

**Final Examinations
for Diploma in Critical Care Technology : DCCT Course**

**Paper – I
Operational Aspects of different Procedures and Equipments**

Time : 3 Hours

Full Marks : 80

Question 1 is Compulsory.

Answer any Two from Question No. 2 to 5 and any Four from Question No. 6

Q-1) Answer all of the following. Select only one response.

Each correct response carries One (1) mark:-

10x1 = 10

- i) Constant FIO₂ can be delivered with all, except:
- | | |
|-----------------|-------------------------------|
| a) Venturi mask | c) Simple mask with reservoir |
| b) Ventilator | d) None |
- ii) Physical principle underlying display in multichannel monitor is:
- | | |
|---------------------------|-----------------------------|
| a) Videography | c) Cathode ray oscilloscopy |
| b) Anode ray oscilloscopy | d) Gamma camera |
- iii) Thoracic compliance is calculated as:
- | | |
|-----------------------------------|--|
| a) Peak airway pressure/Peak flow | c) Tidal volume/(Plateu pressure – PEEP) |
| b) Tidal Volume/Plateu pressure | d) None |
- iv) Advanced mechanical ventilators are:
- | | |
|----------------|---------|
| a) One loop | c) Both |
| b) Closed loop | d) None |
- v) Physical principle underlying capnography is:
- | | |
|-------------------------------|-----------------------------|
| a) Infrared spectrophotometry | c) Cathode ray oscilloscopy |
| b) UV spectrophotometry | d) None |
- vi) Power circuitry in Blood Gas Analyzer produces:
- | | |
|---------------------|---------|
| a) Amplification up | c) Both |
| b) Voltage input | d) None |
- vii) If an electrical point is near left leg, following ECG lead will show AC interference:
- | | |
|------------|---------------|
| a) Lead | c) avR |
| b) Lead II | d) Chest lead |
- viii) Extravascular lung water can be measured by:
- | | |
|--------------------|---------------------|
| a) Cardiac output | c) Echocardiography |
| b) Lung Ultrasound | d) None |
- ix) Signal calibration means setting a standard for a signal type of:
- | | |
|-----------------------------|---------|
| a) Variable range as sensed | c) Both |
| b) Fixed range | d) None |
- x) In a ventilator, following does not need to be changed periodically:
- | | |
|-----------------------|---------|
| a) Inbuilt compressor | c) None |
| b) Inbuilt turbine | d) All |

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Answer any Two from Question No. 2 to 5 and any Four from Question No. 6

2x20 = 40

- Q2. Technological troubleshooting of Noninvasive Ventilator. 20
- Q3. Circuit diagram of Blood Gas Analyzer (Solution based) with description. Compare with Cartridge based Blood Gas Analyzer. 20
- Q4. Parts and operation of trilaminar flow system from manifold to supply portals. 20
- Q5. Technology related to invasive hemodynamic monitoring. 20
- Q6. Write short notes on (**Any Four**) of the following:- **4 x 7.5 = 30**
- a) Infusion pump – Syringe & Rapid
 - b) Nebulisers
 - c) Sensors of different equipments
 - d) Generation of PEEP
 - e) Extrinsic & Intrinsic.

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**Paper – II
Maintenance of Equipments and Computer Application**

Time – 3 hours

Full Marks – 80

*Question 1 is Compulsory.
Answer any Two from Question No. 2 to 5 and any Four from Question No. 6*

Q-1) Answer all of the following. Select only one response.
Each correct response carries One (1) mark:-

10x1 = 10

- i) In a mechanical ventilator EST is done:
- Each time before applying on a new patient
 - Once in a month
 - During servicing only
 - b+c
- ii) International Circuit is used for:
- 1st Generation computer
 - 2nd generation computer
 - 3rd generation computer
 - None
- iii) On ventilator, oxygenation is best achieved by flow from as:
- Squire wave
 - Decelerating
 - Sinusoidal
 - None
- iv) All of the following are disposable, except:
- Bacterial filter in a ventilator
 - HMEF
 - IBP Kit
 - Capnometry sensor
- v) During automated calibration in standard blood gas analyzer:
- 1 pt. calibration is done once a day
 - 2 pt. calibration is done 3-4 hourly
 - 1 pt. calibration is done 4-6 hourly
 - 2 pt. calibration is done 2 hourly
- vi) Basic ingredient of deproteiniser for Blood Gas & Electrolyte Analyzer is:
- NaOCl
 - NaCl
 - KCl
 - None
- vii) Reusable ventilator circuit is sterilized by:
- Lysol
 - Savlon
 - 2% Gluteraldehyde
 - Cinex
- viii) Mox pressure should be kept at:
- 50 psi
 - 55 psi
 - 70 psi
 - 100 psi
- ix) Laminar flow in an ICU includes all, except:
- Central oxygen
 - Suction channel
 - Nitrous oxide
 - Compressed air
- x) Simultaneous lead acquisition in manual ECG is:
- Possible
 - Not possible
 - Possible at times
 - Not possible at times

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**Paper – II
Maintenance of Equipments and Computer Application**

Answer any Two from Question No. 2 to 5 and any Four from Question No. 6

2x20 = 40

- Q2. Computer and Telemedicine in Critical Care Unit. 20
- Q3. Technological troubleshooting of Invasive Ventilator. 20
- Q4. CPR – devices & medicines and maintenance of resuscitation kit. 20
- Q5. Describe sterilization of different equipments in ICU. 20
- Q6. Write short notes on (**Any Four**) of the following:- **4 x 7½ = 30**
- Technological troubles encountered with and solutions in case of –
- a) ECG machine
 - b) Multichannel monitor & its accessories.
 - c) Infusion pump
 - d) Computer
 - e) Suction machine.

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**Final Examinations – August, 2015
for Diploma in Critical Care Technology : DCCT Course**

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ANSWER TO THE QUESTIONS OF Q1. :-

Q1. :	i	-	c
	ii	-	c
	iii	-	c
	iv	-	b
	v	-	a
	vi	-	b
	vii	-	c
	viii	-	b
	ix	-	a
	x	-	b

**Paper – II
Maintenance of Equipments and Computer Application**

ANSWER TO THE QUESTIONS OF Q1 :-

Q1. :	i	-	d
	ii	-	c
	iii	-	b
	iv	-	d
	v	-	c
	vi	-	a
	vii	-	c
	viii	-	a
	ix	-	c
	x	-	b
