Directorate Nursing Services' Standards

INTRAVENOUS THERAPY COURSE

FOR

Qualified Nurses

PURPOSE

This course is designed for nurses and midwives who administer IV medications. The course combines lectures, home study, and practice sessions that will enable nurses to develop safe IV medication skills. Topics covered in this course include legal issues for Maltese nurses and midwives, infection control procedures related to IV medication administration, drug compatibilities, and common medications. These will include a wide range of adult teaching/learning strategies including:

-Seminar discussion.
-Self directed study.
-Pre-course self assessment materials.
-Preparatory reading.
-Practical session.

COURSE AIMS

1. To achieve a standard of Intravenous Therapy consistent with the Maltese Nursing and Midwifery Council Policies.

2. To enable nurses and midwives to be competent in IV medication administration and knowledge of the consequences of their practice.

3. To facilitate the process for the practical competence to be supported by knowledge in terms of drugs, sites, equipment, sources of information, and infection control with safe IV administration practices.

4. To encourage nurses and midwives to be committed to imparting this new knowledge to other staff members in their own departments.

5. To enable nurses and midwives to demonstrate ability in calculating drug dosages.

6. To educate nurses and midwives of their professional and legal implications of their role in IV medication administration.

LEARNING OUTCOMES

At the end of this course the participant will be able to:

1. Correctly calculate medication dosages and IV rates for a series of given scenarios.

2. State the Maltese Nursing and Midwifery Council Policy as it relates to IV medication as a nursing role.

3. Demonstrate proper techniques in verifying ordered medications and IV fluid prior to administration (using the five Rights).

4. Demonstrate proper infection control procedures in IV therapy.

5. State three common complications of IV medication therapy.

6. State indications for use, side effects, contraindications, and incompatibilities of at least ten common medications used in their place of work.

7. Demonstrate proper technique in writing and administering medications for a series of given scenarios.

8. State procedure for reporting medication errors.

9. Demonstrate ability to use both syringe pumps and volumetric pumps.

10. Demonstrate proper technique for administering medications within the clinical setting.

ASSESSMENT TECHNIQUE

Participants in this course will be evaluated by written testing and skill performance in clinical settings. Certification will be awarded when the following criteria are met:

1. A minimum of 80% on one written test. (MCQs + Caculations)
2. A 75% in the clinical assessments. (Pumps + IV bolus injections)

The evaluation tests are as follows:

1. Written test
2. Practical test (should be completed within 4 weeks after the written test).

Students failing the written test will be required to retake such test with the next group of students pursuing the IV course. Students failing the practical test will negotiate with their respective assessors about the date and time when test is to be repeated.

NUMBER OF HOURS

The educational process for this course will be as follows:

Pre-course assessment	2 Hour.
Reading time	4 Hours.
Completion of drug examples	2 Hours.
Practical Assessments	6 Hours
Attendance at two day course	12 Hours.
Self study	8 Hours.
TOTAL	**34 Hours**

The amount of time allocated is an estimate only and it is recognized that some students may take more or less time in some of the areas. Students should spend the eight hours self study to complete the work allocated in order to gain maximum benefit from the course content.

INTRAVENOUS THERAPY TWO DAY PROGRAMME

DAY 1

TITLE	LECTURER
Introduction to course Awareness of IV Therapy	Mr. V. Saliba
Fundamentals of IV Therapy.	Mr. V. Saliba
Drug calculations	Mr. J. Trapani

DAY 2

TITLE	LECTURER
Cross Infection in Association with I.V. Therapy. Side effects of I.V. Therapy	Mr. P. Pace
Practical Demonstrations	Mr. V. Saliba / Mr. J. Trapani
Pharmacokinetics	Mr. M. Zammit
Legal, Professional, and Ethical aspects of I.V. Therapy	Ms. A. Attard
Written Exam	

Students are to negotiate with their assessors the time and place for:

1. **Practical session on IV Pumps and IV Bolus Injections**
2. **Practical test**.

PRE COURSE STUDENT WORK

Students need to submit the following work before their IVI certificate is endorsed thus render it valid.

1. **The pre course Theoretical Self Assessment**. (See page 7)

2. **Drug Calculations Example sheet**. (See page 9)

SUGGESTED READING

(More articles can be found on the DNS website in the IVI page section)

The following reading list is intended for students undergoing the IV Therapy course:

LEGAL AND PROFESSIONAL TEXTS

DHSS Curator. *The Extended Role of the Clinical Nurse - Legal implications and training requirements*. HC (77) 22

DHSS Curator. *Addition of Drugs to Intravenous Fluids*. HC (76) 9

RCN. Drug Administration - *A Nursing Responsibility*. RCN London 1980

RCN. Continuing Education - *Legal and Professional aspects of Intravenous Therapy*. Nursing Standard. 1996. Vol. 11, No. 3, pp 41 - 46.

Thompson Melia K. *Nursing Ethics*. London Churchill Livingstone 1983

Young A. *Legal Problems in Nursing Practice*. London Harper Rowe 1983

PRINCIPLES OF IV THERAPY

La Rocca Otto. *Pocket Guide to Intravenous Therapy*. The CV Mosby Co. 1989

Plumer A. *Principles and Practice of Intravenous Therapy* Lippincott Williams and Wilkins 1996. ISBN: 0397553110.

ROLE OF THE NURSE

Coco C D. *Intravenous Therapy. A Hand Book for Practice*. St. Louis USA Cv Mosby Co. 1980

Sartain B. *Nursing Considerations in Intravenous Therapy*. British Journal of Intravenous Therapy. March 1983

FLUID AND ELECTROLYTE IMBALANCE AND MATHEMATICS

Jefferies P. *Mathematics in Nursing*. Bailliere Tindall. London. 1983

Metheny N.M. *Nurses Handbook of Fluid Balance* 3rd Edition. Philadelphia USA Lippincott 1979

INTRAVENOUS DRUG ADMINISTRATION AND MEDICATIONS

BMA and THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN. British National Formulary. 1990

Gahart B. L. *Intravenous Medications*. 8th Edition. Mosby Year Book Boston, 1992

Grayson J. *Incompatibilities of Multiple Additives to Intravenous Infusion* Fluids. The Pharmaceutical Journal. January 1971. 23; 64-71

Josephson, Gombert, M., Sierra, M., Karanfil, & Tansino, G. *The relationship between intravenous fluid contamination and the frequency of tubing replacement*. Infection Control, 1985. 6 (9), 367 - 370.

Parish P. *Benefits to Risks*. British Journal of Intravenous Therapy 1982. 3,11, 10-19

Pickstone M. A pocket book for safer IV therapy. 1999. ISBN:094872323

GENERAL

Dougherty L. & Lamb J. (Editors). *Intravenous Therapy in Nursing Practice* Churchill Livingstone. 1999. ISBN: 0443059837.

Springhouse, Lippincott Williams & Wilkins. *IV Therapy Made Incredibly Easy* Springhouse Publishing, 2002. ISBN: 1582551650

R. Shulman (Editor), S. Drayan (Editor), M. Harries (Editor), D. Hoare (Editor), B. Badcott (Editor). *Injectable Drug Administration Guide,* Blackwell Science (UK); ISBN: 0632050276

Spencer R. T. et al. *Clinical Pharmacology and Nursing Management*. 3rd Edition. J B Lippincott Co. London. 1989.

Standards of Care, ITU, IV Drug Administration Procedure. July 1996.

St. Lukes Hospital, G'Mangia. May '95. Policy for giving of intravenous medication by qualified nurses.

Terry J., Ed. *Intravenous Therapy: Clinical principles and practice*. London: W.B. Saunders Company. 1995

COURSE THEORETICAL SELF ASSESSMENT FOR THE PREPARATION OF NURSES FOR I.V. DRUG ADMINISTRATION AND ASSOCIATED I.V. THERAPY.

COURSE SELF ASSESSMENT OF THEORY

<u>This assessment is designed to test your knowledge of both intravenous therapy and aspects of intravenous drug administration during the course.</u>

Before seeking this new role you should be able to answer all the questions fully and competently. If you find difficulty with some of the questions, you may need to seek more information. This may require further learning and reading on your part. Should you have any difficulty in obtaining the information you need, please consult your manager.

Please answer the following:
(All Answers should be submitted to the course co-ordinator, hand written or typed, on a separate booklet after students have done and were successful in the practical assessments)

SECTION A

1) List the potential sites for organism entry into infusion systems.

2) Identify the key nursing measures that will promote the maintenance of asepsis in IV therapy (please refer to the infection control policy).

3) Using the administration systems available list factors which necessitate the nurse regularly checking infusion rate.

4a) List criteria used in selecting a peripheral line as the means for IV therapy.

4b) List criteria used in selecting a central line as the means for IV therapy.

5) List the key factors that help you to decide which IV set will be used for the administration of fluids.

6) List the specific observations you would make to identify the development of complications if the patient were receiving IV therapy into a lower extremity vein.

SECTION B : Law, ethics, and professional considerations

1) Explain the term ‘Vicarious liability

2) Outline the indemnity insurance of your professional organization/union.

3) State the procedure you would follow having inadvertently administered an intravenous antibiotic to the WRONG patient.

SECTION C : Intravenous drug administration.

1a) List the advantages of administering a drug via the IV route.

1b) List the disadvantages of administering a drug via the IV route.

2) Define and outline the prevention and the treatment of the following:
   a) Incompatibility
   b) Toxicity
   c) Anaphylactic shock
   d) Anaphylactic reactions
   e) Speed shock

3) List the information you will require before IV drug administration in relation to:
   a) The patient
   b) The drug
   c) Hospital Policies
   d) Safety Policies

4) What precautions are taken to diminish the potential hazards of vascular irritation?

5) What factors can affect the stability of drugs prepared for IV infusion?

6) What three drugs are most commonly used in your area? What are the side effects and fluid compatibility of these drugs?

SECTION D : Anatomy and physiology.

1) Draw a graph to illustrate time versus plasma drug levels.

Resources to use to answer this questionnaire include:

The Drug Information Centre (In Patients Pharmacy St. Luke's Hospital).
BNF
Articles available at the Institute of Health Care.

PLEASE SUBMIT THE COMPLETED WORK TO THE COURSE CO-ORDINATOR.

FANER HOUSE, Floor 2, Natioanal Road, Blata L-Bajda – Tel 21223336
(Please phone before you go with your self assessment)

Drug Calculation Example Worksheet.

This section of the worksheet contains information relating to SI units and worked examples of the type of problem likely to be encountered. These examples should be worked through to ensure that you understand how answers have been arrived at. At the end of the worksheet are some questions relating to drug calculation. These questions are intended to ensure that you have understood the proceeding information.

SECTION A: This section should be brought to the assessment as a source of information.

DOSE CALCULATIONS

WEIGHT/MASS

Body weight is usually measured in kilograms (kg). Drug dosage is generally expressed in grams (g); milligrams (mg); micrograms (mcg) or nanograms (ng). These units of mass are related in the following way:

1Kg	=	1000g
1g	=	1000mg
1mg	=	1000mcg
1mcg	=	1000ng

It is sometimes necessary to convert from one unit to another. To convert kg to g; g to mg; mg to mcg or mcg to ng we multiply by 1000.

To convert ng to mcg, mcg to mg; mg to g or g to kg we divide by 1000.

For Example:

What is 0.0625mg digoxin expressed in micrograms?

To convert mg to mcg multiply by 1000.
Therefore dose in micrograms = 0.0625 x 1000 = 62.5mcg.

Often drug dosages are expressed as unit mass of drug per unit mass of patient, for example 0.5mg/kg four times daily. Note that this may also be expressed as 2mg/kg/day in four divided doses.

For Example:

A patient weighs 60kg and is prescribed gentamycin 2mg per kg per day, to be administrated every eight hours. What is the size, in milligrams, of each dose?

Daily dose gentamycin = 2 x 60mg
= 120mg
Every eight hours = 3 times daily (24 Hrs divided by eight)
Therefore each dose = $\frac{120}{3}$ mg

= 40mg

VOLUME

Fluid volumes are generally expressed as litres (L) or millilitres (ml).

1L = 1000ml

To convert litres to millilitres we multiply by 1000.
To convert millilitres to litres we divide by 1000.

For Example:

How many millilitres are there in 0.5 litres?
To convert litres to mls we multiply by 1000.
Therefore 0.5 litres = 0.5 x 1000mls
= 500ml

CONCENTRATION

There are several methods of expressing the concentration of a drug in a given fluid. The following methods are those likely to be encountered.

(A) Weight in volume

The concentration of a drug in solution may be expressed in terms of mass/weight in certain volumes. For example mg/ml; mg/l or g/l.

For Example:

A patient is prescribed 60mg of gentamycin. The vial contains 80mg in 2ml. How many mls are required to deliver the prescribed dose?

The traditional way to work out such a problem is as follows:

80mg = 2ml
Therefore 1mg = $\frac{2ml}{80}$ (Dividing both sides of the equation by 80)
Therefore 60mg = $\frac{2}{80}$ x 60ml (Multiply both sides by 60)
= **1.5ml**

Alternatively we can utilise the following equation:

$$\text{Volume needed} = \frac{\text{what you want}}{\text{what you've got}} \times \text{volume it's in}$$

In this case what you want = 60mg
what you've got = 80mg
volume it's in = 2ml

Therefore, volume needed $= \frac{60}{80} \times 2\text{ml}$

$= \mathbf{1.5ml}$

(B) Percentage

Drug concentrations may also be expressed as percentage w/v. This is the number of grams of drug dissolved in 100ml solution. Thus a 1% solution contains 1g in 100ml and 0.9% sodium chloride contains 0.9g in 100ml.

For Example:

A patient is prescribed 20g of dextrose. How many mls of a 50% dextrose solution is required?

50% dextrose means that we have 50g in 100ml
i.e. 50g = 100ml
Dividing both sides by 50, 1g = 2ml
and multiplying by 20, 20g = 40ml

Using the formula:

$$\text{volume needed} = \frac{\text{what you want}}{\text{what you've got}} \times \text{volume it's in}$$

what you want = 20g
what you've got = 50g
volume it's in = 100ml

Therefore, volume needed $= \frac{20}{50} \times 100\text{ml}$

$= \mathbf{40ml}$

(C) Parts per 'n'

A few drugs have their concentrations expressed in this way. Adrenaline injection is an example. It is available in strengths of 1 in 1000 and 1 in 10,000. This method uses simple ratios to express concentrations.

For Example:

1:10 means there is 1g in 10ml
1:100 means there is 1g in 100ml
1:1000 means there is 1g in 1000ml
and, 1: 10,000 means there is 1g in 10,000ml

(D) Moles and millimoles

The strengths of intravenous infusion fluids and the concentrations of substances in the body fluids are often expressed in millimoles per litre (mmol/l). For the purposes of most calculations a mole or millimole can be regarded as an amount, although it actually refers to a certain number of atoms or molecules. A mole of any compound always contains the same number of molecules but moles of different compounds have different masses/weights. A millimole is one thousandth of a mole.

For Example:

A patient is to receive 15mmol of potassium chloride by infusion. The infusion fluid contains 40mmol potassium chloride per litre. What volume is required?

40mmol = 1000ml (1 litre = 1000ml)

Dividing by 40, 1mmol = $\frac{1000ml}{40}$

multiplying by 15 15mmol = $\frac{1000}{40}$ x 15ml

= **375ml**

Using the formula:

volume needed = $\frac{\text{what you want}}{\text{what you've got}}$ x volume it's in

what you want = 15mmol
what you've got = 40mmol
volume it's in = 1000ml
Therefore volume needed = $\frac{15}{40}$ x 1000ml

= **375ml**

FLOW RATE CALCULATIONS

When a gravity flow IV infusion system is being used the amount of fluid delivered to the patient is determined by the number of drops per minute. The number of drops per minute required to deliver a certain amount of fluid in a given time can be calculated using the formula:

$$\text{Drops per minute} = \frac{\text{prescribed volume (ml)} \times \text{drops per ml}}{\text{prescribed time (hrs)} \times 60}$$

Where a drug dose is prescribed in mass/weight per minute the following formula can be used:

$$\text{Drops per minute} = \frac{\text{amount drug per minute}}{\text{amount drug in infusion}} \times \text{volume} \times \text{drops per ml}$$

Administration sets for clear fluid deliver about 20 drops per ml, i.e. if 20 drops are allowed to be issued they will have a total of 1 millilitre. This is only an estimation, and in reality the number of drops giving a volume of one millilitre will vary from one fluid to another. It is however not practical to use a different value for each type of fluid used. The number of drops constituting one millilitre may also be altered by the addition of drug (s) to an infusion fluid. The figure used for calculations involving the use of a paediatric administration set is 60 drops to the millilitre. The figure used for the administration of blood rather than clear fluids is 15 drops to the millilitre.

For Example:

800mg of dopamine is added to a 500ml bag of dextrose 5%. What rate should be set for a 70kg man prescribed 10mcg per kilogram per minute, using a microdrop (paediatric) set?

a) Using the formula above

$$\text{Drops per minute} = \frac{\text{amount per minute}}{\text{amount in infusion}} \times \text{volume} \times \text{drops per ml}$$

The amount in the infusion = 800mg
The amount per minute = 10 x 70kg
= 700mcg
The volume = 500ml (ie the volume of the infusion)
The drops per minute = 60 (as we are using a microdrip set)

The first problem to note is that numerator and denominator are at the moment in different units. We must therefore convert one of them to match the other. In order to avoid decimal points which are too easily 'missed' it is better to convert to 800mg to micrograms.

Therefore the amount in the infusion = 800 x 1000mcg
= 800,000mcg

We can now enter these figures into each equation:

$$\text{Drops per minute} = \frac{700}{800{,}000} \times 500 \times 60$$

$$= \textbf{26.25 drops per minute}$$

Obviously it is not practical to set a rate of 26.25 drops per minute, we therefore round this number up to 27 drops per minute. This is in conflict with normal procedure in that if number is below 0.5 we would round down and if number is above 0.5 we would round up. This is the usually accepted conversion for these calculations however. You may however find that some people disagree!

b) We will now work out the problem without resorting to the formula given.

We want to administer the solution at such a rate that 700mcg of dopamine are delivered to the patient in one minute. If we know what volume of solution contains 700mcg of dopamine and we know that one millilitre is delivered by 60 drops, we can therefore work out the number of drops required to deliver 700mcg of dopamine and this will be the number of drops to be delivered in one minute.

We have 800,000mcg of dopamine in 500ml
ie 800,000mcg = 500ml

(Dividing both sides by 800,000) $1\text{mcg} = \frac{500}{800{,}000}\ \text{ml}$

(Multiplying both sides by 700) $700\text{mcg} = \frac{500 \times 700}{800{,}000}\ \text{ml}$

The number on the right hand side is the number of mls required to deliver the 700mcg of dopamine, ie the number of mls required to be administered in one minute.

We know that 1ml = 60 drops

If we multiply both sides of this equation by our calculated figure:

$$\frac{500 \times 700 \times 1}{800{,}000}\ \text{ml} = \frac{500 \times 700}{800{,}000} \times 60 \text{ drops}$$

Therefore $700\text{mcg} = \frac{500 \times 700}{800{,}000} \times 60 \text{ drops}$

$$= \textbf{26.25 drops}$$

Since we need to administer 700mcg in one minute we therefore need to administer 26.25 drops in one minute, or rounding up 27 drops in one minute.

FURTHER EXAMPLES

It is recommended that you attempt these questions during the course. If you experience any difficulties, assistance can be sought from the course tutors.

(1) What is 0.125 milligrams of digoxin expressed in micrograms?

(2) What is 0.4 milligrams of atropine expressed in micrograms?

(3) Taking that the drop factor of a particular IVI set is 20, what rate in drops per minute is required if 500ml of 5% Dextrose is prescribed over a 6 hour period?

(4) A patient is prescribed 30mg of frusemide. The vial contains 20mg per millilitre. What volume is required?

(5) A patient is prescribed 120mg of lignocaine. How many mls are required if a 2% lignocaine solution is used?

(6) A patient is prescribed 500mcg of adrenaline. How many mls are required if a 1 in 1000 solution is used?

(7) A patient requires 1000 IU of heparin per hour via an infusion pump. If the dilution prepared is 10,000 IU in a total of 50ml, calculate the dose in mls per hour.

ANSWERS

(1) 125 micrograms. (2) 400 micrograms. (3) 28 drops per minute.
(4) 1.5 ml. (5) 6 ml. (6) 0.5ml. (7) 5 ml.

Assessment Checklist for I.V. Bolus Drugs

PASS MARK: 75% **Date:_____** **Mark: _____ Pass / Fail**

Student's Name: _____ ID No.: _____ Place of work: _____

Assessor's Name: _____ Assessor's Signature: _____

1: Hand washing / Hand rub as required. □ **5 marks**

2: Checked patient's name with wrist tag and treatment chart. □ **5 marks [F]**

3: Enquired for any allergies associated with drug. □ **5 marks [F]**

4: Checked drug with treatment chart. □ **2 marks [F]**

(i) Check the dose prepared with treatment chart □ **2 marks [F]**
(ii) Counter check of drug name and dose prepared with treatment chart □ **2 marks**
(iii) Check the drug/s and disposal equipment for expiry dates and signs of contamination □ **2 marks [F]**

5: Counter checked patient's identity with treatment chart. □ **5 marks**

6: Demonstrates an awareness of the importance of knowledge of drugs in/compatibility □ **5 marks**

7: States at least one side effect from the particular drug to the given scenario whereby student is allowed to checked with BNF/Literature/Pharmacy. □ **5 marks**

8: Medication mixed accurately: reconstitution: _____ ; volume _____. □ **5 marks [F]**

9: Aseptic technique followed while preparing the drug. □ **5 marks [F]**

10: Appropriate injection port used and correctly disinfected according to protocol. □ **5 marks**

11: I.V. cannula checked for patency and any signs of phlebitis, infiltrations, and/or swelling around the cannula. □ **5 marks**

12: Communication.

(i)	Introduced self	-	□	1 marks
(ii)	Explained procedure	-	□	2 marks
(iii)	Provided clear instructions	-	□	2 marks
(iv)	Made use of non-verbals	-	□	1 mark

13: Correct dose administered. □ **5 marks [F]**

14: Drug given over correct time frame. □ **5 marks [F]**

15: The cannula is flushed after administration of the IV drug. □ **5 marks**

16: Correctly documents the drug given. □ **5 marks [F]**
(i) Counter signature requested for documentation □ **5 marks**

17: Indicates the need to monitor the patient for the drug's effect / side effect / reaction according to the given scenario. □ **5 marks**

18: All injecting materials disposed of correctly according to infection control policy.

(i)	In the sharps container:	-	□	3 marks
(ii)	In the domestic bag:	-	□	3 marks

[F] indicates a FAIL from whole test if criterion not fulfilled.

Assessment Checklist for I.V. Pumps

PASS MARK: 75% **Date:_____** **Mark: _____ Pass / Fail**

Student's Name: _____ ID No.: _____ Place of work: _____

Assessor's Name: _____ Assessor's Signature: _____

1: Hand washing / Hand rub as required. □ **5 marks**

2: Checked patient's name with wrist tag and treatment chart. □ **5 marks [F]**

3: Enquired for any allergies associated with drug. □ **5 marks [F]**

4: Checked drug with treatment chart. □ **2 marks [F]**

(i) Check the dose prepared with treatment chart □ **2 marks [F]**
(ii) Counter check of drug name and dose prepared with treatment chart □ **2 marks**
(iii) Check the drug/s and disposal equipment for expiry dates and signs of contamination □ **2 marks [F]**

5: Counter checked patient's identity with treatment chart. □ **5 marks**

6: Demonstrates an awareness of the importance of knowledge of drugs in/compatibility. □ **5 marks**

7: States at least one side effect from the particular drug to the given scenario whereby student is allowed to checked with BNF/Literature/Pharmacy. □ **5 marks**

8: Medication mixed and diluted accurately: Final Solution: _____ mg / _____ml. □ **5 marks [F]**

9: Aseptic technique followed while preparing the drug. □ **5 marks [F]**

10: Correctly labels solution additive. □ **5 marks [F]**

12: Communication.

(v)	Introduced self	-	□	1 mark
(vi)	Explained procedure	-	□	2 marks
(vii)	Provided clear instructions	-	□	2 marks
(viii)	Made use of non-verbals	-	□	1 mark

12: Prepares IV tubing maintaining sterility of connecting points. □ **5 marks [F]**

13: Correctly loads the syringe or the IV tubing on the syringe pump driver or the volumetric pump and attaches it to the appropriate port. □ **5 marks**

14: IV cannula checked for patency and any signs of phlebitis, infiltrations, and/or swelling around the cannula. □ **5 marks**

15: Correctly sets the pump according to the scenario, (i.e. hourly rate in both type of pumps and 'Volume to be infused' in the case of volumetric pumps). □ **5 marks [F]**

16: Correctly documents the drug given. □ **5 marks [F]**
(i) Counter signature requested for documentation □ **5 marks**

17: Indicates the need to monitor the patient for the drug's effect / side effect / reaction according to the given scenario. □ **5 marks**

18: All injecting materials disposed of correctly according to infection control policy.

(i)	In the sharps container:	-	□	3 marks
(ii)	In the domestic bag:	-	□	3 marks

[F] indicates a FAIL from whole test if criterion not fulfilled.