

BV (6/CBCS) MLT/MDT VE 1

2024

**MEDICAL LABORATORY TECHNICIAN/
MEDICAL LAB AND MOLECULAR
DIAGNOSTIC TECHNOLOGY**

Job Role : Histotechnician

Paper : MLT-VE-6016/MDT-VE-6016

(Microbiology—V)

Full Marks : 60

Time : 3 hours

**The figures in the margin indicate full marks
for the questions**

1. Fill in the blanks :

1×7=7

(a) Swarming of *Proteus* can be inhibited by using _____ in culture medium.

agar with 4% corn
Pseudomonas aeruginosa

(b) Blue pus is seen in infection with _____.

(c) _____ is a acid fast bacterium other than *Mycobacterium* species.

(d) The whooping cough caused by *Bordetella pertussis* is known as _____.

Nocardia

24A/656

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(Turn Over)

20 August 2024 1:37 pm

Streplococcus
viridans

Fluorescein

(e) _____ is a normal microflora of upper respiratory tract.

(f) _____ fluorescent dye is used in fluorescent microscopy.

(g) Dark-field microscopy utilizes a different type of diaphragm which is known as _____.

Dark field condenser

2. Answer the following questions : 2×4=8

(a) Name two gram-negative bacteria and diseases caused by them.

(b) What is the principle of reverse transcriptase PCR?

(c) Mention different stages of meningococcal infection.

incubation
Prodromal
Acute
Recovery

(d) Which specimens are used to diagnose pneumococci infection?

blood
sputum
CSF

3. Answer any three of the following questions :

5×3=15

(a) Give a comparison of UTI caused by *E. coli* and *Proteus*.

dysuria
kidney stone

(b) How will you demonstrate *M. tuberculosis* in sputum?

Tue 11/08/24
Footleug spots
on some agar plate
they distinguish
5 warning
that don't merge

- (c) Write a note on 'Dienes Phenomenon'.
- (d) Compare Gonorrhoea infection in male and female.
- (e) Write down the morphology and growth requirements of pneumococci.

typ, lancet spot
0.5 - 1.25 um
encapsulated polysaccharide
thick peptidoglycan
PH 7.4 Non motile
facultative anaerobic
emulsify

4. Answer the following questions : 10×3=30

- (a) What do you mean by *in vitro* replication process? State the role of Taq polymerase in molecular cloning. Write a note on the principle, methodology and applications of PCR. 1+1+2+4+2=10

Or

Draw a labelled diagram of a compound microscope and give a brief description of various components of a microscope. 10

- (b) Write down the principles of bright-field and dark-field microscopy. Give a detailed comparison of bright-field and dark-field microscopy. 3+7=10

Or

What are various pneumonia causing organisms? Write in detail about one pneumonia causing organism. 2+8=10

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(4)

(c) Write briefly about morphology, cultural characteristics, pathogenesis and lab diagnosis of meningococci.

10

Or

What is the mode of infection of *M. tuberculosis*? What do you mean by latent TB infection? Give a brief description of primary complex in *M. tuberculosis*.
