1. Hospital infection control	10
Sterilization, Disinfection, Environmental surveillance, Needle stick injuries- PEP for HIV, Hepatitis B, Blood spillage, Transmission based precautions	

Q 19

(3+3+2+2 =10 marks)

A 25 year old boy is brought to casualty following RTA. He has a bleeding wound on the right foot, which needs suturing.

1. What are the precautions to be taken while dealing with the patient?
2. What are the 5 moments of hand hygiene
3. Where should the soiled guaze pads be disposed into?
4. Name 2 organisms commonly causing hospital acquired wound infection.

1. ~ Hand hygiene
~ wear appropriate PPE : gloves,mask,etc
~clean the wound site
~biomedical waste management
Biodegradable : yellow
Plastic : red
Sharp : white
~ tetanus prophylaxis

2. Five Moments for Hand Hygiene'; which include:
1. Before touching a patient
2. Before clean/aseptic procedures
3. After body fluid exposure/risk
4. After touching a patient
5. After touching patient's surroundings.

3.yellow bin

4. Staphylococcus aureus
Pseudomonas
Acinetobacter

Q 20

(2+1+4+2+1=10 marks)

A 14 year old un immunised boy is brought to casualty with shortness of breath. He has bull neck and on examination his tonsils show a dirty white membrane patch.

1. What is the most probable diagnosis? Enumerate 2 important complications
2. Mention the precaution to be taken in addition to standard precautions
3. Briefly describe the infection control measures you would adopt as Health care person
4. Specify the drugs of choice in the infected patients and in carriers
5. Name TWO other diseases which require same additional precautions

1. Diphtheria
~polyneuropathy
~myocarditis
~extension of pseudomembrane into larynx leads to asphyxia.

2. Droplet precautions

3.~ hand hygiene
~PPE : surgical mask/N95 mask when aerosol generating procedures are performed .
~ respiratory hygiene- cough etiquette.
- mouth & nose should be covered with a tissue when coughing or sneezing
- if no tissue available, coughing or sneezing can be done into the inner elbow turning away from other patients.
~ patient placement- single isolation room or cohorting.
~ transfer of patient : shoud be limited
- patient should wear surgical mask & follow respiratory hygiene,cough etiquette.
- he should also wear gloves, gown, protective eye wear.
~ disinfection of room frequently.

4. Infected patient:
Antidiphtheritic serum or ADS + penicillin / erythromycin

-Carrier : erythromycin

5. Covid -19
Rubella
Influenza virus infection

Q 21

(2+2+3+1+2=10 marks)

A 65 year old female admitted in the post operative ward developed wound infection with purulent discharge. In view of the ongoing MRSA outbreak, the patient is started on Vancomycin IV infusion

1. What types of precautions need to be adopted in patients with MRSA infection
2. Enumerate Two common sites used for screening of Health Care workers for MRSA
3. Briefly describe the infection control measures you would adopt as Health care person
4. Name two other organisms causing Health care associated infections
5. What is meant by De escalation of antibiotics

1. Standard precautions, contact precautions
2.anterior nares , axilla
3. Hand hygiene
~ PPE - gloves, gown,
surgical mask & protective eye wear (optional)
~single use patient dedicated equipments (bp cuff, thermometer,stethoscope)
~patient placement ; single isolation room with a bathroom facility or cohorting.
~ transfer of patient ; limited only to medically necessary purposes.
During transfer; HCW wear PPE , cover infected area o patient.
~ disinfection of room: frequently cleaned & disinfected adequately .
4. Staphylococcus aureus
Enterococcus faecium
5.

De-escalation Approach

This approach is chosen if local antimicrobial resistance pattern is expected to be high and/or patient is critically ill. Empirical therapy is started with broad spectrum antibiotics (e.g. meropenem for *E.coli*). If AST report shows susceptible, it can be de-escalated to a narrow spectrum antibiotic subsequently (e.g. ceftriaxone for *E.coli)*.

Q 22

(1+3+2+2+2= 10 marks)

A 28-year-old resident reported to HICC with complaints of needle stick injury on left thumb one hour back. Source sample was reactive for HIV antibodies. The resident had received complete course of Hepatitis B vaccine 10 years back and his Anti Hbs titre then was 550 mIU/ml.

1. What are the first aid measures to be adopted?

2. How should sharps be ideally disposed off? Give a note on prevention of sharp injury in health care setting

3. Should PEP for HIV and Hepatitis B be given for this resident? Give reason

4. What is the golden hour for PEP of HIV? How long can it be delayed?

5. What are the drugs used for PEP for HIV and how long should it be given?

1.

Table 25.2: First Aid: Management of exposed site.

Do's	Don'ts
Earlier the first aid, lesser is the chance of transmission of BBVs • For splash injury: Irrigate thoroughly the site (e.g. eyes or mouth or other exposed area) vigorously with water at least for 5 minutes • Spit fluid out immediately if gone into mouth and rinse the mouth several times • If wearing contact lenses, leave them in place while irrigating. Once the eye is cleaned, remove the contact lens and clean them in a normal manner	• Do not panic • Do not place the pricked finger into the mouth reflexively • Do not squeeze blood from wound • Do not use antiseptics and detergents

2. Dispose into white/ translucent puncture proof container:

Autoclaving/dry heat sterilization followed by:

- Shredding or mutilation or encapsulation in metal container or cement concrete or
- Sanitary landfill or
- Designated concrete waste sharp pit

Precautions During Handling Needles

The following measures should be taken during handling needles to prevent occupational exposures:

- **Standard precautions** must be followed such as hand hygiene and appropriate use of personal protective equipment (PPE) (e.g. gloves, gowns, masks, and goggles) while handling blood or body fluids
- **Work surfaces** must be disinfected with 0.5% sodium hypochlorite solution
- **HBV vaccination:** Health care workers (HCWs) must be immunized against HBV and protective titer must be documented
- **Spill management:** Spillage of blood and other body fluids must be promptly cleaned and surface disinfected with 0.5% sodium hypochlorite solution
- **Disposable needles** should be used. Needles should never be reused
- **Never recap needles:** If unavoidable, single hand-scoop technique may be followed (Figs 25.1A and B)
- **Disposal after use:** Needles must be disposed into the sharp box immediately after use. Needles/sharps should not be left on trolleys and bedside tables
- **Engineering control measures:** Various devices are specially designed with safety features to prevent NSI such as retractable lancets, safety lock syringe with a protective sheath and needleless IV systems.

3. Since source is HIV positive

PEP is recommended
Duration of PEP: 28 days
Primary TL+LR regimen*: Regimen comprises of fixed dose combination of five tablets to be taken every day.

- Tenofovir (300 mg) + Lamivudine (300 mg), one tablet once daily and
- Lopinavir (200 mg) + Ritonavir (50 mg) two tablets twice daily

Alternative TLE regimen: Fixed dose combination of tenofovir (300 mg)+ Lamivudine (300 mg) + Efavirenz (600 mg), one tablet once daily

~ since anti-HBs antibody titer is protective (>10 mIU/ml) no PEP for hepatitis B is required.

4. First 2 hr after exposure.
Maximum -72 hrs
5.Tenofovir,lamivudine,lopinavir, ritonavir
Duration ; 28 days

Q 23

(2+2+1+3+2= 10 marks)

A 41-year-old surgeon reported to HICC with complaints of surgical blade injury on his left thumb. Source is a known Hepatitis B patient and HIV and HCV negative. The Surgeon had completed Hepatitis B vaccination 2 years back.

1. What are the immediate measures to be taken ?
2. Should PEP for HIV be given for this surgeon? Give reason.
3. What is the protective titre of Hepatitis B following complete immunization?
4. ~~Who are non responders and how should they be managed on exposure~~
5. How are surgical instruments sterilised?

1.

Table 25.2: First Aid: Management of exposed site.

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~report to designated nodal centre immediately

2.since HIV status of patient is negative, no PEP is required according to NACO guidelines

3. >/=10 mIU/mL

4.

- **Non/low responders:** About 5–10% of individuals do not show seroconversion even after two series of vaccination; i.e., six doses of vaccination. They are called as non-responders. They do not need any further vaccination

~ HBIG ; 2 doses 1 month apart

5.moisture & heat resistant: autoclave
Moisture & heat sensitive: hot air oven, ETO steriliser, plasma steriliser