

## PROVISIONAL ANSWER KEY

Question 109/2024/OL

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Question1:-The anatomical term "brachial" refers to

A:-Upper arm

B:-Forearm

C:-Abdomen

D:-Wrist

Correct Answer:- Option-A

Question2:-Myelin sheath is found in one of the following

A:-Nails

B:-Blood vessels

C:-Nerve fibers

D:-Lungs

Correct Answer:- Option-C

Question3:-Action potential is created by

A:-Depolarization of the cell membrane

B:-Repolarization of the cell membrane

C:-Both depolarization and the repolarization of the cell membrane

D:-None of the above

Correct Answer:- Option-C

Question4:-Enlargement of the left ventricle caused by hypertension will be indicated in the ECG by

A:-Abnormal P wave

B:-Abnormal QRS wave

C:-Abnormal T wave

D:-All of the above

Correct Answer:- Option-B

Question5:-Frequency range for Alpha waves in EEG is

A:-Below 3.5 Hz

B:-3.5 Hz to 8 Hz

C:-8 Hz to 13 Hz

D:-Above 13 Hz

Correct Answer:- Option-C

Question6:-The intra-alveolar pressure during normal inspiration and expiration are

A:--3 mm Hg and +3 mm Hg

B:-+3 mm Hg and -3mm Hg

C:-0 mm Hg and +3 mm Hg

D:--3 mm Hg and 0 mm Hg

Correct Answer:- Option-A

Question7:-Pulse pressure is calculated as one of the following :

A:-Sum of Systolic pressure and Diastolic pressure

B:-Average of systolic pressure and Diastolic pressure

C:-Ratio of Systolic pressure to Diastolic pressure

D:-Difference between Systolic pressure and Diastolic pressure

Correct Answer:- Option-D

Question8:-Natural pacemaker of the heart is

A:-Atrioventricular node

B:-Purkinje fibers

C:-Apex of the heart

D:-Sinoatrial node

Correct Answer:- Option-D

Question9:-Which of the following statements are true ?

i. DC defibrillation is more successful than AC defibrillation for correcting ventricular fibrillation.

ii. Methods to correct atrial fibrillation by AC defibrillation often leads to ventricular fibrillation

iii. DC defibrillation requires fewer repetitions

A:-Only i and ii

B:-Only ii and iii

C:-Only i and iii

D:-All of the above (i, ii and iii)

Correct Answer:- Option-D

Question10:-When a patient cannot initiate breaths on his/her own, the CMV mode ventilation for an adult patient is set to

A:-Less than 10 breaths per minute

B:-10-15 breaths per minute

C:-20-30 breaths per minute

D:-40-45 breaths per minute

Correct Answer:- Option-B

Question11:-Colorimetric determination of the concentration of substances in a solution is based on

A:-Beer's Law

B:-Faraday's Law

C:-Henry's Law

D:-Ohm's Law

Correct Answer:- Option-A

Question12:-Choose the correct option(s) from the following.

In a medical laboratory, flame photometer can be used to find the concentration of

i. Serum protein

ii. Pure metals

A:-Only i

B:-Only ii

C:-Both i and ii

D:-None of the above

Correct Answer:- Option-B

Question13:-Normal range of pH in the arterial blood is

A:-0

B:-7

C:-7.38 to 7.44

D:-7.12 to 7.15

Correct Answer:- Option-C

Question14:-Commonly used temperature for autoclaving in a hospital autoclave is

A:-100°C

B:-103°C

C:-121°C

D:-161°C

Correct Answer:- Option-C

Question15:-Phosphors used in Computed Radiography (CR) imaging plates are made of

A:-Gadolinium oxysulfide

B:-Barium Fluorohalide

C:-Calcium Tungstate

D:-Cesium Iodide

Correct Answer:- Option-B

Question16:-In multiple detector array CT scanners, the slice thickness is determined by

A:-Detector size

B:-Collimator

C:-Number of detectors

D:-A, B and C

Correct Answer:- Option-A

Question17:-The fraction of the impinging ultrasound energy reflected from an interface with water will be greatest for

A:-Fat

B:-Muscle

C:-Bone

D:-Air

Correct Answer:- Option-D

Question18:-The following material is not used as a target material in any of the mammographic X-ray tubes

A:-Molybdenum

B:-Rhodium

C:-Aluminum

D:-Tungsten

Correct Answer:- Option-C

Question19:-The resonance frequency for protons in a 3-tesla magnetic field is

A:-21.3 MHz

B:-42.6 MHz

C:-63.9 MHz

D:-127.8 MHz

Correct Answer:- Option-D

Question20:-The following statement regarding radiographic grid is not true

A:-Use of grid decreases the radiation exposure to the patient

B:-Grid will increase radiographic contrast

C:-Grids remove scatter radiation reaching the film

D:-Lead strips of 0.05mm thickness is used in Grids

Correct Answer:- Option-A

Question21:-The minimum temperature, time and pressure for autoclaving process is

A:-112°C at 15 lbs in 15 to 30 minutes

B:-121°C at 15 lbs in 15 to 30 minutes

C:-121°C at 50 lbs in 15 to 30 minutes

D:-112°C at 50 lbs in 15 to 30 minutes

Correct Answer:- Option-B

Question22:-Which among the following are categorised under non-government hospitals ?

- i. Public limited company
- ii. Public charitable trust
- iii. Cooperative society
- iv. Public hospitals

A:-Only ii and iii

B:-Only i, ii, iii

C:-Only i and ii

D:-All the above

Correct Answer:- Option-B

Question23:-Which among the following is true regarding ethylene oxide sterilisation ?

- i. Exposure time can be reduced by increasing the temperature.
- ii. It can be used for sterilising heat sensitive and moisture sensitive materials.
- iii. Period of exposure can be up to 12 hours.
- iv. Wrapping used for packing should be penetrable to both ethylene gas and water vapour.

A:-Only i and ii

B:-Only ii and iii

C:-Only i and iii

D:-All of the above (i, ii, iii and iv)

Correct Answer:- Option-D

Question24:-Which among the following is correct colour coding for gas pipelines in hospitals ?

A:-Oxygen - yellow  
Nitrous oxide - blue  
Carbon-dioxide - white

B:-Oxygen - white  
Nitrous oxide - blue  
Medical air - grey

C:-Oxygen - white  
Nitrous oxide - blue  
Medical air - black and white

D:-Oxygen - yellow  
Nitrous oxide - grey  
Carbon-dioxide - blue

Correct Answer:- Option-C

Question25:-Which act is intended to prohibit prenatal diagnostic techniques for determination of the sex of the foetus leading to female feticide ?

A:-PC-PNDT

B:-PHMC

C:-AERB

D:-ARRT

Correct Answer:- Option-A

Question26:-Low torque to weight ratio in an analog indicating machine indicates

A:-High friction loss

B:-Low friction loss

C:-Nothing as regards friction loss

D:-None of the above

Correct Answer:- Option-A

Question27:-Four terminal resistors have resistance values

A:-Greater than 10 Ohm

B:-Greater than 1 Ohm

C:-Less than 1 Ohm

D:-Of the order of mega Ohm

Correct Answer:- Option-C

Question28:-The total current drawn from five 1.5 V cells connected in series is 1 ampere. Then each cell supplies \_\_\_\_ amperes.

A:-1

B:-0.2

C:-2

D:-5

Correct Answer:- Option-A

Question29:-When two resistors are connected in series, then which among the following is correct ?

A:-Both carry the same amount of current

B:-Total current equals the sum of branch currents

C:-Sum of IR drops equals battery emf

D:-They provide only one path for the current flow

Correct Answer:- Option-D

Question30:-The primary windings of a transformer have 1000 turns and its secondary windings have 500 turns. What will be the secondary voltage if primary voltage is 200 V

A:-400 volt

B:-100 volt

C:-800 volt

D:-50 volt

Correct Answer:- Option-B

Question31:-How much current is needed for a 24 Ohm resistor that dissipates 864 W ?

A:-36A

B:-6A

C:-12

D:-3

Correct Answer:- Option-B

Question32:-When a small voltage is generated across the width of a current carrying conductor in an external magnetic field, the effect is called

A:-Miller effect

B:-Hall effect

C:-Schultz effect

D:-Seebeck effect

Correct Answer:- Option-B

Question33:-In a bridge rectifier secondary voltage (input) is 10V (rms), the output DC will be

A:-10V

B:-9V

C:-4.5V

D:-12V

Correct Answer:- Option-B

Question34:-Voltage regulator IC 7905, which pin is connected to the input volt

A:-Pin No:1

B:-Pin No: 2

C:-Pin No: 3

D:-Pin No : 2 and 3

Correct Answer:- Option-B

Question35:-In common emitter amplifier mode. Phase relation between input and output is

A:-In phase

B:-90° phase shift

C:-180° phase shift

D:-270° phase shift

Correct Answer:- Option-C

Question36:-Which of the statement/statements are correct for varactor diodes ?

i. It is very small in size and very light weight.

ii. No useful when it is operated in forward bias.

iii. Reverse bias voltage increases, increases the capacitance value

A:-Only i and ii

B:-Only i, ii and iii

C:-Only ii and iii

D:-Only i

Correct Answer:- Option-A

Question37:-In astable multi vibrator mode of IC 555, the external timing capacitor exceeds the  $\frac{2}{3} V_{CC}$  which internal section triggered

A:-Trigger comparator

B:-Threshold comparator

C:-Reset

D:-No change

Correct Answer:- Option-B

Question38:-Calculate closed loop gain of inverting operational amplifier, value of  $R_f = 100K\Omega$  and  $R_{in} = 10K\Omega$ . Assume input signal voltage is 0.1 Volt.

A:--1V

B:-1V

C:--10V

D:-10V

Correct Answer:- Option-A

Question39:-Which formula is used power gain of amplifier expressed in decibels (dB) ?

A:- $P_{out} / P_{in}$

B:- $P_{in} / P_{out}$

C:- $20 \log P_{out} / P_{in}$

D:- $10 \log P_{out} / P_{in}$

Correct Answer:- Option-D

Question40:-Which of the statement/statements are not correct for Zener diode ?

i. Heavily doped.

ii. Only used forward biased condition.

iii. The anode and cathode marking technique on the body is same for both Zener and rectifier diode.

A:-Only i

B:-Only ii

C:-Only ii and iii

D:-Only i and iii

Correct Answer:- Option-B

Question41:-Which among the following is a sporicidal disinfectant ?



A:-Ethanol

B:-Hydrogen peroxide

C:-Chloroxlylenol

D:-Quaternary ammonium compounds

Correct Answer:- Option-B

Question42:-Which among the following statement is/are correct about ultrasonic cleaner ?

A:-Ultrasonic cleaners use infrared rays

B:-Ultrasonic cleaners are unsuitable for metal, glass or porcelain parts with heavy contamination and hard surfaces

C:-Use of deionized water is harmful for ultrasonic cleaning system

D:-Ultrasonic cleaning uses cavitation bubbles induced by high frequency pressure (sound) waves to agitate a liquid

Correct Answer:- Option-D

Question43:-The standard temperature and holding time required for autoclave are

A:-121°C for 15 min

B:-120°C for 40 min

C:-150°C for 1 hour

D:-100°C for 2 hours

Correct Answer:- Option-A

Question44:-Which among the following is a gaseous sterilizing agent ?

A:-Hydrogen peroxide

B:-Ethylene oxide

C:-Glutaraldehyde

D:-Sodium hypochlorite solution

Correct Answer:- Option-B

Question45:-Name an enzymatic cleaner used in CSSD

A:-Protein

B:-Aldehyde

C:-Ammonia

D:-Amylase

Correct Answer:- Option-D

Question46:-Which of the following statements regarding washer disinfectant is false ?

A:-It is a medical device used for automated cleaning of surgical instruments

B:-Washer disinfectant works by combining impingement, water temperature and detergent to clean devices

C:-It is used to clean both heat sensitive and heat resistant devices

D:-A medical washer/disinfector performs the same level of disinfection as that of washer

Correct Answer:- Option-D

Question47:-The steps included in reprocessing of instruments include all except

A:-Pre-cleaning

B:-Disassembly

C:-Sorting

D:-Rinsing

Correct Answer:- Option-C

Question48:-Which of the following statement is/are correct regarding cleaning of medical devices ?

i. Cleaning is accomplished either manually or mechanically using water with detergents or enzymatic products.

ii. Cleaning is not mandatory before high level disinfection.

iii. Medical devices need to be disassembled to allow effective cleaning.

iv. Detergents used for home cleaning are suitable for cleaning of medical devices.

A:-Only i and iv

B:-Only i and iii

C:-Only ii and iv

D:-All the above

Correct Answer:- Option-B

Question49:-Which among the following is a high level disinfectant ?

A:-Glutaraldehyde

B:-Povidone Iodine

C:-Phenol

D:-Cetrimide

Correct Answer:- Option-A

Question50:-All the following statements regarding plasma sterilisation is true except

A:-It is a sterilant which can kill bacteria and viruses

B:-It has no action on spores

C:-Plasma kills microbes by interaction with the metabolism of microorganisms by free radicals

D:-Heat sensitive materials can be sterilized

Correct Answer:- Option-B

Question51:-Name the sterilisation control used for ethylene oxide steriliser

A:-Bacteroids fragilis

B:-Bacillus atrophaeus

C:-Clostridium perfringens

D:-Bacillus cereus

Correct Answer:- Option-B

Question52:-Name an instrument which works on the principle of dry heat sterilisation

A:-Autoclave

B:-Flash sterilisation

C:-Distiller

D:-Hot air oven

Correct Answer:- Option-D

Question53:-Which of the following statements is false regarding chemical indicators ?

A:-Type II chemical indicator is called as Bowie Dick test

B:-Type VI chemical indicator is not cycle specific

C:-Type V chemical indicator is also an internal pack control indicator

D:-Type V is considered as equivalent to biological indicator

Correct Answer:- Option-B

Question54:-Which of the following is a sterilisation method using low temperature ?

A:-Autoclave

B:-Steam steriliser

C:-Plasma sterilizer

D:-Inspissication

Correct Answer:- Option-C

Question55:-Which is true regarding Spaulding's classification of medical devices ?

A:-Critical items are those that come in contact with mucous membranes

B:-Semicritical items require high level disinfection

C:-Cardiac Catheters are semi-critical items

D:-Non-critical items have to be sterilised with ethylene oxide

Correct Answer:- Option-B

Question56:-An ideal disinfectant should have all except

A:-Speedy action

B:-Corrode metals

C:-Stable

D:-Safe and easy to use

Correct Answer:- Option-B

Question57:-Spores of Bacillus stearothermophilus are used for determining

efficacy of

A:-Filtration

B:-Hot air oven

C:-Moist heat sterilisation

D:-Flaming

Correct Answer:- Option-C

Question58:-Which of the following is not a method of dry heat sterilization

A:-Flaming

B:-Hot air oven

C:-Incineration

D:-Pasteurisation

Correct Answer:- Option-D

Question59:-Ethylene oxide is used to sterilise all the following except

A:-Heart lung machines

B:-Rooms

C:-Sutures

D:-Books

Correct Answer:- Option-B

Question60:-Which is true regarding decontamination of flexible endoscopes

A:-Chlorine releasing compounds are commonly used for disinfection

B:-Endoscopes are not pressure tested before disinfection

C:-Low level disinfectants are acceptable

D:-These are stored vertically after use

Correct Answer:- Option-D

Question61:-The concentration of glutaraldehyde used in the disinfection of critical areas is

A:-2%

B:-0.5%

C:-1.5%

D:-1%

Correct Answer:- Option-A

Question62:-Which process does not kill bacterial endospores ?

A:-Hot air sterilisation

B:-Incineration

C:-Filtration

D:-Autoclave

Correct Answer:- Option-C

Question63:-Gamma rays are used for sterilising all of the following except

A:-Plastic syringes

B:-Endoscopes

C:-Infusion sets

D:-Metal instruments

Correct Answer:- Option-B

Question64:-Which of the following disinfectants act by disrupting microbial membranes ?

A:-Aldehydes

B:-Gaseous disinfectants

C:-Halogens

D:-Cationic detergents

Correct Answer:- Option-D

Question65:-Time required to kill 90% microorganisms in a sample at a specified temperature is

A:-D value

B:-F value

C:-Thermal death point

D:-Thermal death temperature

Correct Answer:- Option-A

Question66:-Relative humidity and air changes per hour (ACH) through mechanical ventilation in CSSD should be

A:-50% - 60%, 10 ACH

B:-40% - 50%, 20 ACH

C:-50% - 60%, 15 ACH

D:-40% - 50%, 25 ACH

Correct Answer:- Option-B

Question67:-Preconditioning stage is present in

A:-Steam sterilization

B:-Flash sterilization

C:-Eto sterilization

D:-Plasma sterilization

Correct Answer:- Option-C

Question68:-The chemical sterilant used in plasma sterilization is

A:-Formaldehyde

B:-Glutaraldehyde

C:-Hydrogen peroxide

D:-Sodium Hypochlorite

Correct Answer:- Option-C

Question69:-The biological indicator in Eto sterilization

A:-Bacillus stearothermophilus

B:-Bacillus atrophaeus

C:-Bacillus subtilis

D:-None of the above

Correct Answer:- Option-B

Question70:-The chemical indicator Type V measures

A:-Single critical variable

B:-Any two critical variables

C:-All the critical variables

D:-None of the above

Correct Answer:- Option-C

Question71:-Type of packing material that can be used for steam, Eto and plasma sterilization is

A:-Linen

B:-Paper plastic peel pouches

C:-Non-woven disposable fabrics

D:-Aluminum foil

Correct Answer:- Option-C

Question72:-Biological indicator must be used

A:-Once daily

B:-Once weekly

C:-Fortnightly

D:-Daily with each load

Correct Answer:- Option-B

Question73:-Room size recommended for CSSD is

A:-10-20 sq.feet/bed

B:-10-15 sq.feet/bed

C:-7-10 sq.feet/bed

D:-5-10 sq.feet/bed

Correct Answer:- Option-C

Question74:-The processing area of CSSD consist of

A:-Four unidirectional zones

B:-Two unidirectional zones

C:-Three unidirectional zones

D:-Five unidirectional zones

Correct Answer:- Option-A

Question75:-Which sterilizer has long duration of cycle ?

A:-Low temperature steam formaldehyde

B:-Eto sterilizer

C:-Plasma sterilizer

D:-Steam sterilizer

Correct Answer:- Option-B

Question76:-The packaging material that can be used for ETO steriliser is

A:-Linen

B:-Paper plastic pouches

C:-Aluminum foil

D:-Paper

Correct Answer:- Option-D

Question77:-The packaging method ideal for use in steam steriliser is

A:-Single wrap

B:-Stable wrap

C:-Sequential wrap

D:-Triple wrap

Correct Answer:- Option-C

Question78:-The following are characteristics of open case carts except

A:-Lightweight

B:-Transport contaminated supplies

C:-Provide greater visibility of surgical tools and supplies

D:-Easy to clean

Correct Answer:- Option-B

Question79:-Packaging is a step in sterilisation process in which a medical device is enclosed in a container or materials in a manner which

A:-Allows the penetration and removal of the sterilant during sterilisation

B:-Placed in the correct tray in a manner that ensures ease of use by the end user

C:-Damages the device following sterilisation

D:-Present in accordance with surgical tray list

Correct Answer:- Option-A

Question80:-The disadvantage of Linen as packaging material are all except

- A:-Poor bacterial barrier
- B:-Reusable
- C:-Presence of holes
- D:-Not suitable for primary packaging

Correct Answer:- Option-B

Question81:-The recommended thickness of paper used as packaging material is

- A:-90GSM
- B:-80GSM
- C:-75GSM
- D:-60GSM

Correct Answer:- Option-D

Question82:-Which of the following is not a type of inventory used in health care ?

- A:-Standard inventory
- B:-Custom inventory
- C:-Serialised inventory
- D:-Batch inventory

Correct Answer:- Option-B

Question83:-A system that maintains a continuous and automated process of updating inventory data is called

- A:-Perpetual inventory
- B:-Periodic inventory
- C:-Preparatory inventory
- D:-None of the above

Correct Answer:- Option-A

Question84:-The disadvantage of peel pouch as packaging materials is

- A:-Good dust barrier
- B:-Transparent
- C:-Easy to maintain sterility
- D:-Interferes with air removal and steam penetration

Correct Answer:- Option-D

Question85:-Proper wrapping is important to avoid

- A:-Gapping
- B:-Billowing
- C:-Formation of air pockets
- D:-All of the above



Correct Answer:- Option-D

Question86:-The method of sealing pouches which is not acceptable is

A:-Heat sealing

B:-Tape sealing

C:-Rubber band

D:-Self sealed pouches

Correct Answer:- Option-C

Question87:-The property of packaging system used in CSSD is

A:-Appropriate to the item sterilized

B:-Does not allow penetration of sterilant

C:-Does not permit identification of content

D:-Tamper prone

Correct Answer:- Option-A

Question88:-The following is true about packaging

A:-Reusable wrappers should be used

B:-Perforated trays should be used

C:-Hollow devices should be packed in linen

D:-Heavy items should be placed on top

Correct Answer:- Option-B

Question89:-The ideal temperature for storing packaging materials is

A:-2-4 degree Celsius

B:-20 degree Celsius

C:-18-22 degree Celsius

D:-80 degree Celsius

Correct Answer:- Option-C

Question90:-The ideal relative humidity for storing packaging materials is

A:-35-70%

B:-10-20%

C:-15-30%

D:-80-90%

Correct Answer:- Option-A

Question91:-What is the purpose of CSSD ?

A:-Pharmacy of the operation theater

B:-Providing sterile equipment to the operation theater

C:-Manufacturing and Marketing of Medical Equipments

D:-Storing, Packing and Maintaining of Equipments

Correct Answer:- Option-B

Question92:-Three distinct phases of steam sterilization cycles are

- A:-Warming, Recycling and Cleaning
- B:-Heating, Cooling and Supplying
- C:-Washing, Servicing and Storing
- D:-Conditioning, Exposure and Drying

Correct Answer:- Option-D

Question93:-Mechanical methods of sterilization process are

- A:-Filtrations and Vibrations
- B:-Drying and Heating
- C:-Aldehydes and Dyes
- D:-Flaming and Radiation

Correct Answer:- Option-A

Question94:-What is the purpose of a washer-disinfector in the CSSD ?

- A:-Servicing of surgical instruments
- B:-Remove debris and organic material from instruments
- C:-Record the environmental parameters
- D:-Monitor temperature and humidity levels

Correct Answer:- Option-B

Question95:-Which of the equipment used in CSSD is

- A:-Ultrasonic Cleaner
- B:-Automated Washer Disinfector
- C:-Ethylene Oxide Gas Sterilizer
- D:-All of the above

Correct Answer:- Option-D

Question96:-Which organization sets the standards for CSSD professionals and their education ?

- A:-International Organization for Standardization (ISO)
- B:-Association for the Advancement of Medical Instrumentation (AAMI)
- C:-The National Institute of Standards and Technology (NIST)
- D:-American National Standards Institute (ANSI)

Correct Answer:- Option-A

Question97:-What is the "moist-heat" temperature range for sterilization ?

- A:-121°C to 132°C
- B:-133°C to 232°C
- C:-21°C to 100°C

D:-221°C to 232°C

Correct Answer:- Option-A

Question98:-Who developed steam sterilizer ?

A:-Louis Pasteur

B:-Denis Papin

C:-Charles Chamberland

D:-Nicolas Appert

Correct Answer:- Option-C

Question99:-Which of the following is not a method of moist heat sterilization ?

A:-Autoclave

B:-Steam sterilization

C:-Plasma Sterilization

D:-Sunlight

Correct Answer:- Option-D

Question100:-The temperature range at Inspection, Assembly and Packaging Area in CSSD is

A:-20°C to 23°C

B:-30°C to 35°C

C:-10°C to 40°C

D:-35°C to 55°C

Correct Answer:- Option-A