To 3ml of urine sample add 5 drops of freshly prepared sodium hypobromite solution. Mix the contents gently. Principle: Sodium hypobromite decomposes urea to carbon dioxide and water. Liberation of nitrogen gas produces brisk effervescence. Whereas, CO_2 formed is absorbed by the alkaline medium. $CO(NH_2)_2 + 3NaBrO \longrightarrow NaBr + N_2 + CO_2 \uparrow + 2H_2O$	Brisk effervescence of Nitrogen Gas	Presence of urea.
b. Specific Urease Test Take 2 test tubes and names it as 'Test' and 'Control'.	Pink colour.	Presence of urea.

i) To the tube named 'test' added 2ml of urine sample and a drop of phenol red indicator. Mixed well and added 2% Na_2CO_3 solution drop by drop till a pink colour develop. Then added 2% acetic acid drop by drop till the pink colour just disappeared indicating the pH nearer to 6.8. Added 1ml of urease enzyme extract to the tube and kept the tube at 37°C in an incubator for 5 minutes.

ii) To the tube named as 'control' added 2ml of distilled water instead of urea solution and followed the above procedure.

Principle: Urease enzyme decomposes urea to ammonia and carbon dioxide which together from ammonium carbonate. Ammonium carbonate being basic (alkaline) raises the pH of the solution. Phenol red used in this test will show pink colour at basic pH (pH range of phenol red: 6.8 to 8.4 and colour range: yellow to red)

2. Tests of Uric Acid.

a. Schiff's Test

Moistened the center of a circular filter paper by adding few drops of 3% ammoniacal silver nitrate solution. Then added 1-2 drops of urine sample on to it.

Black colour spot on filter paper.

Presence of uric acid.

Principle: In alkaline medium, uric acid reduces salts of silver nitrate to metallic silver, which is black in colour.

b. Phosphotungstic acid Test

To 2ml of urine sample added 3 drops of phosphotungstic acid reagent followed by a few drops of 20% Na_2CO_3.

Blue colour

Presence of uric acid

Principle: In alkaline condition, uric acid acts as a reducing agent. It reduces phototungstic acid to blue coloured phosphotungstous acid (tungsten blue)

3. Tests for Creatinine

a. Jaffe's Test

Labelled two test tubes as 'test' and 'control'

(i) 3 ml of urine sample was taken in the test tube named 'test'. Then added 2ml saturated picric acid solution, and 3 drops of 10% NaOH.

Reddish orange

Presence of creatinine

Principle: In alkaline medium, creatinine reacts with picric acid to form reddish orange coloured creatinine picrate.

b. Weyl-Salkowaski Test

To 3ml of urine sample added a few drops of 0.5% sodium nitroprusside and then made the solution alkaline with 5% NaOH. A ruby red colour formed, which soon turned to yellow. To this added excess acetic acid and heated the solution.

Greenish blue

Presence of creatinine.

Principle: In alkaline medium, creatinine reacts with sodium nitroprusside to form a red coloured complex. On heating with acetic acid, the colour

turns to blue.

5. Tests for Urobilinogen (Ehrlich's Test) — Faint pink colour. — Presence of urobilinogen

To 3ml of urine sample added 1ml Ehrlich reagent, mixed well and kept for 5 minutes. A control was made by adding 3ml of distilled water instead of urine sample.

Principle: Urobilinogen reacts with p-dimethylaminobenzaldehyde of the Ehrlich's reagent to form the red coloured complex.

Result

Urea, uric acid, creatinine, Urobilinogen are the organic constituents present in the given sample of normal urine.

12/08/21

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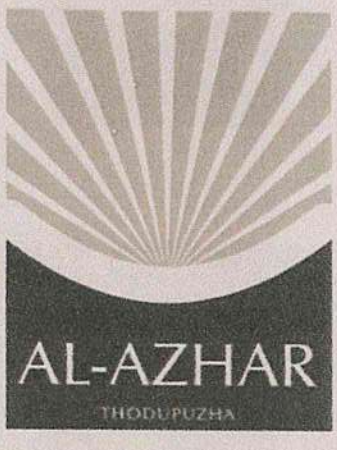
PERUMPILLICHIRA P.O., THODUPUZHA



DEPARTMENT OF MICROBIOLOGY

MICROBIOLOGY RECORD

SECOND YEAR B.D.S.

Student Name:.....NEHA SUNIL.....

Roll No.. .....25.....Years of Study..2022-2023..

Prof. Dr. Harvey Thomas MDS
Principal
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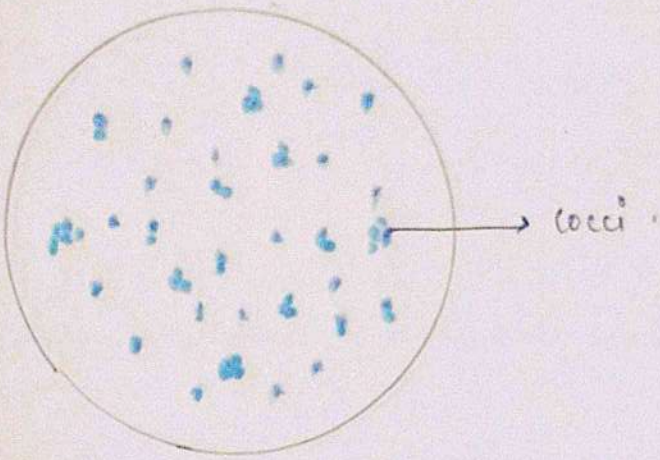
EXPERIMENT No: 1

DATE: 22/11/22

SIMPLE STAINING

OBSERVATION:

Smear shows blue coloured spherical shaped organism arranged in clusters, pairs and singles.



INFERENCE:

Smear shows blue coloured cocci arranged in clusters, pair, singles.

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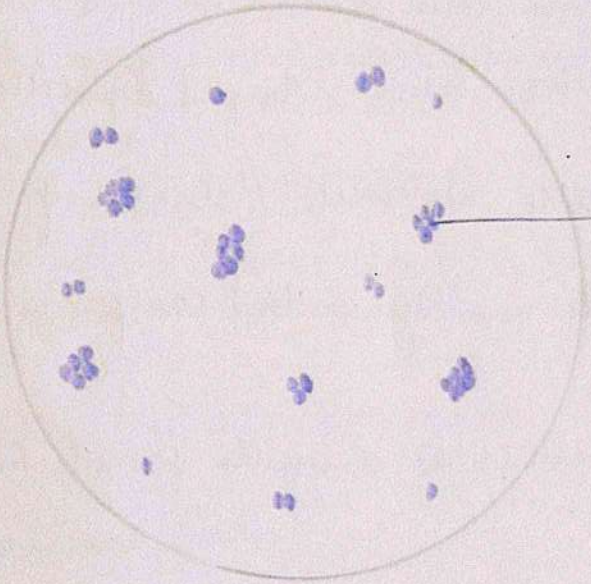
EXPERIMENT NO: 2

GRAM STAINING

29/11/22.

OBSERVATION:

The given smear shows violet coloured cocci arranged in singles, pairs and clusters.



INFERENCE:

The given smear shows Gram positive cocci arranged in singles, pairs and clusters. Morphologically, resembling Staphylococcus aureus.

CLINICAL APPLICATIONS OF GRAM'S STAIN

1. To differentiate Gram positive and Gram negative
2. Study of morphology of bacteria such as size, shape and arrangement of
   * Gram positive cocci in clusters - staphylococci
   * Gram positive cocci in chains - streptococci
   * Gram positive lancet-shaped diplococci - streptococci pneumoniae
   * Gram negative diplococci - Neisseria species
3. To provide a valuable quality control comparison with isolates recovered.
4. Gram stain also serves as a guide for selecting appropriate culture media.
5. For presumptive diagnosis of:
   (1) Meningitis
   → Meningococci - Intracellular gram negative diplococci
   → pneumococci - Gram positive diplococci
   (2) Gonorrhoea
   → Gonococci - Intracellular gram negative diplococci
   (3) Urinary Tract infection
   → presence of pus cells in stained film of urine
   → Microscopic demonstration of gram negative bacilli eg: Escherichia coli in stained film of urine.

④ Clostridium species

→ clostridium tetani or clostridium tetanomorphum infection
× Gram positive organisms with round terminal spores

→ Gas gangrene infection
× clostridium perfringes [clostridium welchii]
× Gram-positive organisms without spores.

→ Clostridium septicum
× Citron bodies and boat or leaf shaped pleomorphic bacilli with irregular staining.

⑤ Candidiasis

→ Candida species - Gram positive organism

6. presence of PUS cells indicates pathogenecity of the organisms

7. Counting of organisms [cells].

8. Gram stain can also be used to identify Non-bacterial organisms such as :-

* Tricho monads
* Strongyloides larvae
* Pneumocystis carinii cysts
* Toxoplasma gondii trophozoides.

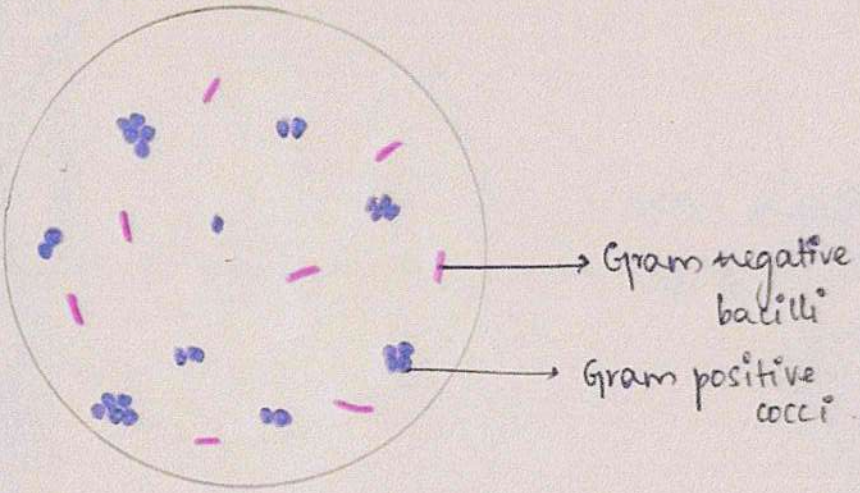
EXPERIMENT NO: 3

3/1/2023

GRAM STAINING

OBSERVATION:

The smear shows violet coloured cocci arranged in singles, pairs and clusters; and pink coloured bacilli arranged directly.



INFERENCE:

The smear shows gram positive cocci arranged in singles, pairs and clusters; and gram negative bacilli arranged discretly.

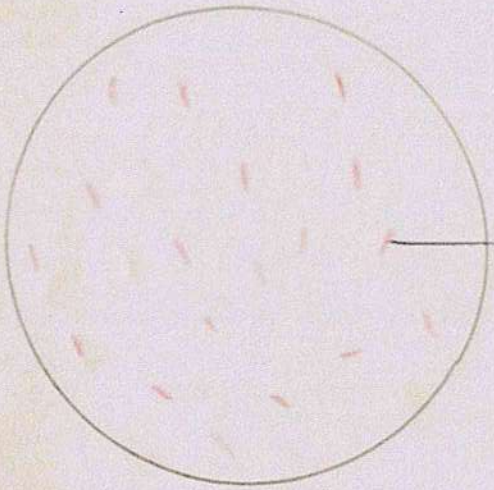
EXPERIMENT NO: 4

10/1/2023.

GRAM STAINING

OBSERVATION :

The given smear shows pink coloured bacilli arranged discretly



INFERENCE

The given smear shows Gram negative bacilli arranged discretely

Eg:- Escherechia coli

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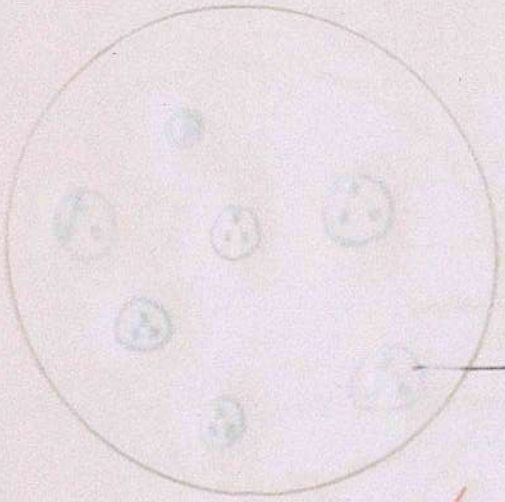
ACID FAST STAINING

17/1/2023

OBSERVATION:

Blue coloured pus cells are seen



INFERENCE:

No acid fast bacilli are seen.

Pus cells are seen.

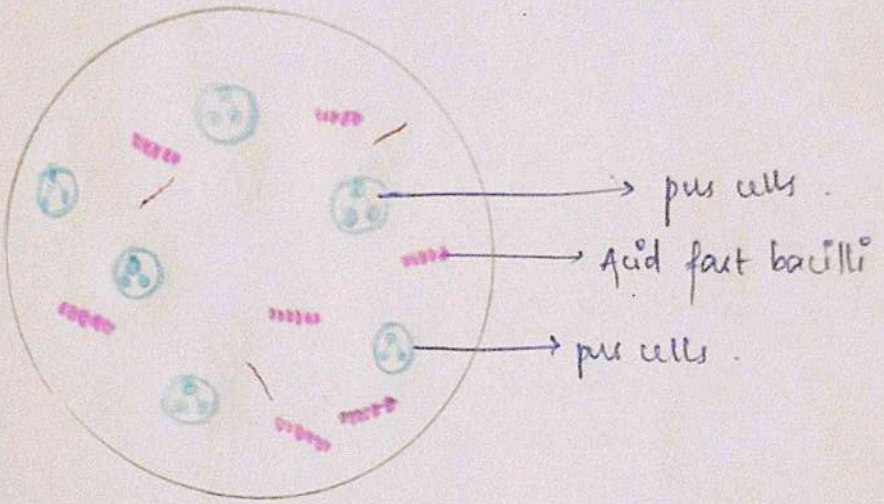
17/1/23

ACID FAST STAINING - 2

24/1/23.

OBSERVATION:

Pink coloured long slender bacilli with beaded appearance and blue coloured pus cells are seen.



INFERENCE:

Acid fast bacilli are seen.

Pus cells are seen.

Eg:- Mycobacterium tuberculi

15/11/2022

INSTRUMENTS

1. TUBERCULIN SYRINGE

a) Identify the spotter

Ans: Tuberculin test

b) What are the uses of this Syringe?

Ans: Used for inoculation of small amounts of antigen in intradermal tests like Tuberculin test, etc.

c) How do you dispose the syringe after usage?

Ans: Mutilation / Shredding.

2. McIntosh Fildes Anaerobic Jar

a) Identify the instrument

Ans: McIntosh Fildes Anaerobic Jar

b) List any two organisms grown using this method

Ans: clostridium, Lactobacillus.

c) What is the catalyst used in the instrument?

Ans: Alumina pellets coated with Palladium.

d) Name 2 anaerobic culture methods.

Ans: Gas pak, alkaline pyrogallol method.

3. SEITZ FILTER.

a) Identify the spotter. How is it sterilized?

Ans: Seitz filter, Autoclaving.

b) What type of filter is this filter?

Ans: The filter is asbestos filter as it uses an asbestos filtering pad

c) Give two uses of the instrument.

Ans: Used to obtain sterile filtrate like antitoxins, precipitated proteins, insulin etc.

4. VDRL Slide:

a) Identify the spotter.

Ans: VDRL slide

b) What is the principle of this test?

Ans: Slide flocculation.

c) Which disease can be diagnosed by this test?

Ans: Syphilis.

d) Name few conditions which give biological false positive reactions.

Ans: Leprosy, malaria, relapsing fever, infectious mononucleosis, hepatitis, tropical eosinophilia.

5. Sterile Swab:

a) Identify the spotter. How is it sterilized?

Ans: Sterile swab, Gamma sterilization.

b) Give two uses of the spotter.

Ans: * Specimen collection from ear, nose, throat

* Lawn culture for carrying out antibiotic susceptibility testing

c) How do you dispose the instrument after use?

Ans: Autoclaving.

6. Surgical gloves

a) Identify the spotter.

Ans: Sterile surgical gloves.

b) what are the uses of surgical gloves?

Ans: surgical gloves are used as personal protective equipment to protect the wearer and or/the patient from spread of infection or illness during medical procedures and examinations.

c) How will you sterilize gloves?

Ans: Autoclaving

d) What is the holding temperature and time of simple laboratory Autoclaving.

Ans: 121C for 15 minutes.

7. Microtitire Plate:

a) Identify the spotter.

Ans: Microtitire plate made up of perspex and consists of 8 rows of wells. Each row consists of 10 wells.

b) Name a diagnostic test in which it is used.

Ans: Demonstration of agglutination and ELISA tests.

c) Name two diseases in which antibodies are detected.

Ans: Dengue, AIDS, Toxoplasmosis, Leishmaniasis.

d) Name two diseases in which antigens are detected.

Ans: Hepatitis B virus infection and Rota virus diarrhoea.

8. Disposable plastic syringe.

a) Identify the spotter and how do you sterilize it?

Ans: Disposable plastic syringe, Gamma radiation.

b) What are the uses of syringe?

Ans: For drawing intravenous blood for diagnosis of various infections.

c) Which colour bins do you use for segregation after usage?

Ans: White color bin for needle and red color bin for syringe

9. Widal rack with felix and Dreyer's tubes:

a) Identify the instrument.

Ans: Rack with felix and dreyers tubes for doing widal test.

b) Why do you employ 2 types of test tubes in test

Ans: Felix tubes are used for demonstration of O agglutinins and Dreyers tubes for demonstration of H agglutinins.

c) What is the use of the test?

Ans: For the serological diagnosis of enteric fever.

d) What are the antigens used?

Ans: O and H antigens of Salmonella typhi, H antigens of Salmonella Paratyphi A and B.

AL-AZHAR DENTAL COLLEGE

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DEPARTMENT OF PHYSIOLOGY

HUMAN PHYSIOLOGY RECORD

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EXPERIMENT No. 1 **Date** 16/7/2021.

USE AND CARE OF COMPOUND MICROSCOPE

Microscope was invented by Anton Von Leeuwen hock. It is an instrument to study small objects by obtaining their magnified images. Using this we can study the structure of minute organisms. There are different types of microscopes. The most frequently used one is the compound microscope. It consists of two types of parts, (i) the mechanical parts and (ii) the optical parts. The mechanical parts support the optical parts.

A. The mechanical parts consist of base, handle, body tube, and substage.

1. Foot/Base: A heavy triangular or horseshoe shaped base supports the various components of the microscope. The particular shape gives maximum stability.
2. Arm/Handle: A curved handle which is attached to the base through a hinge joint is used to hold the microscope. On either side of the handle, there is a large screw called the coarse adjustment screw and another small screw, the fine adjustment screw. The arm carries the body tube in its upper part and the stage and substage in its lower part.
3. Body tube is attached to the upper part of the handle; and can be raised or lowered using the coarse and fine adjustment screws.
4. Stage:
   - i Fixed stage: It is at the lower part of the handle and is used for placing objects. It has a central aperture which allows passage of light through the object
   - ii Mechanical stage: It is fitted on the fixed stage. There is a spring mounted clip called slide holder to hold the slide in position and two screws, one for moving the slide forward and backward, and the other for moving the slide sideways.
5. Substage:
   Situated below the stage. It carries the condenser and iris- diaphragm.

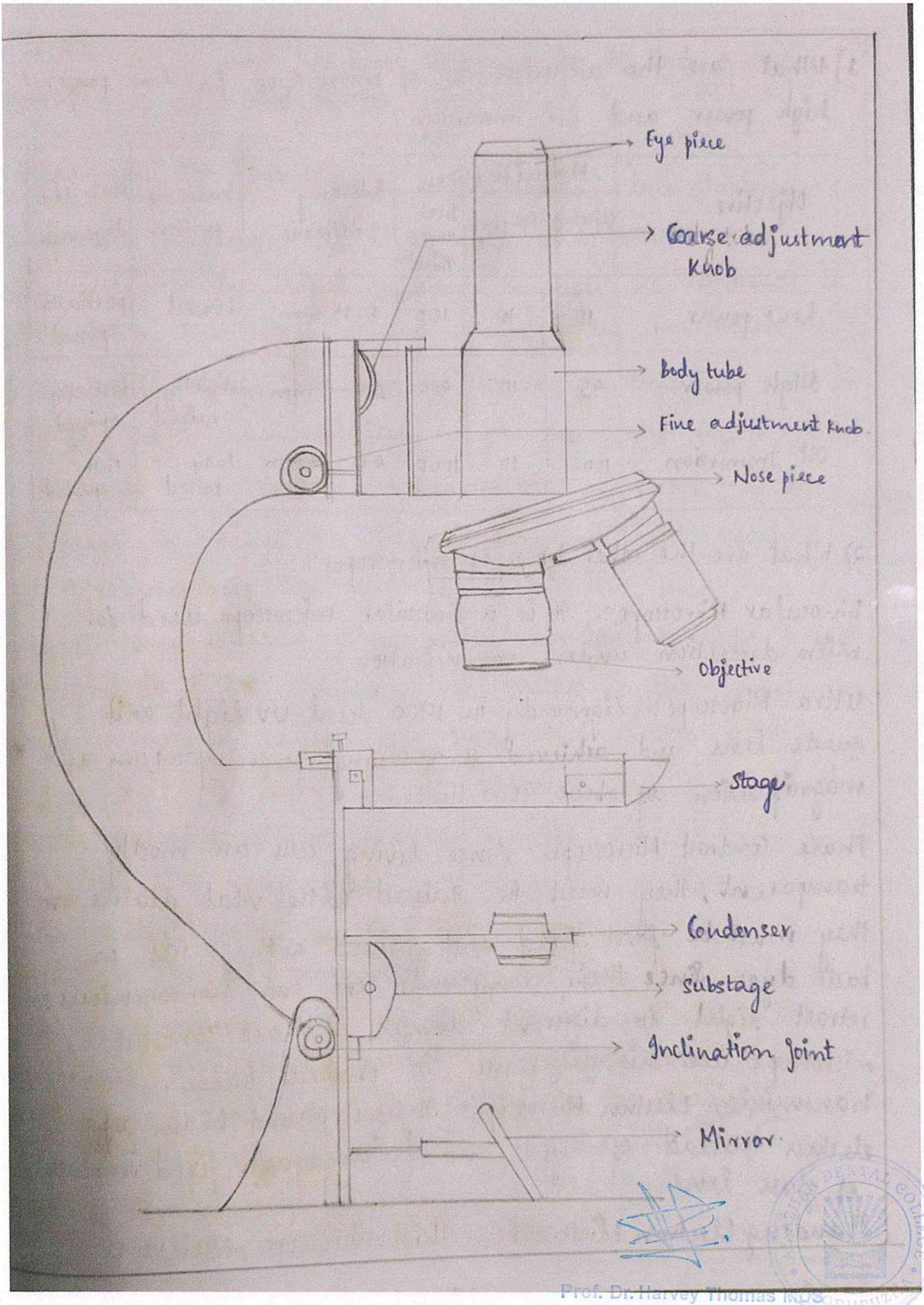
B. The optical parts consist of a magnifying system and an illuminating system. Magnifying system consists of eyepiece and the objective lenses attached to the nosepiece. Illuminating system consists of the mirror, the condenser and the iris-diaphragm.

Magnifying system

1. Eyepiece: It is a system of convex lenses and is used for magnifying the image formed by the objective lens. It is fitted at the upper end of the body tube. The usual magnification is 10
2. Objective lenses Fitted at the bottom of the body tube. It is attached to a revolving metallic plate called nose piece. There are three different objective lenses with varying magnifications. They are:
   - a. Low power with magnification 10 times (l0x). Working distance =16mm. The field under view is large
   - b. High power with magnifications 40-50 times, usually 45x. Working distance = 4 mm. This is used for detailed examination of a particular area.
   - c. Oil immersion with the highest magnification 90-100 times, usually 100x. Working distance = 1.6 mm.

The oils used in oil immersion objective are cedarwood oil, liquid paraffin, DPX or Canada balsam. These are used because the refractive index of oil is same as that of glass. Working distance = 1.8 mm. Here a thin layer of air exists between the slide and objective lens. As light passes from glass (which is a denser medium) to this thin layer of air (which is a rarer medium) light rays will be refracted away from the normal. So only very little light will enter the pin-point aperture of the oil immersion objective. This results in a blurred image. To prevent the refraction, a liquid having the same refractive index as that of glass is used to replace the air between the slide and objective lens.

The revolving nose piece can be rotated manually to bring any one of the three objectives into position. When one objective moves into position, a click can be felt and even heard. If one objective is in focus, the other objectives when switched into position will be more or less in focus, except for fine adjustment This arrangement of objectives is called parfocal arrangement



1] What are the adjustments of microscope for low power, high power and oil immersion?

Objective	Magnification			Working distance	Condenser position	State of the diaphragm
	Objective	Eye piece	Total Magnification			
Low power	10	10	100	5-15 mm	Lowest	partially opened
High power	45	10	450	0.5 - 4 mm	slightly raised	partially opened.
Oil Immersion	100	10	1000	0.15 - 1.5 mm	Fully raised	Fully opened

2) What are the other types of microscopes?

Binocular Microscope:- It is a binocular microscope used for micro-dissection under magnification.

Ultra Microscope:- Zigmondy in 1900, used UV light and quartz lens and achieved a resolving power of 0.1 μm and magnification of about 4000 times.

Phase Contrast Microscope:- Since living cells are mostly transparent, they must be stained with vital stains or they must be first fixed and stained with acids or basic dyes. Since their compounds are not homogeneous the retract light to different degrees. A phase contrast microscope uses this difference to produce image.

Transmission Electron Microscope: It uses strong beam of electron instead of light and electromagnetic field in place of glass lens.

Standing Electron Microscope: This microscope achieve a

resolution of 30° and has been developed for 3D study of surface topography of cells and objects.

3) What are the functions of condenser and lens diaphragm?

Condensor condenses the light rays and focus them on the object. All the light passing through the condenser is collated by the objective and helps in the maximum clarity of the object viewed. So the position of the condenser must be changed with each objective to get the light focused and to increase the evolving power of the microscope. If the condenser is raised too high maximum light reaches the objective lens. The aperture of the low power lens is longest and it will allow large amount of light to pass through. So if the condenser is raised to the maximum while viewing under low power, the clarity of the image will be lost due to excessive brightness. So the condenser should be lowered while using lower power objective. The rays passing through the condenser system when collected by the objective now suffer from minimum diffraction. The oil immersion objective lens has only a pinhole aperture and so for maximum clarity, the condenser should be raised. The proper cure of the condenser is necessary for obtaining the maximum resolution of an image. Adjusting the iris diaphragm that is placed immediately below the condenser can control light reaching the condenser.

EXPERIMENT No. 2

Date... 1/12/2021

MICROSCOPIC EXAMINATION OF BLOOD

AIM:

To examine and study the nature of a fresh drop of human blood and its changes in isotonic, hypertonic and hypotonic saline solutions under a microscope

REQUIREMENTS:

Microscope, glass slides, cover glasses, sterile lancet, cotton, spirit, isotonic, hypertonic and hypotonic saline solutions

PROCEDURE:

Take four glass slides and keep them on the table side by side. To three slides add one drop of normal or isotonic saline(0.9% NaCl), hypertonic saline (10%) and hypotonic saline (0.3%) solutions respectively. Distilled water may be used in the place of the hypotonic solution. Add a small drop of blood to each of the four slides. The blood is obtained by finger prick method. Massage the finger from its base to the tip for some time in order to improve the circulation. Clean the finger tip with spirit and cotton and allow it to dry. Make a prick at the tip of the finger with a sterile lancet. Discard the first drop of blood as it may contain tissue fluid and cell debris. Take the next drops of blood for the experiment. On the first three slides small drops of blood is added to the saline solution and after gently mixing it, place a cover slip over it and view under the high power objective of a microscope.

Isotonic fluid is a liquid having the same osmolality as that of plasma. Isotonic saline or normal saline or physiological saline for mammals is 0.9% NaCl solution in water. Osmolality of plasma = 290 mosm/L. Any liquid width its osmolality less than that of plasma is called hypotonic fluid. Any liquid with its osmolality greater than that of plasma is called hypertonic fluid. All the body fluid compartments equilibrate with each other. So all the body fluids are isotonic. Saliva is hypotonic. Sodium chloride solution with its concentration < 0.9% is called hypotonic saline. Hypotonic saline is used for estimation of osmotic fragility of erythrocytes. Sodium chloride solution of concentration > 0.9% is called hypertonic saline. 0.65% saline is isotonic with amphibian body fluids.

OBSERVATIONS:

1. When the blood drop is examined as such, single as well as clumped RBCs will be seen. In clumping many cells are arranged in piles with their flat surfaces facing each other. This is known as Rouleaux formation.
2. Blood in isotonic saline: Here the RBCs are seen separated without much change in their morphology. This is because isotonic saline has got the same osmotic pressure as that of the intracellular fluid of the RBC.
3. Blood in hypertonic saline: Here fluid from RBC passes out of the cells because of the high osmotic pressure outside. As a result the cell membrane shrinks and the cells will have a wrinkled appearance. These cells are known as crenated cells.
4. Blood in hypotonic saline: Here some of the cells are swollen and some others are seen ruptured. This is because fluid from outside enters the cell causing it to swell and then rupture. This rupture of RBC with release of haemoglobin is called haemolysis or laking of blood; and then ruptured cell in the process becomes the ghost cell or shadow cell. Ghost cell is seen as a faint outline of the remnant of plasma membrane.

RESULT:

The nature of human RBCs, their changes in isotonic, hypertonic and hypotonic saline solutions was studied under a microscope.

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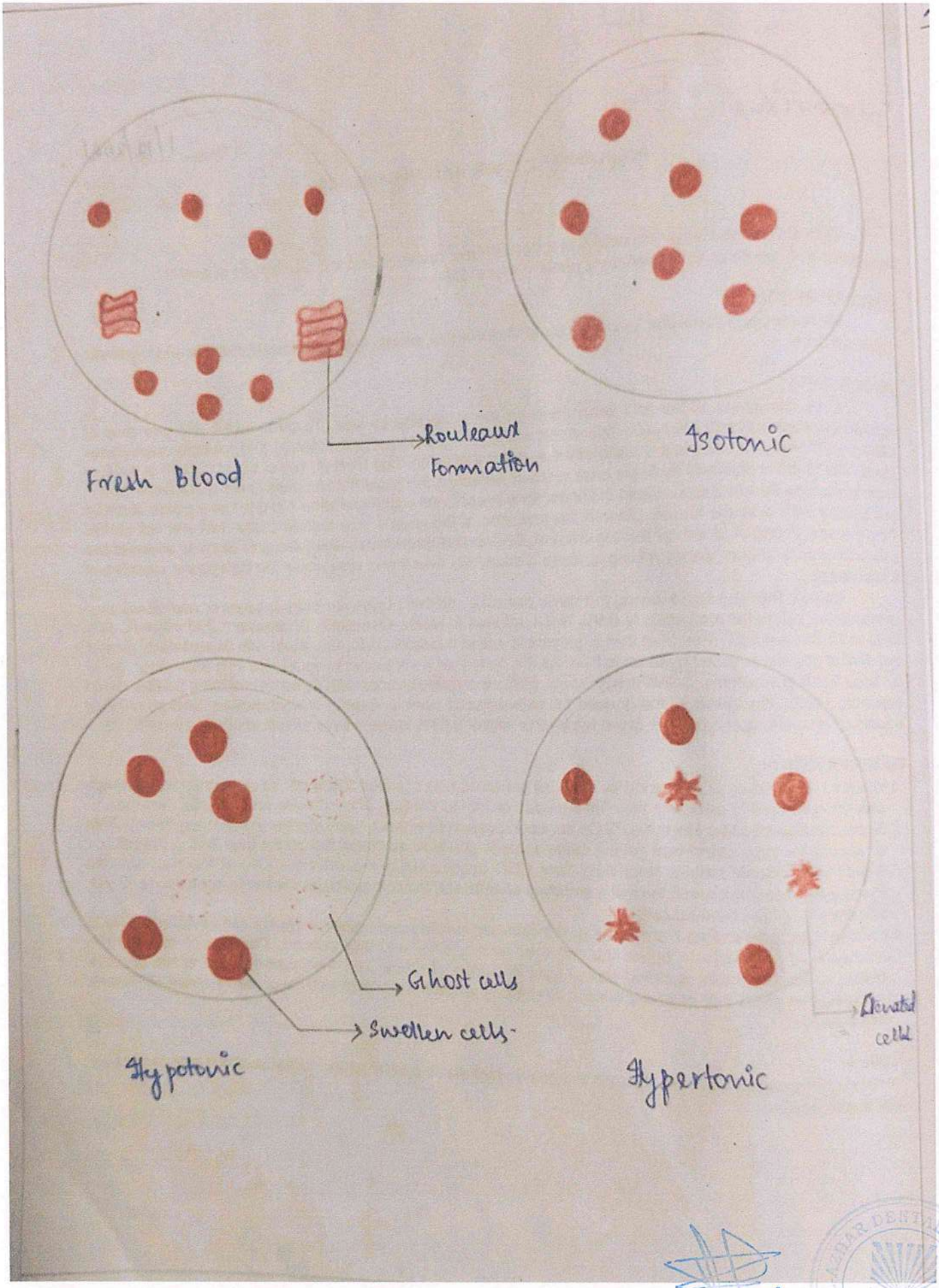

1.) Describe with help of diagram morphological changes occur when blood mixed with isotonic, hypotonic, hypertonic.

(a.) Blood in isotonic solution: Here the erythrocytes are seen without much change in their shape or morphology. This is because isotonic solution has got some amount of osmotic pressure as that of intracellular fluid of erythrocyte.

(b.) Blood in hypotonic solution: Some of the cells are swollen and some of the others are seen to rupture. This is because fluids from outer enter cells, carrying it to swell and then rupture. This rupture, the erupted cells in process become ghost/shallow cells. Ghost cells are seen on faint outline of removal of plasma membrane.

(c.) Blood with hypertonic solution: HCl fluid from RBC pairs out of cells because of high osmotic pressure outline. As a result, cell membrane shrinks and the cells will have a wrinkled appearance. These cells are known as ~~created~~ cells.

2) What is Rouleaux Formation?

When the blood group is examined as such single as well as dumped RBC will be seen. In dumping many cells are arranged in piles than flat surfaces facing each other. This is known as Rouleaux formation

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EXPERIMENT No.7

Date...29/10/2021.

ERYTHROCYTE COUNT (RBC COUNT)

AIM: To find out the number of RBCs per cubic mm of blood

PRINCIPLE: The number of RBCs in a known volume of diluted blood is counted. From this, the number of RBCs in one mm of undiluted blood is calculated.

REQUIRMENTS:

Compound light microscope, haemocytometer, RBC diluting fluid, special cover slip, RBC diluting pipette, sterile lancet, spirit, cotton. Electronic automated cell counters such as coulter counter give more accurate RBC count.

Haemocytometer:

It is the apparatus used for manual visual counting of erythrocytes and leukocytes. It consists of the improved Neu - Bauer's doube counting chamber, a special cover slip, RBC diluting pipette, all in a box.

Improved Neu - Bauer's double counting chamber

It is a thick rectangular glass slide with a polished bar in the centre, separated by 2 parallel grooves called gutters or moats on either side from the rest of the slide. Thus the glass slide is divided into 3 platforms by 2 deep gutters. The central platform is narrow, polished and 1/10 mm lower than those on either side. The central polished platform is divided into 2 equal platforms by a transverse gutter in its middle. The special cover slip, when placed over the counting chamber, rests on the unpolished platforms on either side so that its under surface remains 1/10 mm, above the polished surfaces of the 2 central platforms.

The counting area is a central ruled area on the polished surface of each central platform. Thus a single counting chamber bears 2 counting areas. Hence it is called double counting chamber. The uses of 2 counting areas on a single chamber are

(i) We can use the other area, if the charging is improper on one area.

(ii) we can perform crythrocytes count on one area and total leukocyte count on the other area.

(III) we can estimate the cell counts of 2 different individuals on die same chamber.

The lines on the counting area arc etched using diamond and hence will not fade. This is why the adjective 'improved' is used. Each counting area is a large square of 3 mm side. The large square is divided into 9 equal primary squares of 1 mm side. The 4 corner primary squares are used for counting WBCs; and each of them are divided in to 16 smaller squares of 1/4 mm side. Thus, 64 smaller squares are used for counting WBCs. The central primary 1 mm square is divided into 25 equal secondary smaller squares of 1 /5 mm side by triple lines or tram lines. Instead of triple lines some counting chambers contain double lines called tram lines. Each secondary square is divided into 16 equal tertiary smallest squares of 1 /20 mm side. The 4 corner secondary smaller squares and the central secondary smaller square are used for counting RBCs. Thus, 80 tertiary smallest squares are used for counting RBCs.

RBC pipette (Thoma glass pipette):

It has a long stem with a capillary bore of uniform diameter, a pointed conical tip and a bulb above the stem. The bulb contains a red bead inside. The capacity of the bulb is 100 times that of the stem. The volume of the pipette is 101 parts, of which one part is in the stem and 100 parts in the bulb. The stem is graduated into 10 equal parts of which graduation at the middle of the stem is marked 0.5 and that at the upper end of the stem just below the bulb (junction between stem and bulb) is marked 1. Just above the bulb, there is another graduation, marked 101. Thus, the RBC pipette has 3 markings. To the other end of the small narrow portion above the bulb, is connected a small soft light rubber tube provided with a mouth piece for sucking blood and fluid into the pipette.

The uses of the bead are:

1. for proper mixing
2. to know whether the pipette is dry
3. to identify the pipette

1. What are the different stages of erythropoiesis?

Stages are:

① Haemacytoblast
② Proerythroblast
③ Early normoblast
④ Intermediate normoblast
⑤ Late normoblast [Early, Late]

2. Name the diluting fluid for RBC and give its composition. What are the functions of ingredient?

Hayem's fluid

Composition: NaCl - 0.5 g
Na_2SO_4 - 2.5 g
Mercuric perchloride - 0.25 g
Water - 100 ml

NaCl and Na_2SO_4 makes fluid isotonic

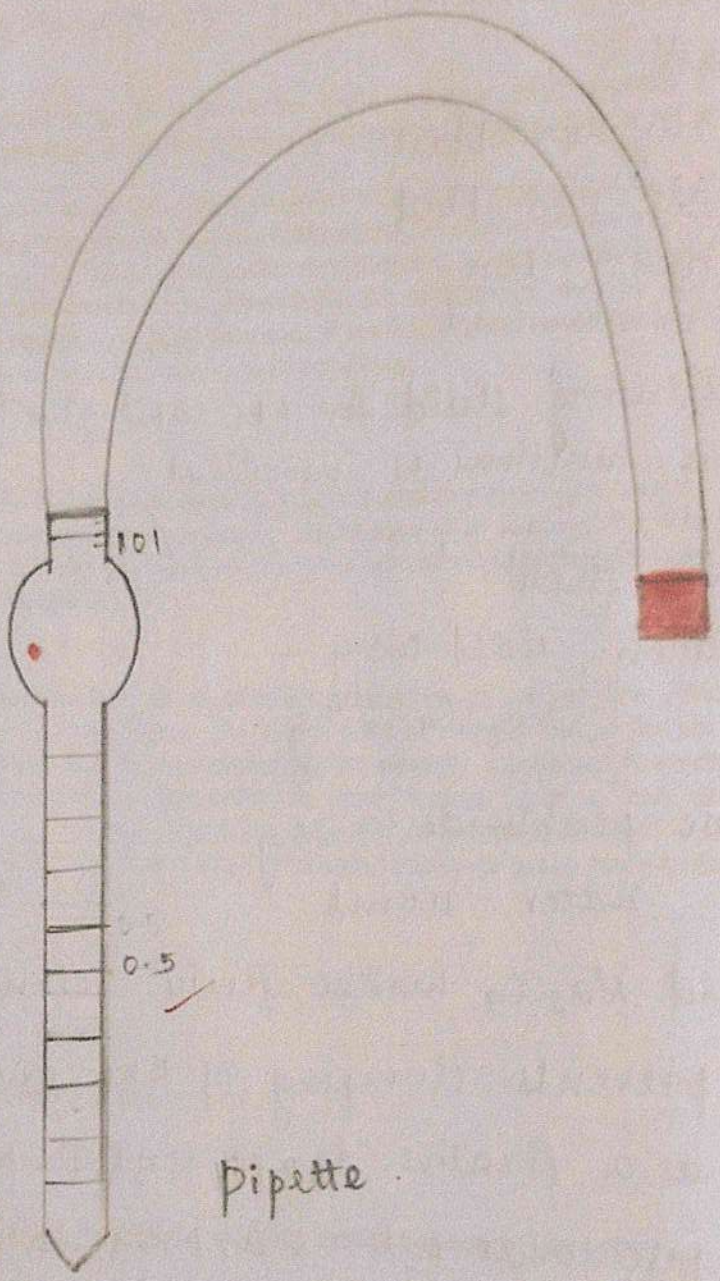
Na_2SO_4 prevents clumping of RBC and rouleaux formation

Also acts as a fixative to preserve shape of cells.

Mercuric perchloride acts as a preservative.

3. How will you differentiate an RBC and WBC pipette?

- The bulb of RBC pipette contains a red bead inside whereas WBC pipette contains white bead.
- The volume of RBC pipette is 101 parts whereas WBC pipette has 11 parts.



Pipette

4	5	1	3
5	5	7	5
7	3	9	3
4	6	4	2

R_1

13	5	8	4
2	6	4	5
9	10	7	5
5	6	3	6

R_2

7	10	8	6
9	6	9	6
5	8	8	2
6	6	9	4

R_3

3	5	8	5
5	10	3	7
8	5	7	5
4	5	12	3

R_4

8	7	9	4
9	10	4	6
7	7	8	9
5	7	5	7

R_5

$$N = R_1 + R_2 + R_3 + R_4 + R_5$$
$$= 73 + 98 + 109 + 95 + 121$$
$$= \underline{496}.$$

Calculation:-

Dilution factor = $\frac{\text{Total vol of bulb}}{\text{Vol of blood taken}} = \frac{100}{0.5} = 200$

Area of medium size square = $\frac{1}{5} \times \frac{1}{5} = \frac{1}{25}$ mm^2.

Depth of chamber = $\frac{1}{10}$ mm.

Vol. of each medium size square = $\frac{1}{25} \times \frac{1}{10} = \frac{1}{250}$ mm^3.

Total vol. of 5 squares $(R_1+R_2+R_3+R_4+R_5)$ = $\frac{1}{250} \times 5 = \frac{1}{50}$ mm^3.

Total no of cells counted in 5 squares = N = 496.

No of cells counted in $\frac{1}{50}$ mm^3 in diluted blood = 496.

No. of cells counted in 1 mm^3 in diluted blood = 496×50.

No. of cells counted in 1 mm^3 in undiluted blood

$= 496 \times 50 \times$ dilution factor

$= 496 \times 50 \times 200$

$= 496 \times 10000$

= 4.96 million cells/mm^3 of blood.

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DEPARTMENT OF CONSERVATIVE DENTISTRY
&
ENDODONTICS

RECORD BOOK

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha - 685 605

Name : AFIYA T.S

Date of Birth : 16-07-1999

Address : THOTTIPARAMBILL (H)
THODUPUZHA EAST P.O
KEERIKODE
PIN: 685-585

Date of Admission : .....

Specimen Signature: .....

Year of Study :

III BDS .....

Final Year BDS .....

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DEPARTMENT OF CONSERVATIVE DENTISTRY & ENDODONTICS

Certificate

This is to certify that ~~Mr.~~ / Ms. AFIYA I.S .....

has completed the clinical requirements in Conservative Dentistry and Endodontics as prescribed by the Kerala University of Health Sciences, for the BDS course during the academic year.....

Grade :

University Reg. No: 180022173

Staff :

Professor & Head

Dept. Of Conservative Dentistry & Endodontics

Al – Azhar Dental College

Internal Examiner

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha-685 605

External Examiner

INSTRUCTIONS FOR STUDENTS

1. All students should come to the clinic with clean aprons and identity card.
2. Students should enter the clinics at least 10 minutes prior to their scheduled clinical hours. Students should take prior permission from the staff while entering and leaving the department.
3. Students should have all the instruments in their instruments kit. Instruments should be cleaned and sterilized before and after use on each patient.
4. Personnel protective barriers like gloves, mask, and protective eye wear and head caps should be worn while working on patients.
5. Boys are expected to shave everyday and to maintain clean hair cut.
6. Girls and boys are expected to clip their nails clean and maintain their fingertips hygienically. Girls are strictly prohibited from wearing any type of nail polish,. Ornaments, flowers etc. and are expected to put up their hair neatly and use hairpins liberally to keep their hair from coming on to the eyes.
7. Daily work carried out in the department must be countersigned on the dame day. Once the case is shown to one staff member he/she shown the case until the individual work is completed.
8. No students will take any case without prior allotment by staff.
9. Students are expected to maintain discipline inside and outside the clinics.
10. Students should have a minimum of 90% clinical attendance.
11. Students should be polite and gentle to the patients. No students should get into an argument with the patients relatives. Any controversy should be brought into the notice of the head of the department immediately.
12. All students are expected to maintain an appointment diary and record the appointments given to the patients.
13. All students should hand over their instrument kits to the sterilization section for autoclaving by 2.30 p.m.

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14. Enter the approved case histories in the record and get the concerned staff signatures prior to the completion of the respective clinical postings.
15. Students should appear for end posting exam with VIVA VOCE during their clinical posting.
16. Students should submit their completed record by the end of the posting and get final signature from the Head of the Department.

NB:- Those who fail to complete the above mentioned quotas are not eligible to appear the university exam.

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CONSERVATIVE DENDISTRY & ENDODONTICS

List of Instruments and materials for clinical posting

1. 2 sets of hand instruments
2. 2 sets of diagnostic instruments (kidney tray, mouth mirror, probe)
3. Instruments tray with lid (284x183x17mms)
4. Rotary hand piece - Air rotor
   - Micromotor
5. Diamond points for air rotor
   a) Straight fissure - (009, 010)
   b) Inverted cone - (009, 010)
   c) Round (small and large) - (010, 014)
   d) Tapering fissure - 008
   e) Tapering (Composite finishing)
6. Carbide bur – No. 245
7. Retainers and matrix band – Tofflemire and Ivory No. 1
8. Wedge – (Wooden)- 1 box
9. Cotton holder
10. Dapper dish – (2)
11. Williams probe
12. Mortar and pestle
13. Amalgam Squeeze cloth
14. Patient drape
15. Protective eyewear, head cap, gloves and mouth mask
16. Matrix band cutting scissor (curved)

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DEPARTMENT OF CONSERVATIVE DENTISTRY & ENDODONTICS

MINIMUM CLINICAL REQUIREMENTS

Sl.No.	Nature of work	No. of Cases
1.	Case History recording, diagnosis and treatment planning	10 Cases
2.	Silver Amalgam Restorations Class I Class II	 30 Cases 20 Cases
3.	Glass Ionomer Restorations	20 Cases
4.	Composite Restorations	5 Cases
5.	Management of deep caries lesion	5 cases
6.	Root Canal treatment of anterior teeth	5 cases

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MINIMUM REQUIRMENT TO APPEAR FOR UNIVERSITY EXAM

III YEAR REQUIRMENTS

1) GIC restoration -15
2) Class I amalgam restoration -10
3) Seminar presentation -1

FINAL YEAR PART I REQUIRMENTS

1) GIC restoration -10
2) Class I amalgam restoration -15
3) Deep caries management -2
4) Class II amalgam restoration -5
5) Composite restoration (anterior) -2
6) Long case history -5
7) Seminar presentation -1
8) Question paper write up -5

FINAL YEAR PART II REQUIRMENTS

1) Class I amalgam restoration -5
2) ClassII amalgam restoration -15
3) Deep caries management -3
4) Composite restoration (anterior) -3
5) Long case history -5
6) Seminar write up -1
7) Question paper write up -5

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PRACTICAL RECORD

DEPARTMENT OF DENTAL ANATOMY
&
ORALHISTOLOGY

AL-AZHAR DENTAL COLLEGE

THODUPUZHA

AL-AZHAR
THODUPUZHA
Guiding Light, Smiling Bright.

DENTAL ANATOMY, ORAL EMBRYOLOGY AND ORAL HISTOLOGY

PRACTICAL WORK RECORD

Student's Name : SAINA NOWSHAD

Roll Number : 66

Academic Year : 2019 - 2020

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha-686 3[illegible]

PHOTO

AL-AZHAR
THODUPUZHA
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CERTIFICATE

Certified that...SAINA NOWSHAD.....with university registration no...190022237.....of Ist BDS.....2019-2020..batch has completed the prescribed work in DENTAL ANATOMY INCLUDING EMBRYOLOGY AND ORAL HISTOLOGY under KERAL UNIVERSITY OF HEALTH SCIENCES (KUHS) , AND OVERALL PERFORMANCE IS.....Good.....

RECORD MARKS...08.....MAX 10 MARKS

SIGNATURE

HEAD OF DEPARTMENT

DEPT. OF ORAL PATHOLOGY
AL-AZHAR DENTAL COLLEGE

DEPT. OF ORAL ... PERUMPILLY CHIRA P.O. ... AL-AZHAR DENTAL COLLEGE

DATE 30.01.21

APPEARANCE	SIGNATURE OF EXTERNAL EXAMINER	DATE
1		01/02/21
2		24.9.21

01/02/21

24/09/21

REMARKS

AL-AZHAR DENTAL COLLEGE

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Principal
Al-Azhar Dental College
Thodupuzha

Important rules and regulation

Required eligibility forKUHS university exam

A) STUDENTS MUST HAVE 80% ATTENDANCE IN THEORY AND 80% ATTENDANCE IN PRACTICAL SEPARATELY.STUDENTS SHALL SATISFY THE ATTENDANCE REQUIREMENT BY PHYSICAL PRESENCE IN CLASS. LEAVE FOR VISA RENEWAL OR ON MEDICAL GROUNDS INCLUDING MATERNITY LEAVE SHALL NOT BE COUNTED FOR ATTENDANCE

STUDENTS MUST HAVE 40% MARKS IN INTERNAL ASSESMENT FOR THEORY AND 405 MARKS IN PRACTICAL INTERNAL ASSESSMENT SEPARATELY. THREE INTERNAL ASSESSMENT EXAM SHALL BE CONDUCTED FOR INTERNAL EVALUATION

TO SUCCESSFULLY PASS THE UNIVERSITY EXAMINATION STUDENT SHALL OBTAIN 50% MARKS SEPARATELY IN THEORY PRACTICAL, BLOCK TOTAL AND AGGREGATE TOTAL

General disciplinary instructions

Students must be courteous at all times to faculty, staff, all employees, and patients of college. Indiscipline, lack of respect, lack of correct decorum and any argument with staff or patients shall result in debarment of the student from department

Student must arrive five minutes early to the stipulated time for all classes. Students arriving more than 5 minutes late after beginning of the class shall be marked absent or debarred from attending the said or further classes

Any attempt to impersonate another student or forge faculty signature shall result in debarment of student from the department

Student when absent shall provide leave letter in the college prescribed format to the teaching faculty of the department. Medical certificate if any should be attached for medical leaves. Written explanation shall be provided if absent for more than 3 days

Student shall be marked absent and debarred from attending further classes if any prescribed work is not completely completed in stipulated time

Prior written permission should be obtained from the faculty if the student is being absent from the class during class hours due to any department, official, college or any other purposes.

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Student must stand up before asking any clarification from the faculty and answering question asked by faculty

Student who damage or defaces college or department property including microscope and electronic gadgets shall replace the same on their personal expense within a week. Disciplinary actions shall be taken against that student

Mobile phones and head phones are banned within college premises

Discipline the laboratory

Students must always wear clean white apron with proper college id.proper dress code shall be followed by students at all times

Students must be seated according to the roll numbers and will not move or leave their work table without permission from staff

Each student shall bring their own complete set of instruments, concerned records and textbook. Noncompliance will result in removal of students from laboratory and will be marked absent. Borrowing books, instruments will result in disciplinary action

Students must always use clean well spread Macintosh sheet in laboratory and shall keep the lab clean. Students shall deposit all wax shavings in wax collection drum should not be deposited in table floor or stool

No student shall enter, Sit or work or study in laboratory during practical/class hours without prior permission. Tress passing can cause disciplinary action.

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DENTAL ANATOMY

DENTAL ANATOMY –WAX CARVING OF PERMANENT TOOTH

SL NO	FDI NO OF TOOTH CARVED	DATE	GRADE	STAFF SIGNATURE
1	11,21	4/11/19	B+	
2	12,22	23/11/19	B	
3	13,23	18/1/2020	B	
4	14,24	17/2/2020	B+	
5	15,25	2/3/2020	B+	
6	16,26			
7	31,41	2/12/19	B	
8	32,42	4/12/19	B+	
9	33,43	25/1/2020	B	
10	34,44	25/1/2020	B	
11	35,45			
12	36,46			

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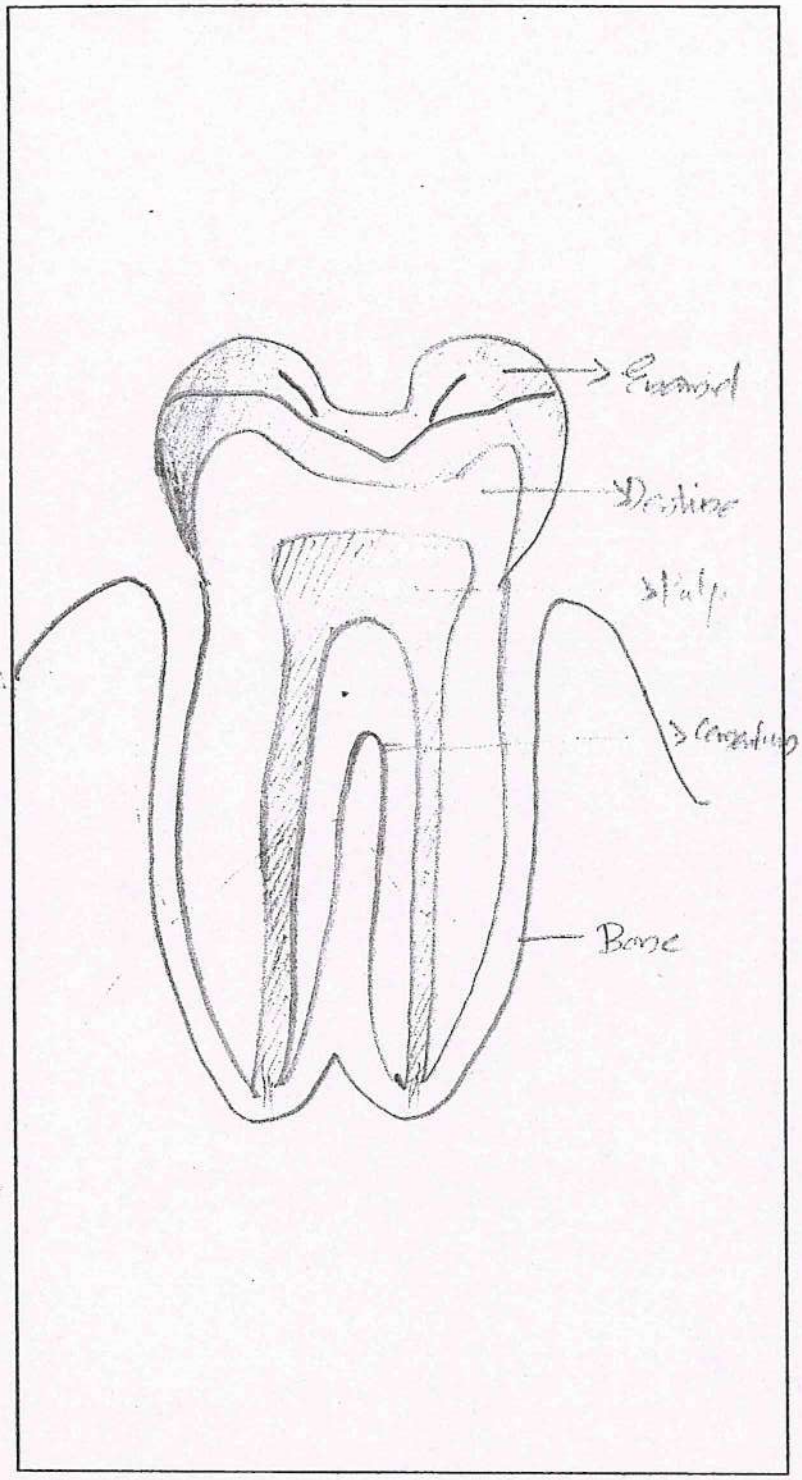
LONGITUDINAL SECTION OF A TOOTH



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MORPHOLOGY OF PERMANENT DENTITION

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MAXILLARY CENTRAL INCISOR

CHRONOLOGY OF TOOTH DEVOLOPMENT	
First evidence of calcification	3-4 months
Enamel Completion	4-5 years
Eruption	7-8 years
Root completion	10yrs

DIMENSIONS FOR WAX CARVING OF TOOTH	
Cervicoincisal length of crown	10.5
Length of root	13.0
Mesiodistal diameter of crown	8.5
Mesiodistal diameter of crown at cervix	7.0
Labiolingual diameter of crown	7.0
Labiolingual diameter of crown at cervix	6.0
Cervical line - mesial	3.5
Cervical line - distal	2.5

AL-AZHAR DENTAL COLLEGE

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AL-AZHAR
THODUPUZHA

ORAL PATHOLOGY

PRACTICAL RECORD

Student's Name .....

Roll Number .....

AL – AZHAR DENTAL COLLEGE

PERUMPILLICHIRA P O., THODUPUZHA

ORAL PATHOLOGY

PRACTICAL RECORD

Student's Name: Kareem Mohammed

Roll Number: 160920050

Academic Year: 2021-2022

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha-685 605

AL – AZHAR DENTAL COLLEGE

PERUMPILLICHIRA P O., THODUPUZHA

This is to certify that Mr/ Miss/Mrs, KAREEM MOHAMMED *bearing register No.* 160020050 *has satisfactorily completed the requirements of the Dept. of Oral Pathology & Microbiology prescribed by the Kerala University of Health Science in the academic year 2021.... 2022..., and this is the candidate's bonafide practical record submitted for the B.D.S...3rd... University examination in the subject of Oral Pathology.*

18/8/22

Head of the Department

Department of Oral Pathology & Microbiology

PERUMPILLICHIRA P.O.
THODUPUZHA 685 605
AL-AZHAR DENTAL COLLEGE

HEAD OF THE DEPT.
DEPT. OF ORAL PATHOLOGY
AL-AZHAR DENTAL COLLEGE
THODUPUZHA-685 605

Place: Thodupuzha

Date: 18-08-22

Name & Signature of Examiner

1.

2.

31/08/22

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha-685 605

Oral Pathology Record

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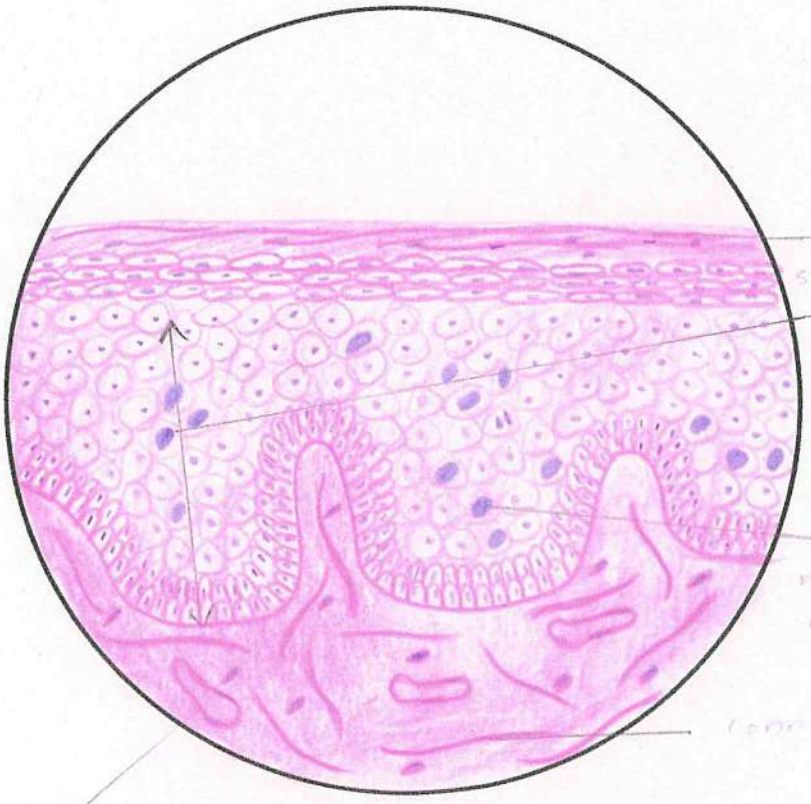
EPITHELIAL DYSPLASIA - MILD

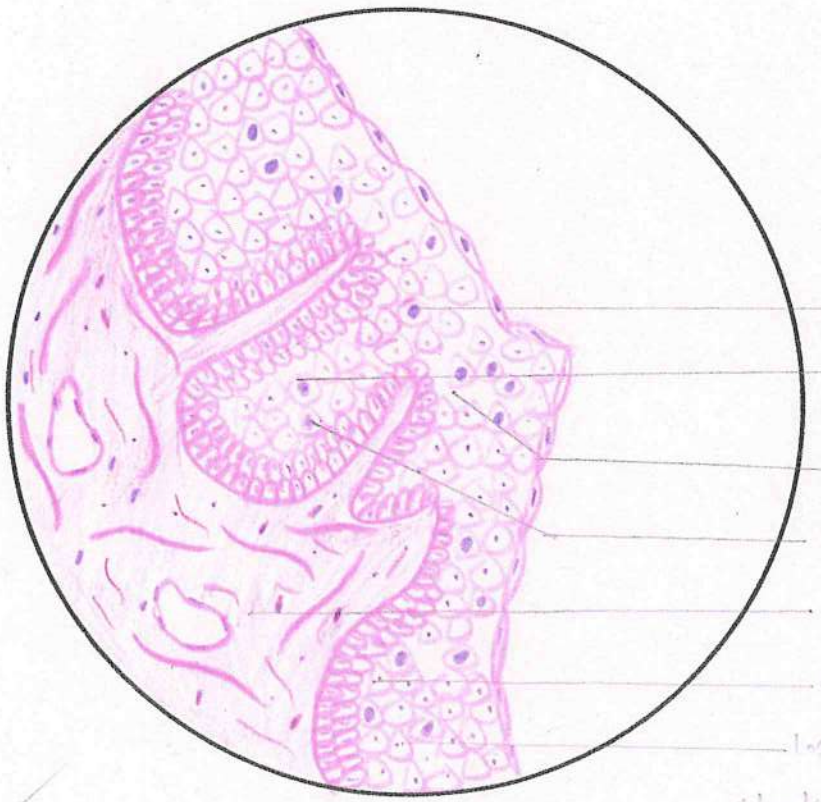
EPITHELIAL DYSPLASIA - MODERATE

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College

EPITHELIAL DYSPLASIA - SEVERE



CARCINOMA IN SITU



AL-AZHAR DENTAL COLLEGE

PERUMPILLICHIRA P.O., THODUPUZHA

AL-AZHAR
THODUPUZHA

DEPARTMENT OF PROSTHODONTICS

CLINICAL AND NON-CLINICAL PROSTHODONTICS

RECORD BOOK

AL-AZHAR DENTAL COLLEGE

PERUMPILLICHIRA P.O., THODUPUZHA

AL-AZHAR
THODUPUZHA

DEPARTMENT OF PROSTHODONTICS

CLINICAL AND NON-CLINICAL PROSTHODONTICS

RECORD BOOK

III B.D.S. & IV B.D.S.

Student Name: NADA FATHIMA NOUSHAD

University Reg. No. . 180022203

Academic Year 2023

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha-685 605

AL-AZHAR DENTAL COLLEGE

PERUMPILLICHIRA P.O., THODUPUZHA

Certificate

This is to certify Mr./Mrs ……

has satisfactorily completed Clinical Works prescribed by Kerala University of Health Science for III B.D.S. and IV B.D.S. course in this institution in the year.

Date:

Staff in charge:

H.O.D

DEPARTMENT OF PROSTHODONTICS

Name:

University Reg. No.

Sign of examiners:

1)

2)

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha-685 605

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CLINICAL WORK RECORD

Type of work	Suggested Number	Completed Number
Complete denture Prosthesis		
Un – supervised denture		
One – day denture		
Provisional removable partial denture		
Removable cast-partial denture		
Fixed-partial denture		
Occlusion Analysis		
TMJ evaluation		
Over – denture		
Immediate dentures		
Interim dentures		
Single complete denture		
Re-linig		
Rebasing		
Repair		
Obturators		
Implants		
Any other Prosthesis		

AL-AZHAR DENTAL COLLEGE THODUPUZHA

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha - 685 605

GENERAL SECTION

ETHICS AND CLINICAL DISCIPLINE

There is no formal definition of ethics in respect of dentistry; it is an unwritten code of behavior for dentist which encompasses their patients, colleagues (Viz. Dentists and doctors), and their personal behavior in the community.

Advice on ethical behavior is given by the General Dental Council and the British Association. A serious ethical offense may result in the dentist's name being erased from the Dentists Register along with his/her right to practice dentistry.

Students should be professionally dressed and should clean and well groomed. Cleanliness and personal hygiene must always be of high standards. Clean white coats must be worn and should be fastened at all times. Students with long hair should have it tied back, both for their own safety and the comfort of the patients. Jewelry, if worn, should be discreet.

Students should conduct themselves in a cool and calm manner. Student's behaviour in respect to patients should be one of confidence, understanding and communication. The relationship with patients should only be professional.

Punctuality, especially in relation to keeping appointments, is considered to be a most important aspect of clinical discipline. Of equal importance is the discipline required to complete procedures within the time available.

Responsibilities in respect of Health and Safety and the care of patients must be fulfilled at all times. Should any untoward accident occur, a member of the clinical staff must be informed immediately. Similarly, any accidents involving students must be reported, without delay, to the supervising member of staff. Appropriate written records/reports must be made of all untoward incidents and accidents.

While you are undergraduates, clinical staff must accept legal responsibility for all your patients and the treatment you provide. You will be allocated to a member of staff for each session, and it is essential that you keep this member of staff informed of both the treatment you are providing and any untoward events. No treatment may be started , or local anesthetic given, before a treatment plan has been approved and a member of the clinical staff has instructed you to proceed.

Clinical reports are a legal requirement. Before any patient is allowed to leave, his/her records must be written up factually and comprehensively and, above all, signed by the supervising member of staff.

Remember, at all times your behavior must be professional, responsible and exhibit due care and consideration towards patients.

Students should attend the clinical postings on time and on arrival attendance should be given at the reception counter. Footwear should be removed in the changing room and only clinical- footwear should be used inside the clinics.

Students should wear their identify cards and name plates in their apron

AL-AZHAR DENTAL COLLEGE THODUPUZHA

Prof. Dr. Harvey Thomas MDS
Principal
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Thodupuzha - 685 605

ARMANENTARIUM

1.	Mouth Mirror	-2
2.	Straight Probe	-2
3.	Curued Probe	-2
4.	Tweezer	-2
5.	Lacron's Carver	-2
6.	Wax Knife	-2
7.	Wax Spatula	-2
8.	Cement Spatula	-2
9.	Metallic Scale	-2
10.	Hot plate	-1
11.	Chip-blower	-1
12.	Plaster Knife	-1
13.	Curved Spatula	-1
14.	Straight Spatula	-1
15.	Mckentosh sheet	-2
16.	Spirit Lamp	-1
17.	Robber bowls	-3
18.	Marking pencil	-2
19.	Glass Slab	-1
20.	Kidney Tray	-1
21.	Enamel tray (big)	-1
22.	Gloves –	
23.	Glove bags-	
24.	Mask –	
25.	Instruments bag	-1
26.	Instruments bag (big)	-1
27.	Lighter	-1
28.	White Towel	-3
29.	R.P.D. Trays (Perforated)	-10
	U_0 U_1 U_2 U_3 U_4	
	L_0 L_1 L_2 L_3 L_4	
30.	C.D. Trays (Perforated)	
	U_0 U_1 U_2 U_3 U_4	
	L_0 L_1 L_2 L_3 L_4	
31.	Non – perforated C.D. Trays –	
32.	T burnisher	
33.	Mean value articulator	

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1. Acrylic trimmer -2
   -Flame shaped
   -Round
2. Cherry stone -2
3. Straight Fissure bur -1
4. Round Bur -1
5. Sand paper mandrel -2
6. Polishing buff -2
7. Polishing cake -1
8. Pumice
9. Cellophane Paper-
10. Flasks and clamps -2
11. Scalpel & blade-

BURS REQUIRED FOR TEETH PREPARATIONS:

1. Round end tapered diamond
2. Flat end tapered diamond
3. Long needle diamond
4. Short needle diamond
5. Small wheel diamond
6. Torpedo diamond
7. Flame shaped diamond
8. Foot-ball shaped diamond

-Air-rotor hand piece

-Die Pins

PRACTICE INFECTION CONTROL

1. All staff must be immunized against diphtheria, hepatitis B, pertussis, polimyelitis , rubella, TB and tetanus and their hepatitis B Seroconversion checked. For those who do-not seroconvert, medical advice and counseling is required. This also applies to those who cannot be immunized because they are immuno suppressed, for example, those taking steroids for asthma. In these cases it may be necessary to restrict clinical activities.

2. The practice provides protective clothing, gloves, eyewear and masks which must be worn by dentists, nurses and hygienists during all operative procedures. Clothing worn in the surgery should not be worn outside the practice premises.

3. Before donning gloves, hands should be washed using.....r disinfect with ..... if uncontaminated after glove removal. A new pair of gloves should be used for each patient.

4. Before sterilization, instruments are cleaned by hand and a long-handled brush/the ultrasonic bath/enzyme cleaner/instrument washing machine (delete as necessary). Instruments are then rinsed under running water before sterilized using an autoclave. Heavy –duty gloves must be worn handling used instruments. All instruments that have been potentially contaminated must be sterilized.

5. Sterilized instruments should be stored in .....

6. All working areas used during treatment will be kept to a minimum, clearly identified and cleaned and disinfected after each patient using.....

7. Needles should be re-sheathed only using the procedures approved in this practice. Needles, scalpel blades, LS cartridges, burs etc shall be disposed of in the yellow sharps container. This must never be more than two-thirds full.

8. All clinical waste must be placed in the yellow sacks provided in each surgery. The yellow sack must be securely fastened and stored in the designated area when three-quarters full.

9. In the event of an inoculation injury, the wound should be made to bleed, washed thoroughly under running water and covered with a waterproof dressing. The incident should be recorded in the accident book and discussed with.....to assess whether further action is needed. Advice on post-exposure prophylaxis can be obtained from.....

10. Any accidental spillages involving blood or saliva will be reported to .....

11. Anyone developing a reaction to a chemical or the rubber gloves must inform ..... Immediately

12. **ALL STAFF WILL OBSERVE TOTAL CONFIDENTIALITY IN ALL INFORMATION RELATING TO PATIENTS OF THE PRACTICE**

Before patient treatment

- Ensure that all equipment has been sterilized or adequately disinfected
- Put disposable coverings in place where necessary
- Place appropriate instruments on bracket table
- Set out all materials and mixing instruments
- Update patient's medical history

During patient treatment

- Treat all patients as potentially infectious
- Wear gloves, masks and protective eyewear and clothing
- Provide eye protection for patient
- Wash hands before gloving; a new pair of gloves must be used for each patient
- Discard gloves that are torn, cut or punctured
- Use rubber dam to isolate where appropriate
- Use high-volume aspiration
- Ensure good general ventilation
- Handle sharps carefully and re-sheath using a device only

After patient treatment

- Dispose off sharps and segregate clinical waste
- Clean all instruments thoroughly and sterilize them using an autoclave
- Clean and disinfect all contaminated areas
- Clean and disinfect impressions and other dental applications before sending to laboratory
- Prepare surgery for next patient

At the end of each session

- Dispose of all clinical waste
- Clean sand disinfect all work surfaces thoroughly
- Disinfect the aspirator, its tubing and the spittoon
- Clean the chair and the unit

CROSS INFECTION CONTROL PROTOCOL

CHECK LIST

I. CLINICAL ENVIRONMENT

II. PERSONNEL PREPARATION
Clinician/Consultant/dental assistant/nurse/technician

III. INSTRUMENT STERALISATION

IV. DENTAL CHAIR AND EQUIPMENTS

V. WASTE DISPOSAL

AL-AZHAR DENTAL COLLEGE

PERUMPILLICHIRA P.O, THODUPUZHA



STUDENTS CLINICAL RECORD BOOK

DEPARTMENT OF ORTHODONTICS & DENTOFACIAL ORTHOPAEDICS

Prof. Dr. Harvey Thomas MDS.
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Al-Azhar Dental College
Thodupuzha - 685 605

AL-AZHAR DENTAL COLLEGE

THODUPUZHA

NAME: AFIYA T.S

BATCH: 2018

REG. NO. 18D022173

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha

DEPARTMENT OF ORTHODONTICS

CLINICAL RECORD BOOK

Certificate

This is to certify that Mr./Ms AFIYA T S

has satisfactorily completed the exercise in Orthodontics & Dentofacial Orthopaedics for Final year Part -I Bachelor of Dental Surgery course in Al-Azhar Dental College, affiliated to Kerala University of Health Science in the year.....

Head of the Department

HEAD OF THE DEPT :
DEPT: OF ORTHODONTICS &
DENTOFACIAL ORTHOPAEDICS
AL AZHAR DENTAL COLLEGE
THODUPUZHA - 685 6

Name	: AFIYA T S
University Reg. No.	: 180022173
Year of Admission	: 2018
Univrsity Examination No.	:
Date of Practical Examination	: 07/02/2023
Signature of Examiners	:

1. Dr Anjali V A 7/2/23

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha - 685 605

DISCIPLINARY CODE AND RULES

1. Students are expected to be in the Class / Clinics, five minutes prior to the commencement of the Class / Clinics, with all the required instruments and materials.
2. Students must be prompt in their attendance in pre-clinical, clinical and theory sections separately, with minimum percentage being 80%.
3. Students are expected to present themselves wearing clean apron and maintain cleanliness during work.
4. Students are expected to maintain the record book in good condition. Loss of any of its contents may call for forfeit of credits received.
5. Students should posses their own set of instruments and materials required for practical / clinical work. No borrowing of instruments and materials are allowed.
6. All students should finish the assignment given for that class / clinics, the same day and get the signature and the attendance for that class / clinics.
7. Any damages caused to the chairs and other equipment's will be charged on the account of that student concerned.
8. Students are not allowed to take patients on their own, unless allotted by the staff in charge.
9. Exercise shall be deemed complete only when the same is checked, signed, countersigned by the staff in charge.
10. Grades obtained in their periodical work will be considered for terminal and university examinations. General conduct of the student and patient management will be given due merit.

Student's Declaration

I have carefully read the above rules and undertake to abide by them.

(Name and Signature of the student)

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha-685 605

INSTRUMENTS/ MATERIALS REQUIRED

1. Young's Universal Plier
2. Adams Plier
3. Heavy Wire Cutter
4. Orthodontic wires
   - 0.9mm (20G)
   - 0.8mm (21G)
   - 0.7mm (22G)
   - 0.6mm (23G)
5. Glass Slab
6. Glass Marking Pencil
7. Macintosh Sheet
8. Clinical Models
9. Orthodontic Impression Trays
10. Enamel Tray
11. Rubber Bowl and Spatula
12. Dappen Dish
13. Lacron's Carver
14. Wax Knife

INDEX OF WORK TO BE DONE

READING EXERCISE

PRE-CLINICAL EXERCISE

READING EXERCISE

III BDS CLINICAL EXERCISE

READING EXERCISE

IV BDS CLINICAL EXERCISE

GRADING SCALE*

A+	Excellent	C	Average
A	Outstanding	D	Poor
B	Good	E	Undesirable

THIRD BDS CURRICULUM

Instructions:

1. All pre-clinical works till second year should be completed and certified by the HOD prior to the third year posting.
2. Clinical posting for the third BDS includes one major posting (1 month, an average of 23 working days is taken in to consideration) and one minor posting (15 days, if time permits)
3. Strict discipline should be maintained in the department and the students should reach the department by 10:10am.
4. Clinical posting will be from 10:15 am - 2 pm of which 10:15 am – 12 pm will be for clinical work and 12 pm – 2 pm will be for academic activities (case presentation, long case discussion, topic discussion etc)
5. No wire bendings are entertained during clinical hours.
6. A maximum of five long cases and ten short cases should be taken for the orthodontic training program of which **two long case and four short cases** should be finished during the third BDS postings.
7. Text book – ***Theory*** - Contemporary Orthodontics – William R Profitt.
8. Seminar preparation and presentation should be completed during posting period.
9. Also **project** allotment should be taken up and completed during the posting.
10. A log book must be maintained to record the daily activities which should be signed by the staff in charge.
11. Appliances should be fabricated one day before the date of delivery, failing which the case will be taken over by the department and new case should be taken to fulfil the requirement.

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THIRD BDS DEPARTMENT POSTING SCHEDULE

Day	Posting schedule
1	Instructions / viva (impression materials & procedure) Record submission
2	Completion of ideal impression making (upper & lower)
3	Study model preparation / viva (model analysis + cephalometric analysis)
4	Submission - Model analysis Cephalometric tracing demonstration
5	Discussion - Clinical evaluation Demonstration - Clinical photography
6	Cephalometric analysis submission Discussion - Clinical evaluation
7	Discussion - Clinical evaluation
8	Long case allotment Discussion - Clinical evaluation
9	Discussion - Extraoral examination
10	Discussion - Intraoral examination
11	Discussion - Diagnosis & treatment planning
12	Case discussion I
13	Case discussion II
14	Case discussion III
15	Case discussion IV

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FOURTH BDS (PART-I) CURRICULUM

Instructions:

1. All other works till final year should be completed and certified by the HOD prior to the final year posting.
2. Clinical posting for the fourth BDS includes one major posting (1 month, an average of 23 working days is taken in to consideration) and one minor posting (15 days, if time permits).
3. Strict discipline should be maintained in the department and the students should reach the department by 10:10am.
4. Discipline, attitude and dedication to the subject will be considered for grading your performance.
5. Hard work is the key to success and no substitute is there for hard work.
6. A maximum of five long cases and ten short cases should be taken for the orthodontic training program of which two long case and five short cases should have been finished during the third BDS postings.
7. Clinical posting will be from 10:15 am - 2 pm of which 10:15 am – 12 pm will be for clinical work and 12 pm – 2 pm will be for academic activities (case presentation, long case discussion, topic discussion etc)
8. No wire bendings are entertained during clinical hours.
9. A log book must be maintained to record the daily activities which should be signed by the staff in charge.
10. Appliances should be fabricated one day before the date of delivery, failing which the case will be taken over by the department and new case should be taken to fulfill the requirement.

Textbook:

All students are supposed to buy the TEXTBOOK "CONTEMPORARY ORTHODONTICS" by PROFFIT within one week of commencement of the final year BDS. This is mandatory. Buying other textbooks is desirable but not compulsory.

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Recommended other textbooks:

- Orthodontics for Dental Students – *by White and Gardiner.*
- Hand Book of Orthodontics – *by Robert E. Moyers.*
- Orthodontics – Principles and practice – *by T.M. Graber.*
- Design, Construction and used of removable Orthodontic Appliance – *by C. Philip Adams.*
- Clinical Orthodontics – Vol.I & II *by J.A. Salzmann.*
- Current Orthodontic Concepts & Techniques – *by Thomas M. Graber and Brainerd F. Swain*

Long case:

Impression, study model, case record preparation, radiographic evaluation and case discussion of a long case should be approved strictly by the staff who allotted the case. Otherwise that case will be taken over by the department and fresh case need to be taken to fulfill the requirement.

Kindly take every effort to dicuss the cases with different staff members and at least one long case should be discussed with the Prof. and Head of the dept.

Short case:

Impression for the appliance, appliance design, fabricated appliance (before & after finishing) should be approved by the staff who allotted the case. Appliance should be approved and duly signed by the staff one day prior to the appliance delivery.

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FINAL BDS DEPARTMENT POSTING SCHEDULE

Day	Posting schedule
1	Review viva for impression taking / record submission
2	III BDS work assessment / completion in the record
3 - 4	Viva for case history & clinical examination
5 - 6	Record taking & clinical examination demonstration
7 - 14	Long case allotted for discussion and powerpoint preparation of the department case in front of staffs
14 - 21	Maximum of 2 alloted long case discussions per day / completion of seminar & project work
22	End Posting exam - Practical
23	End Posting Viva

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PRACTICAL RECORD

DEPARTMENT OF DENTAL ANATOMY
&
ORALHISTOLOGY

Prof. Dr. Harvey Thomas MDS
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Thodupuzha-685 605

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Guiding Light, Smiling Bright.

DENTAL ANATOMY, ORAL EMBRYOLOGY AND ORAL HISTOLOGY

PRACTICAL WORK RECORD

Student's Name : SAINA NOWSHAD

Roll Number : 66

Academic Year : 2019 - 2020

Prof. Dr. Harvey Thomas MDS
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Thodupuzha-685 605

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PHOTO

AL-AZHAR
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CERTIFICATE

Certified that...SAINA NOWSHAD.....with university registration no...190022237.....of Ist BDS.....2019-2020..batch has completed the prescribed work in DENTAL ANATOMY INCLUDING EMBRYOLOGY AND ORAL HISTOLOGY under KERAL UNIVERSITY OF HEALTH SCIENCES (KUHS) , AND OVERALL PERFORMANCE IS.....Good.....

RECORD MARKS...08.....MAX 10 MARKS

SIGNATURE

HEAD OF DEPARTMENT

HEAD OF THE DEPT.
DEPT. OF ORAL PATHOLOGY
AL-AZHAR DENTAL COLLEGE

DEPT. OF ORAL PATHOLOGY
PERUMPILLY CHIRA P.O.
THODUPUZHA 685 605
AL-AZHAR DENTAL COLLEGE

DATE 30.01.21

APPEARANCE	SIGNATURE OF EXTERNAL EXAMINER	DATE
1		01/02/21
2		24.9.21

01/02/21
24/09/21

REMARKS

Prof. Dr. Harvey Thomas MDS
Principal
Al-Azhar Dental College
Thodupuzha - 685 605

Important rules and regulation

Required eligibility forKUHS university exam

A) STUDENTS MUST HAVE 80% ATTENDANCE IN THEORY AND 80% ATTENDANCE IN PRACTICAL SEPARATELY.STUDENTS SHALL SATISFY THE ATTENDANCE REQUIREMENT BY PHYSICAL PRESENCE IN CLASS. LEAVE FOR VISA RENEWAL OR ON MEDICAL GROUNDS INCLUDING MATERNITY LEAVE SHALL NOT BE COUNTED FOR ATTENDANCE

STUDENTS MUST HAVE 40% MARKS IN INTERNAL ASSESMENT FOR THEORY AND 405 MARKS IN PRACTICAL INTERNAL ASSESSMENT SEPARATELY. THREE INTERNAL ASSESSMENT EXAM SHALL BE CONDUCTED FOR INTERNAL EVALUATION

TO SUCCESSFULLY PASS THE UNIVERSITY EXAMINATION STUDENT SHALL OBTAIN 50% MARKS SEPARATELY IN THEORY PRACTICAL, BLOCK TOTAL AND AGGREGATE TOTAL

General disciplinary instructions

Students must be courteous at all times to faculty, staff, all employees, and patients of college. Indiscipline, lack of respect, lack of correct decorum and any argument with staff or patients shall result in debarment of the student from department

Student must arrive five minutes early to the stipulated time for all classes. Students arriving more than 5 minutes late after beginning of the class shall be marked absent or debarred from attending the said or further classes

Any attempt to impersonate another student or forge faculty signature shall result in debarment of student from the department

Student when absent shall provide leave letter in the college prescribed format to the teaching faculty of the department. Medical certificate if any should be attached for medical leaves. Written explanation shall be provided if absent for more than 3 days

Student shall be marked absent and debarred from attending further classes if any prescribed work is not completely completed in stipulated time

Prior written permission should be obtained from the faculty if the student is being absent from the class during class hours due to any department, official, college or any other purposes.

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Student must stand up before asking any clarification from the faculty and answering question asked by faculty

Student who damage or defaces college or department property including microscope and electronic gadgets shall replace the same on their personal expense within a week. Disciplinary actions shall be taken against that student

Mobile phones and head phones are banned within college premises

Discipline the laboratory

Students must always wear clean white apron with proper college id.proper dress code shall be followed by students at all times

Students must be seated according to the roll numbers and will not move or leave their work table without permission from staff

Each student shall bring their own complete set of instruments, concerned records and textbook. Noncompliance will result in removal of students from laboratory and will be marked absent. Borrowing books, instruments will result in disciplinary action

Students must always use clean well spread Macintosh sheet in laboratory and shall keep the lab clean. Students shall deposit all wax shavings in wax collection drum should not be deposited in table floor or stool

No student shall enter, Sit or work or study in laboratory during practical/class hours without prior permission. Tress passing can cause disciplinary action.

DENTAL ANATOMY

DENTAL ANATOMY –WAX CARVING OF PERMANENT TOOTH

SL NO	FDI NO OF TOOTH CARVED	DATE	GRADE	STAFF SIGNATURE
1	11,21	4/11/19	B+	
2	12,22	23/11/19	B	
3	13,23	18/1/2020	B	
4	14,24	17/2/2020	B+	
5	15,25	2/3/2020	B+	
6	16,26			
7	31,41	2/12/19	B	
8	32,42	4/12/19	B+	
9	33,43	25/1/2020	B	
10	34,44	25/1/2020	B	
11	35,45			
12	36,46			

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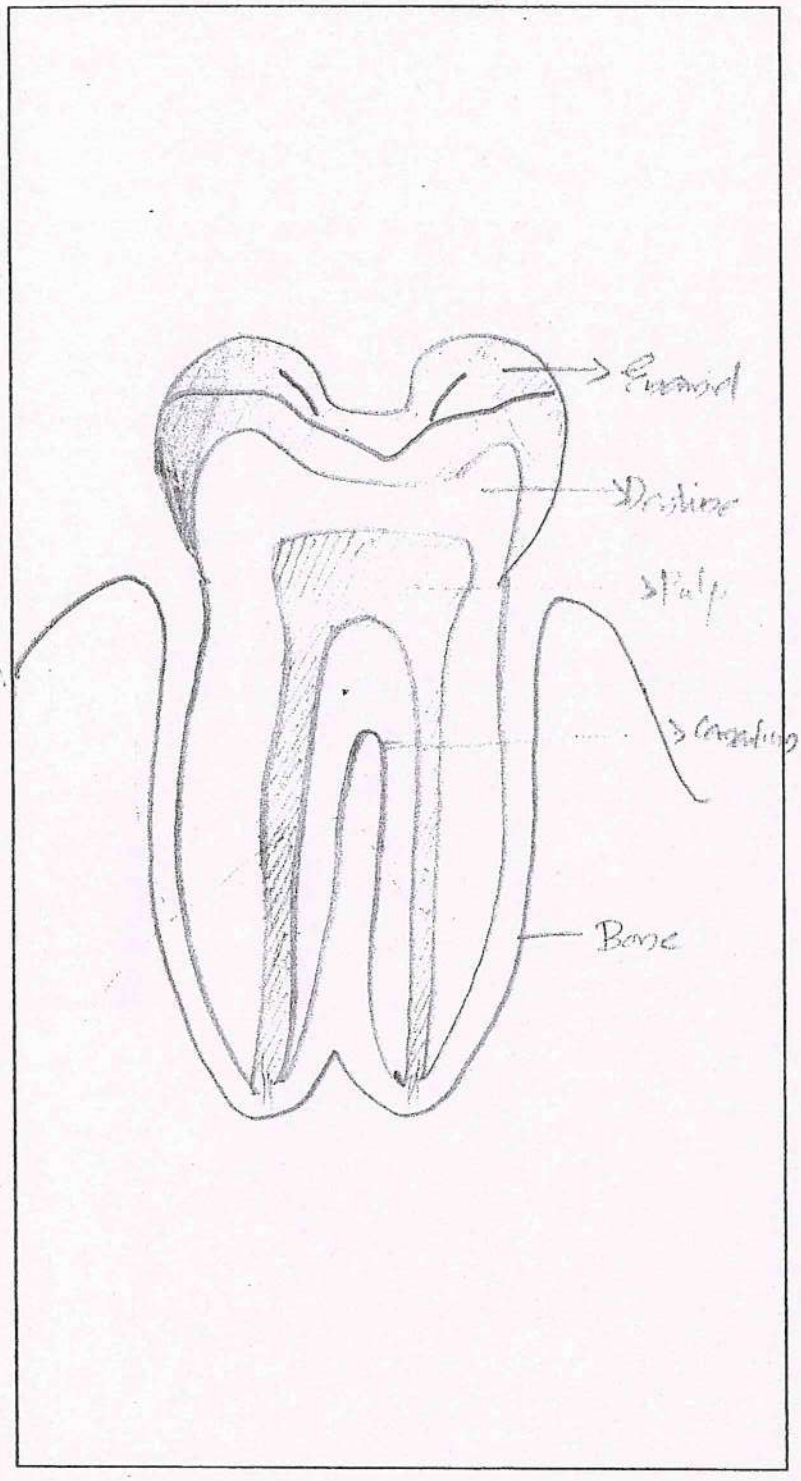
LONGITUDINAL SECTION OF A TOOTH



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