PC-1033

115th IAMM EQAS Microbiology: Bacteriology/ Serology

CMC MICRO EQAS
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OCTOBER 2023

115th EQAS PACKAGE

MEMBER ID: M | 1 | 4 | 8 | 9

Last date for receiving reports: NOVEMBER 30, 2023

OCTOBER 2023/ BACTERIOLOGY SMEARS:

Question: Carry out the appropriate staining procedure and document the relevant observation.
Evaluation format:
Presence and grading of host cells & debris (many/ moderate/few/no) **(1 mark)**
Presence & grading of organism/s gram stain finding, morphology (shape), arrangement and any other special characteristics observed **(2 marks)**
Interpretation: Probable organism **OR** Impression- **as asked in the question (1 mark)**

Exercise Number	Question	Report	Evaluation		
SM1	**Please carry out a Gram stain on the given fixed smear prepared from a BLOOD culture specimen obtained from a 35-year-old lady presenting with fever and chills associated with headache, abdominal pain and constipation since 3 days.**	**Description of Organism/s (2 mark):** Many gram negative rod shaped bacilli with parallel edges and rounded margins seen. Few pus cells seen. ★ **Probable organism (1 mark):** Based on clinical history and observation on gram stained smear, the probable organism is Salmonella species.	0	0.5	1
			1.5	2	2.5
			3		

SM2	**Please carry out a Gram stain on the given fixed smear prepared from an ENDOTRACHEAL ASPIRATE specimen obtained from a 68-year-old gentleman admitted in ICU for 3 days with new onset fever and decreased saturation.**	**Presence and grading of Host cells (1 mark):** Few pus cells seen 1-2 epithelial cells / hpf seen. **Description of Organism/s (2 mark):** Many gram negative coccobacilli seen *** Probable organism (1 mark):** Acinetobacter species	**0**	**0.5**	**1**
			1.5	**2**	**2.5**
			3	**3.5**	**4**
SM3	**Please carry out a Gram stain on the given fixed smear prepared from a THROAT SWAB specimen obtained from an 8-year-old child in casualty with 2 day history of sore throat, difficulty in swallowing and breathing, with a swollen neck.**	**Presence and grading of Host cells (0.5 mark):** 3-4 epithelial cells / hpf **Description of Organism/s (2marks):** Plenty gram positive club-shaped bacilli arranged in cuneiform pattern. *** Probable organism (1 mark):** Corynebacterium diphtheriae ***What precautions will you take to process this specimen? (0.5 marks)** 1. Process sample in Biosafety cabinet 2. wear mask	**0**	**0.5**	**1**
			1.5	**2**	**2.5**
			3	**3.5**	**4**

OCTOBER 2023/ BACTERIOLOGY CULTURE:

Question: A freeze-dried (lyophilized) culture of an organism isolated from a clinical specimen is given. Carry out the appropriate techniques for each exercise and identify the pathogen. Carry out the antimicrobial susceptibility testing according to the panel given below.

INSTRUCTION: RECONSTITUTION OF LYOPHILIZED CULTURES

The vial containing freeze-dried material must be handled carefully. These vials contain infectious organisms. Please follow standard safety procedures and usual standard precautions when handling this material.

It is advised to open the vial in a Bio-safety cabinet Type 2A2.

Opening of the lyophilized vial

1. The lyophilized material provided must be rehydrated. When reconstituting them, exercise extreme caution not to create aerosols or spills.
2. Do not mouth pipette.
3. Reconstitute when you are ready to inoculate onto culture plates.
4. Do not remove the whole cap. Lift only the pre-cut section of the metal cap.
5. Disinfect the rubber stopper with 70% alcohol/ rectified spirit.
6. With a sterile needle and syringe pierce the rubber cap and inoculate the rehydrating broth.

Re-hydration and Recovery

1. Add about **0.5ml of Nutrient broth for CU 1& CU2** using a sterile needle and syringe.
2. **For culture 3 (CU3). 0.5 ml Todd-Hewitt broth / Trypticase soy broth / Nutrient broth** using a sterile needle and syringe.
3. Gently swirl the vial and allow 5-10 minutes for the dried material to rehydrate completely.
4. Hold the vial vertically.
5. Draw the reconstituted fluid up into the syringe slowly.
6. Separate the needle tip from the syringe carefully.
7. Inoculate the specimen / organism appropriate enriched and/or selective media to facilitate recovery of the organisms.
8. Incubate both vial with remaining contents and plate cultures in the appropriate environment – ambient / CO2 incubator at 35-37°C as per routine procedures.
9. Overnight vial contents can be sub cultured again, if required.
10. After use decontaminate and then discard the vial according to your hospital / lab policy.

Note: The viability and culture purity of all batches of lyophilized cultures have been verified prior to packing. The identification has been confirmed by conventional, automated and molecular methods.

INFORMATION ON THE EVALUATION FORMAT FOR CULTURE AND SUCEPTIBILITY EXERCISES

EVALUATION FORMAT:

Culture microscopy& identification:

Microscopy (1mark), culture characteristics (2 mark)
Biochemical key identification characteristics (2 marks)
Final identification (2 marks)
Susceptibility testing: (2 marks per drug)

For culture identifications or susceptibility tests that have been performed by automated systems, the printouts of the automated report MUST be attached along with the report for the evaluator's reference.

Susceptibility reports:

Provide only ONE FINAL susceptibility report for each drug tested.
If two reports with discrepant interpretations are reported, they will be marked as an incorrect answer.
Incomplete forms will NOT be evaluated.

✓**THE REPORT AS ENTERED IN THE SPACE PROVIDED ON THE FORM WILL BE CONSIDERED AS THE FINAL REPORT SUBMITTED FOR EVALUATION**

SUSCEPTIBILITY INTERPRETATION ERRORS:

Minor error (mE) : Susceptible / resistant isolate reported as intermediate susceptible (1 mark deducted)
Major error (ME) : Susceptible isolate reported as resistant (2 marks deducted)
Very major error (VME) : Resistant isolate reported as susceptible (3 marks deducted)

✓ VITEK/ E-test MIC will be awarded the complete mark if the interpretation is consistent with the expected report.

INSTRUCTION: BROKEN OR MISSING SAMPLES

1. The receipt of missing and damaged samples should be reported, along with supporting documents or photos, via email to eqas@cmcvellore.ac.in or by post to the PTP coordinator for all communications participants are requested to mention their complete contact details: EQAS code number, name, address...etc.,
2. DO NOT retrieve any material from the vials broken/damaged.
3. Discard the vials as per laboratory Biomedical waste management policy.

CU 1: Isolated from a SPUTUM specimen of a 59-year-old gentleman admitted in the ICU on mechanical ventilation.

Microscopy Gram stain / motility	Culture characteristics	Biochemical identification MAIN / KEY identification characteristics required for the identification of the organism (Minimum: 3 KEY characteristics)	Method used in identification: (Please circle which is method has been used)
Gram negative coccobacilli Nonmotile.	BA – Tiny 1 mm grey colonies with regular margins, non hemolytic. MAC – Tiny 1 mm non lactose fermenting colonies.	Catalase – Positive Oxidase – Negative Indole – Negative Citrate – utilized as sole source of carbon Urease – urea not hydrolyzed TSI – Alk alive / ~~by~~ no change slant No gas, No H_2S.	(Manual) Automation Detail:
FINAL Identification of given organism	**Genus**	**Species**	**Serotype (if applicable)**
	Acinetobacter	baumannii	—

Method: Manual / Automation	Ceftazidime	Levofloxacin (CIP)	Piperacillin/ tazobactam	Meropenem	Colistin
For Manual: Zone size (mm) OR MIC(µg/ml)	6mm	11 mm	6mm	6mm	16mm
Interpretation (S / MS / R)	R	R	R	R	S
For automated susceptibility: Provide Automated report HERE:	—	—	—	—	—

CU 2: Isolated from a voided URINE specimen of a 46-year old lady admitted with recurrent UTI

Microscopy Gram stain / motility	Culture characteristics	Biochemical identification MAIN / KEY identification characteristics required for the identification of the organism (Minimum: 3 KEY characteristics)	Method used in identification: (Please circle which is method has been used)
Gram positive cocci placed at an angle in pairs Non motile	BA- 0.5mm grey α-hemolytic colonies with regular margin MAC- No growth	Catalase- Negative Coagulase- Negative Bile esculin - Positive	(Manual) Automation Detail:
FINAL Identification of given organism	**Genus** Enterococcus	**Species** Fecalis	**Serotype (if applicable)** —

Method: Manual / Automation	Ampicillin	High level gentamicin	Nitrofurantoin	Fosfomycin	Vancomycin
For Manual: Zone size (mm) OR MIC(µg/ml)	20 mm	18 mm	20 mm	27 mm	18 mm
Interpretation (S / MS / R)	(S)	(S)	(S)	(S)	(S)
For automated susceptibility: Provide Automated report HERE:	—	—	—	—	—

CU 3: READ THE HANDLNG INSTRUCTIONS BEFORE PROCESSING!

Isolated from a THROAT SWAB of a 6-year-old girl presenting in casualty with low grade fever, sore throat with hoarseness and difficulty in breathing.

Microscopy Gram stain / motility	Culture characteristics	Biochemical identification MAIN / KEY identification characteristics required for the identification of the organism (Minimum: 3 KEY characteristics)	Method used in identification: (Please circle which is method has been used)
Gram positive bacilli with cuniform arrangement Non motile	Blood agar- No growth after 48 hours of aerobic incubation.	—	Manual Automation Detail:
FINAL Identification of given organism	**Genus** Corynebacterium	**Species** diphtheriae	**Serotype (if applicable)** —

Method: Manual / Automation	Penicillin	Erythromycin	Vancomycin
For Manual: Zone size (mm) OR MIC(µg/ml)	—	—	—
Interpretation (S / MS / R)	—	—	—
For automated susceptibility: Provide Automated report HERE:	—	—	—

Please indicate the exercises that you have participated in: ☑ **Bacteriology smears** ☑ **Cultures** ☑ **Serology**

Laboratory head name: Dr Jayankumar Utey

Signature / Seal: सहायक आचार्य ASSISTANT PROFESSOR सूक्ष्मजीव विज्ञान विभाग DEPARTMENT OF MICROBIOLOGY ई.एस.आई.सी. मेडिकल महाविद्यालय एवं अस्पताल ESIC MEDICAL COLLEGE & HOSPITAL पि.जी.आई.आर. अलवर (राज.)-301030 M.I.A., ALWAR (RAJ.)-301030

Date of dispatch: 30/11/23

Member ID: M 1 4 8 9

SM1	SM2	SM3	CU1	CU2	CU3	SE1	SE2	SE3	Marks obtained
3	4	4	17	17	13	2	2	2	Maximum marks

TOTAL MARKS:

Evaluator name / Signature_____ **Date**_____

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OCTOBER 2023 **115th EQAS – SEROLOGY** **MEMBER ID:** M 1 4 8 9

Last date for receiving reports: NOVEMBER 30, 2023

Instructions:

1. Each individual serum sample to be reconstituted with **0.6ml** of sterile distilled water / deionized water.
2. Please perform required tests and send your results as per the attached tabular format.
3. You are instructed to fill up each column; as this information will be used for assessing your performance.
4. **Do not use tick marks and encircle wherever necessary**
5. Please perform **C-reactive protein (CRP) and Antistreptolysin O (ASO)** assay on the three serum specimens provided as indicated overleaf.
6. **C-reactive protein (CRP) levels should be expressed only in mg/L and Antistreptolysin O (ASO) in IU/mL; if other units are used 25% marks will be deducted.**
7. Separate sheets are provided for entering the results.
8. **Evaluation format for Serology:**
   a. **Qualitative (2 marks for each serum)**
      - Result have to be given as Positive or Negative only
      - Correct interpretation: Full marks (2 marks)
      - Wrong Interpretation: Zero mark (0 mark)
   b. **Quantitative (2 marks for each serum)**

      We will assess by robust analysis (as per **ISO: 13528:2015**) using participants results for different peer groups (Nephelometry, Turbidimetry, etc.,) and marking format as based on Z & Z' score, which is as given below.

Z & Z' score system for Values

Z & Z' Score	Category	Marks for values
≤ 2	Correct	2 marks
>2 but < 3	Partially correct	1 mark
≥ 3	Incorrect	0 mark

IMPORTANT!! All sera are potentially infectious. Adequate universal precautions to be used while handling the specimens

C-reactive protein (CRP)

SE1: Serum specimen from 45-years male with fever of 7 days duration

S.no	Subject	C-reactive protein (CRP) : SE1		Result mg/L
1	**Method**	Qualitative	Latex agglutination	(Positive) / Negative
		Semi Quantitative	Latex agglutination	12 mg/L
		Quantitative	Nephelometry	mg/L
			Turbidimetry	mg/L
			ELISA	mg/L
			CLIA	mg/L
			Others:	mg/L
2	**Your Normal Range**			
3	**Name of the kit used**	SEROMAX CRP		
4	**Manufacturer (Name, City, Country)**	AVECON HEALTHCARE PVT. LTD. SAHA, HARYANA (INDIA)		
5	**Lot No.**	S03 2217		
6	**Expiry date of kit**	01/2024		
7	**Automation used**	Yes / (No)		
8	**If yes, give details of Automation used**	Model: — Manufacturer: — City: — Country: —		

Note: If you are values are in mg/dl, please converted to mg/L

IMPORTANT!! All sera are potentially infectious. Adequate universal precautions to be used while handling the specimens

C-reactive protein (CRP)

SE2: Serum specimen from 10-years female with acute febrile illness.

S.no	Subject	C-reactive protein (CRP) : SE2		Result mg/L
1	**Method**	Qualitative	Latex agglutination	Positive / (Negative)
		Semi Quantitative	Latex agglutination	mg/L
		Quantitative	Nephelometry	mg/L
			Turbidimetry	mg/L
			ELISA	mg/L
			CLIA	mg/L
			Others:	mg/L
2	**Your Normal Range**			
3	**Name of the kit used**	SEROMAX CRP		
4	**Manufacturer (Name, City, Country)**	AVECON HEALTHCARE PVT. LTD. SAHA, HARYANA (INDIA)		
5	**Lot No.**	S032217		
6	**Expiry date of kit**	01/2024		
7	**Automation used**	Yes / (No)		
8	**If yes, give details of Automation used**	Model: — Manufacturer: — City: —	Country: —	

Note: If you are values are in mg/dl, please converted to mg/L

IMPORTANT!! All sera are potentially infectious. Adequate universal precautions to be used while handling the specimens

Antistreptolysin O (ASO)

SE3: Serum specimen from 8-year old child with fever and sore throat of 7 days duration.

S.no	Subject	Antistreptolysin O (ASO) : SE3		Result IU/mL
1	**Method**	Qualitative	Latex agglutination	Positive / (Negative)
		Semi Quantitative	Latex agglutination	IU/mL
		Quantitative	Nephelometry	IU/mL
			Turbidimetry	IU/mL
			ELISA	IU/mL
			CLIA	IU/mL
			Others:	IU/mL
2	**Your Normal Range**			
3	**Name of the kit used**	Recombigen ASO		
4	**Manufacturer (Name, City, Country)**	Recombigen Laboratories, New delhi, India		
5	**Lot No.**	ASOL0523:100		
6	**Expiry date of kit**	06/2025		
7	**Automation used**	Yes (No)		
8	**If yes, give details of Automation used**	Model: – Manufacturer: – City: – Country: –		

Laboratory / Institution Name: ESIC Medical College & Hospital Alwar (Rajasthan) **Date of Dispatch:** 30-11-23

Authorized signatory:

Signature:

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