

PROVISIONAL ANSWER KEY

Question 100/2024/OL

Paper Code:

Category 271/2023

Code:

Exam: ECG Technician

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Question1:-The haemoglobin of RBC after 120 days of lifespan gets converted first into

A:-Bilirubin

B:-Cytokinin

C:-Cytochrome

D:-Biliverdin

Correct Answer:- Option-D

Question2:-The volume of air used by a man to fill a balloon is

A:-IRV

B:-ERV

C:-TV

D:-RV

Correct Answer:- Option-B

Question3:-At which point in ECG the repolarisation of atrium occurs

A:-P wave

B:-T wave

C:-QRS wave

D:-None of these

Correct Answer:- Option-C

Question4:-Total number of bones in the skull of a man is

A:-29

B:-22

C:-8

D:-28

Correct Answer:- Option-A

Question5:-Which is the "Resting membrane potential" of a neuron ?

A:-70 mv to 80 mv

B:-90 mv to 110 mv

C:-10 mv to 15 mv

D:--70 mv to -80 mv

Correct Answer:- Option-D

Question6:-The pigment which gives red colour to haemoglobin is

A:-Porphyrin

B:-Saffranine

C:-Ferrous

D:-Plasma

Correct Answer:- Option-A

Question7:-Clavicle bone and scapula bone of human beings together constitute

A:-Pelvic girdle

B:-Pectoral girdle

C:-Axial skeleton

D:-None of these

Correct Answer:- Option-B

Question8:-The Renal corpuscle of nephron includes

A:-PCT and Henle's loop

B:-Ascending and Descending limb

C:-DCT and collecting duct

D:-Glomerulus and Bowman's capsule

Correct Answer:- Option-D

Question9:-The tissue which connects muscle to bone

A:-Tendon

B:-Ligament

C:-Cartilage

D:-Mucus

Correct Answer:- Option-A

Question10:-The nursing cell which nourishes the sperm is

A:-Sperm mother cell

B:-Macrophages

C:-Mast cells

D:-Sertoli cells

Correct Answer:- Option-D

Question11:-Which of the following chambers of the heart contains blood with a relatively high oxygen content ?

A:-Left ventricle

- B:-Right ventricle
- C:-Right atrium
- D:-Superior vena cava

Correct Answer:- Option-A

Question12:-The pulmonary semilunar valve prevents back flow of blood into the

- A:-Right atrium
- B:-Left atrium
- C:-Right ventricle
- D:-Left ventricle

Correct Answer:- Option-C

Question13:-The first heart sound is heard when the

- A:-Ventricle contracts
- B:-Semilunar valves close
- C:-Atrio-Ventricular valves close
- D:-Auricles contract

Correct Answer:- Option-C

Question14:-Double circulation is absent in

- A:-Monkey
- B:-Crocodile
- C:-Fish
- D:-Crow

Correct Answer:- Option-C

Question15:-Lymphatic vessels of small intestine that absorb fatty acid and glycerol are

- A:-Lymph nodes
- B:-Lacteals
- C:-Capillaries
- D:-Villi

Correct Answer:- Option-B

Question16:-The atrio-ventricular septum of heart is composed of

- A:-Muscular tissue
- B:-Adipose tissue
- C:-Fibrous tissue
- D:-Nodal tissue

Correct Answer:- Option-C

Question17:-Choose the correct pathway of blood

A:-Lungs-Left auricle-left ventricle-aorta-body – venacava – right auricle-right ventricle

B:-Lungs-right auricle-right ventricle-aorta-body – venacava – left auricle-left ventricle

C:-Lungs-left auricle-right ventricle-aorta-body – venacava – right auricle-right ventricle

D:-None of the above

Correct Answer:- Option-A

Question18:-Cardiac output is influenced by

A:-Stroke volume

B:-Heart rate

C:-Heart rate and stroke volume

D:-Heart rate and oxygen consumed

Correct Answer:- Option-C

Question19:-The most accurate definition of artery is a vessel that

A:-Carries highly oxygenated blood

B:-Contains smooth muscle in its wall

C:-Transports blood away from the heart

D:-Transports blood toward the heart

Correct Answer:- Option-C

Question20:-Chordae tendinae are present in

A:-Semilunar valves

B:-Bicuspid and tricuspid valves

C:-Valves in the veins

D:-All of the above

Correct Answer:- Option-B

Question21:-The reason for delay in travel of cardiac impulse from atria to ventricles is to

A:-Allows time for the atria to empty their blood into the ventricles before ventricular contraction begins

B:-Allows time for the ventricles to empty their blood

C:-To minimize stroke volume

D:-None of the above

Correct Answer:- Option-A

Question22:-The unit of blood pressure measurement is

A:-Millimoles of mercury

B:-Millilitres of mercury

C:-Milligrams of mercury

D:-Millimetres of mercury

Correct Answer:- Option-D

Question23:-The constant supply of oxygen and nutrients to maintain the contractions and relaxations that keep the heart pumping is provided by

A:-Pulmonary arteries

B:-Coronary arteries

C:-Coronary veins

D:-Portal vein

Correct Answer:- Option-B

Question24:-The layer of heart wall responsible for the contraction and relaxation that results in the pumping of the heart is

A:-Epicardium

B:-Endocardium

C:-Septum

D:-Myocardium

Correct Answer:- Option-D

Question25:-Choose the correct pair.

i. Left ventricle – thickest of all chambers

ii. Left ventricle – pumps oxygenated blood to the body

iii. Left ventricle – thinner than right ventricle

iv. Left ventricle – pumps blood to lungs

A:-i and ii

B:-ii and iii

C:-iii and iv

D:-iv and i

Correct Answer:- Option-A

Question26:-The heart is located in the thoracic cavity in between the lungs in a space called

A:-Pericardium

B:-Ventricles

C:-Mediastinum

D:-Cardiac notch

Correct Answer:- Option-C

Question27:-Which of the following statements is correct about the function of pericardial fluid ?

A:-It acts as a lubricant between the heart and the pericardium

B:-It helps in maintaining blood pressure

C:-It allows flow of blood in one direction only

D:-All of the above

Correct Answer:- Option-A

Question28:-Cardiac muscle are regulated by

A:-Central nervous system

B:-Peripheral nervous system

C:-Autonomic nervous system

D:-None of the above

Correct Answer:- Option-C

Question29:-On examination of a blood vessel in an anatomy class, three layers were observed-an inner endothelial layer, a middle thin layer of smooth muscle with elastic fibers and an outer collagen fiber layer. Identify the blood vessel

A:-Artery

B:-Arteriole

C:-Vein

D:-Lymph vessel

Correct Answer:- Option-C

Question30:-Hormonal regulation of cardiac output is by

A:-Pituitary hormones

B:-Adrenal medullary hormones

C:-Thyroid hormones

D:-Adrenal cortex hormones

Correct Answer:- Option-B

Question31:-In the cardiac cycle, the AV valves remain closed due to

A:-Increasing ventricular pressure

B:-Decreasing ventricular pressure

C:-Increasing auricular pressure

D:-None of the above

Correct Answer:- Option-A

Question32:-Choose the correct option to complete the table

| | Auricular systole | Ventricular systole (auricular diastole) |
|-----------------------------|-------------------|--|
| Auriculo ventricular valves | ...a... | closed |
| Semilunar valves | Closed | ...b... |

A:-a-closed, b-open

B:-a-open, b-open

C:-a-closed, b-open

D:-a-open, b-closed

Correct Answer:- Option-B

Question33:-Under what conditions does the SA node increases the number of electrical impulses and cardiac output ?

A:-Exercise

B:-Damage from heart diseases

C:-Stimulation of septa

D:-All of the above

Correct Answer:- Option-A

Question34:-If the sinoatrial node fails, in a normal heart, the atrioventricular node (AV node) takes over the pacemaker function. However

A:-Heart rate will be lower

B:-Stroke volume, will be lower

C:-Both of the above

D:-None of the above

Correct Answer:- Option-C

Question35:-The cardiac tissue responsible for initiating and maintaining the rhythmicity of heart is

A:-Septa

B:-Nodal tissue

C:-Chordae tendinae

D:-Bundle of His

Correct Answer:- Option-B

Question36:-The most appropriate investigation to diagnose mitral stenosis in a patient is

A:-Electrocardiogram

B:-Cardiac catheterization

C:-Plain X-Ray of the chest

D:-Doppler Echocardiography

Correct Answer:- Option-D

Question37:-In echocardiography the size of the chambers and function of the heart is assessed in

A:-M mode

B:-A mode

C:-B mode

D:-None of the above

Correct Answer:- Option-A

Question38:-The natural pacemaker of the heart is

A:-Bundle of His

B:-AV node

C:-SA node

D:-Purkinje fibers

Correct Answer:- Option-C

Question39:-The first letter in the pacemaker code VVI indicates

A:-The chamber sensed by the pacemaker

B:-The chamber that is paced

C:-The mode of response of the pacemaker

D:-The rate adaptiveness of the pacemaker

Correct Answer:- Option-B

Question40:-Which among the following is used to give shock to a patient with ventricular fibrillation ?

A:-Defibrillator

B:-Cardio scope

C:-Pacemaker

D:-Ventilator

Correct Answer:- Option-A

Question41:-ICD used to prevent sudden cardiac deaths means

A:-Interconnected defibrillator

B:-Intra cardiac device

C:-Implantable cardioverter defibrillator

D:-Internal cardiac drug

Correct Answer:- Option-C

Question42:-The concept of ambulatory ECG monitoring was introduced by

A:-Einthoven

B:-Norman Holter

C:-Inge Edler

D:-Christiaan Bernard

Correct Answer:- Option-B

Question43:-Identify the true statement regarding premature ventricular contraction

A:-They originate from an abnormal location

B:-Has abnormal QRS morphology

C:-Has a compensatory pause

D:-All of the above

Correct Answer:- Option-D

Question44:-Which among the following is the investigation of choice to diagnose coronary artery disease in a patient with exertional angina ?

A:-Holter monitoring

B:-Echocardiography

C:-Stress electrocardiography

D:-Troponin assay

Correct Answer:- Option-C

Question45:-Bruce protocol is used in

A:-Treadmill test

B:-Cardiac MRI

C:-Stress echocardiography

D:-Pacemaker implantation

Correct Answer:- Option-A

Question46:-The following parameters are monitored during exercise ECG EXCEPT

A:-Heart rate

B:-ST depressions in ECG

C:-ST elevations in ECG

D:-Respiratory rate

Correct Answer:- Option-D

Question47:-A treadmill test can be done to

A:-Diagnose coronary artery disease

B:-Assess prognosis after myocardial infarction

C:-Both 1 and 2

D:-Only 1

Correct Answer:- Option-C

Question48:-_____ is used to display heart rate and the ECG tracing in an ICU

A:-Holter monitor

B:-Cardiac monitor

C:-Pulse oximeter

D:-Sphygmomanometer

Correct Answer:- Option-B

Question49:-In cardio version the electric shock is given

A:-At the beginning of P wave

B:-At the peak or just after R wave

C:-At the peak of T wave

D:-After T wave

Correct Answer:- Option-B

Question50:-The most accurate method to identify obstruction in coronary arteries is

A:-Echocardiography

B:-Ambulatory ECG recording

C:-Cardiac catheterization

D:-Cardiac MRI

Correct Answer:- Option-C

Question51:-The symptom of sudden chest pain that occurs due to reduced blood supply to the heart is called

A:-Dyspnea

B:-Angina pectoris

C:-Palpitation

D:-Syncope

Correct Answer:- Option-B

Question52:-Which among the following is a wide QRS complex tachyarrhythmia ?

A:-Atrial fibrillation

B:-Atrial flutter

C:-Ventricular tachycardia

D:-Supraventricular tachycardia

Correct Answer:- Option-C

Question53:-The rhythm strip obtained to assess atrial arrhythmia is

A:-Lead III

B:-Lead V6

C:-Lead V5

D:-Lead II

Correct Answer:- Option-D

Question54:-The normal position of the heart is called

A:-Levocardia

B:-Dextrocardia

C:-Mesocardiac

D:-Levo version

Correct Answer:- Option-A

Question55:-Identify the true statement among the following.

A:-The mitral valve has 2 leaflets and allow blood to flow from left atrium to left ventricle

B:-The tricuspid valve has 3 leaflets and allow blood to flow from left atrium to left ventricle

C:-The mitral valve has 3 leaflets and allow blood to flow from left atrium to left ventricle

D:-The aortic valve has 2 leaflets in normal heart

Correct Answer:- Option-A

Question56:-The frontal plane ECG leads are

A:-Leads I, II, III

B:-Leads V1-V6

C:-Leads aVR, aVL, aVF

D:-Both 1 and 3

Correct Answer:- Option-D

Question57:-The standard Lead I is derived from placement of negative electrode on _____ and positive electrode on _____

A:-Right arm, Left arm

B:-Right arm, Left foot

C:-Right arm, Right foot

D:-Left arm, Left foot

Correct Answer:- Option-A

Question58:-The negative electrode of a unipolar lead is considered to be at _____ potential.

A:-Zero

B:--60 mV

C:-+60 mV

D:-None of the above

Correct Answer:- Option-A

Question59:-Lead V6 is placed on the _____ line.

A:-Anterior axillary

B:-Parasternal

C:-Midaxillary

D:-Posterior axillary

Correct Answer:- Option-C

Question60:-The total duration of ventricular recovery is represented by

A:-ST segment

B:-T wave

C:-U wave

D:-All of the above

Correct Answer:- Option-D

Question61:-_____ lead (s) are orientated to the cavity of the heart.

A:-Lead I

B:-Lead aVR

C:-Leads II, III, aVF

D:-Both 1 and 2

Correct Answer:- Option-D

Question62:-_____ in left orientated leads indirectly reflects transverse conduction time of free wall of left ventricle.

A:-Ventricular activation time

B:-Absolute refractory period

C:-Relative refractory period

D:-None of the above

Correct Answer:- Option-A

Question63:-QT interval is the interval from

A:-Beginning of QRS complex to beginning of T wave

B:-Beginning of QRS complex to end of T wave

C:-End of QRS complex to beginning of T wave

D:-End of QRS complex to end of T wave

Correct Answer:- Option-B

Question64:-Electrocardiograph is conventionally standardized so that

A:-1 mV results in 1 cm deflexion

B:-1 mV results in 1 mm deflexion

C:-1 mV results in 10 cm deflexion

D:-1 mV results in 5 mm deflexion

Correct Answer:- Option-A

Question65:-Normal frontal plane QRS axis is between

A:-0° to +180°

B:-+30° to +150°

C:-+90° to +180°

D:-0° to +90°

Correct Answer:- Option-D

Question66:-Left atrial enlargement in ECG shows all the following except

A:-Double peaked P wave

B:-Increased duration of P wave

C:-Tall, single peaked P wave

D:-Deep, delayed terminal negative component of P wave in Lead V1

Correct Answer:- Option-C

Question67:-A retrograde P' wave is seen in

A:-Sinus bradycardia

B:-Sinus tachycardia

C:-Ventricular fibrillation

D:-Atrioventricular junctional rhythm

Correct Answer:- Option-D

Question68:-Which of the following ECG changes are suggestive of left ventricular hypertrophy ?

A:-The sum of S wave in lead V1 and R wave in lead V6 > 35 mm

B:-S wave in lead V1 \geq 20 mm depth

C:-R wave in lead V6 \geq 20 mm height

D:-All of the above

Correct Answer:- Option-D

Question69:-Which of the following is a feature of Right Bundle Branch Block ?

A:-Lead V1 shows a tall, wide, frequently notched R' deflexion

B:-QRS duration \leq 0.10 seconds

C:-Tall P wave in Lead II

D:-Narrow S wave in leads V5, V6

Correct Answer:- Option-A

Question70:-The major components of ventricular activation in complete Left Bundle Branch Block are all except

A:-Right septal activation

B:-Early left septal activation

C:-Delayed and anomalous left septal activation

D:-Delayed and anomalous activation of the free left ventricular wall

Correct Answer:- Option-B

Question71:-The normal T wave has

A:-A blunt apex

B:-Asymmetrical limbs

C:-Both 1 and 2

D:-A sharp apex with symmetrical limbs

Correct Answer:- Option-C

Question72:-S1Q3T3 pattern consists of all except

A:-Prominent S wave in Lead I

B:-Tall upright T wave in Lead III

C:-Prominent Q wave in Lead III

D:-T wave inversion in Lead III

Correct Answer:- Option-B

Question73:-Which of the following ECG changes is suggestive of hyperkalemia ?

A:-Prominent P wave

B:-Narrow QRS complex

C:-Tall peaked, widened T wave

D:-U wave

Correct Answer:- Option-C

Question74:-Osborn waves are characteristically seen in

A:-Hyperthermia

B:-Hypothermia

C:-Hypercalcemia

D:-Hypocalcemia

Correct Answer:- Option-B

Question75:-Which of the following is not seen in Wolff-Parkinson-White syndrome ?

A:-Short PR interval

B:-Delta wave

C:-Both 1 and 2

D:-Long PR interval

Correct Answer:- Option-D

Question76:-Cardiac rate on an electrocardiogram can be estimated by

A:-Counting the number of RR intervals in a 3 second period and the figure is multiplied by 20

B:-Counting the number of PP intervals in a 3 second period and the figure is multiplied by 50

C:-Counting the number of small squares between two consecutive R waves and the figure is divided by 300

D:-Counting the number of small squares between two consecutive R waves and the figure is multiplied by 300

Correct Answer:- Option-A

Question77:-The following are features of normal sinus rhythm except

A:-Sequential inscription of P-QRS-T complexes

B:-PR interval is less than 200 milliseconds

C:-Narrow QRS complex

D:-Cardiac rate less than 60 beats per minute

Correct Answer:- Option-D

Question78:-Sinus bradycardia is not seen in

A:-Athletes

B:-Sleep

C:-Exercise

D:-Carotid sinus compression

Correct Answer:- Option-C

Question79:-Ectopic atrial rhythms include

A:-Atrial fibrillation

B:-Atrial flutter

C:-Atrial extrasystoles

D:-All of the above

Correct Answer:- Option-D

Question80:-Second degree atrioventricular block is characterized by

A:-Sinus bradycardia

B:-Intermittent interruption of conduction

C:-Short PR interval (<0.12 seconds)

D:-Permanent interruption of conduction

Correct Answer:- Option-B

Question81:-Medical diagnosis of obesity is based on a BMI cut-off point of

A:-25.0

B:-30.0

C:-35.0

D:-40.0

Correct Answer:- Option-B

Question82:-The formula for the body mass index is

A:-A person's weight in kilograms squared divided by the square of his/her height in meters (kg^2/m^2)

B:-A person's weight in kilograms squared divided by his/her height in meters (kg^2/m)

C:-A person's weight in kilograms divided by his/her height in meters (kg/m)

D:-A person's weight in kilograms divided by the square of his/her height in meters (kg/m^2)

Correct Answer:- Option-D

Question83:-What is the current AHA recommendation for exercise in an adult for reduction of cardiovascular risk ?

A:-Atleast 150 minutes of moderate intensity or 75 minutes of strenuous exercise per week

B:-Atleast 125 minutes of moderate intensity or 60 minutes of strenuous exercise per week

C:-Atleast 100 minutes of moderate intensity or 60 minutes of strenuous exercise per week

D:-Atleast 100 minutes of moderate intensity or 75 minutes of strenuous exercise per week

Correct Answer:- Option-A

Question84:-All of the following are primordial prevention strategies of cardiovascular disease EXCEPT

A:-Tackling social determinants of health like poverty, illiteracy, urbanisation and pollution

B:-Optimising mother and child nutrition

C:-Smoking cessation

D:-Policies against Tobacco use

Correct Answer:- Option-C

Question85:-Factors associated with premature atherosclerosis is all EXCEPT

A:-Lipoprotein (a)

B:-Hyperhomocystenemia

C:-Familial hyperlipidaemia

D:-Methemoglobinemia

Correct Answer:- Option-D

Question86:-Metabolic syndrome includes all of the following EXCEPT

A:-Underweight

B:-Impaired glucose tolerance

C:-Hypertriglyceridemia

D:-Insulin resistance

Correct Answer:- Option-A

Question87:-All are causes of secondary hypertension EXCEPT

A:-Coarctation of Aorta

B:-Renal Artery Stenosis

C:-Pheochromocytoma

D:-Hypersplenism

Correct Answer:- Option-D

Question88:-The currently recommended goal of diabetic therapy in non pregnant

adult patients with diabetes mellitus is a glycated haemoglobin of LESS THAN

A:-5.5%

B:-6.0%

C:-6.5%

D:-7.0%

Correct Answer:- Option-D

Question89:-High intensity statin is recommended for all EXCEPT

A:-Recent acute coronary syndrome

B:-Diabetic patient aged less than 40 years

C:-Symptomatic peripheral artery disease

D:-Previous Ischemic CVA

Correct Answer:- Option-B

Question90:-High intensity statin therapy includes all EXCEPT

A:-20 mg of Atorvastatin

B:-20 mg of Rosuvastatin

C:-40 mg of Rosuvastatin

D:-40 mg of Atorvastatin

Correct Answer:- Option-A

Question91:-What is the compression to breath ratio in two-person CPR for an adult ?

A:-20:2

B:-30:2

C:-15:2

D:-25:2

Correct Answer:- Option-B

Question92:-The five steps in the Adult Chain of Survival include all the following EXCEPT

A:-Early CPR

B:-Rapid defibrillation

C:-Advanced airway placement

D:-Integrated post-cardiac arrest care

Correct Answer:- Option-C

Question93:-What is the correct depth of chest compressions in an adult ?

A:-Up to 2 inches

B:-Between 2 and 2.4 inches

C:-Between 2.5 and 3 inches

D:-Atleast 3 inches

Correct Answer:- Option-B

Question94:-After providing a shock with an AED you should

A:-Start CPR, beginning with chest compressions

B:-Check a pulse

C:-Give a rescue breath

D:-Let the AED reanalyze the rhythm

Correct Answer:- Option-A

Question95:-Which of the following are treated with synchronized shocks ?

A:-Unstable atrial fibrillation

B:-Sinus arrhythmia

C:-Pulseless ventricular tachycardia

D:-Ventricular fibrillation

Correct Answer:- Option-A

Question96:-The basal turn of cochlea is represented by

A:-Mid frequency

B:-Low frequency

C:-High frequency

D:-Both 1 and 2

Correct Answer:- Option-C

Question97:-Average length of Eustachian tube in an adult

A:-36 mm

B:-32 mm

C:-40 mm

D:-24 mm

Correct Answer:- Option-A

Question98:-Olivo-cochlear bundle (Rasmussen's bundle) constitutes

A:-Vestibular spinal pathway

B:-Afferent auditory pathway

C:-Vestibular ocular pathway

D:-Efferent auditory pathway

Correct Answer:- Option-D

Question99:-Dip in 4K in pure tone Audiogram usually signifies

A:-Otosclerosis

B:-Excessive noise exposure

C:-Presbycusis

D:-None of the above

Correct Answer:- Option-B

Question100:-Which among the following constitute middle ear transformer function ?

A:-The lever function of stapedius muscle

B:-Shearing action and phase locking

C:-Curved membrane buckling

D:-All of the above

Correct Answer:- Option-C