Started on	Tuesday, 12 December 2023, 10:01 AM
State	Finished
Completed on	Tuesday, 12 December 2023, 10:24 AM
Time taken	23 mins 17 secs
Marks	27.37/30.00
Grade	**9.12** out of 10.00 (**91.22**%)

Question **1**

Complete

Mark 1.00 out of 1.00

Which of these criteria are appropriate for a biological prosthetic valve implantation?

Select one or more:

- [ ] 3 vessel disease
- [ ] Age < 65 years
- [x] Age > 65 years
- [x] Thrombosis of mechanical prosthetic valve

Question **2**

Complete

Mark 1.00 out of 1.00

What treatment to reduced the risk of thrombotic complications might be recommended for a patient with paroxysmal atrial flutter? (Several correct answers are possible)

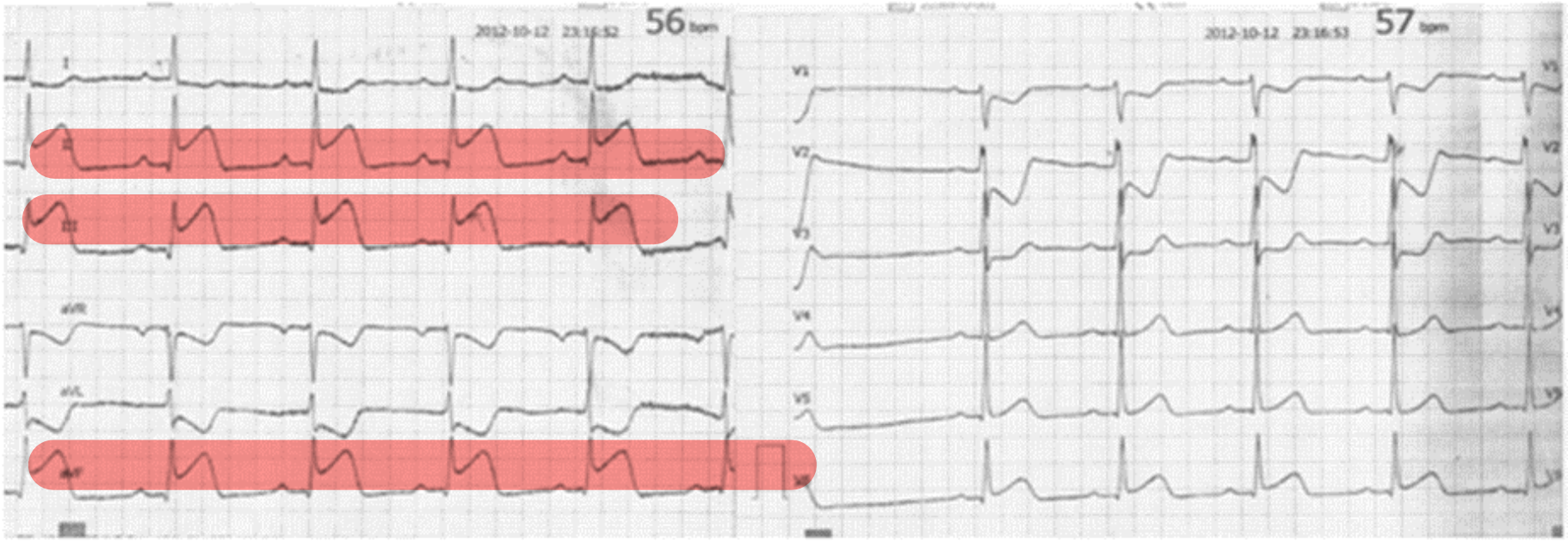
- [ ] Tikagrelol
- [ ] Aspirin
- [x] Rivaroksaban
- [ ] Clopidogrel
- [x] Edoxaban

Question **3**

Complete

Mark 1.00 out of 1.00

A 65-year-old man arrived to the emergency department of rural hospital at 07:15 a.m. due to a sudden onset of severe chest pain and nausea which started at 03:30 a.m. The patient is an active smoker, has diagnosed arterial hypertension which is not treated, had an intracranial hemorrhage 2 years ago. The patient is poured with cold sweat, HR - 56 bpm, BP - 110/60 mm Hg. It takes about 1 hour to reach the nearest interventional cardiology center (ICC).



What is the diagnosis and what reperfusion strategy to choose for this patient?

Choose one correct answer:

Myocardial infarction with ST elevation, transfer to ICC for primary percutaneous intervention;

- Myocardial infarction with ST elevation, hospitalize to the nearest hospital for medical treatment, subsequently transport to ICC for percutaneous intervention;
- Myocardial infarction with ST elevation, transfer to ICC hospital for coronary artery bypass operation;
- Myocardial infarction with ST elevation, perform fibrinolysis in a local hospital and transfer to ICC for percutaneous coronary intervention;
- Myocardial infarction without ST elevation, transfer to ICC for percutaneous intervention;

Question **4**

Complete

Mark 1.00 out of 1.00

What are the stages of chronic heart failure?

Select one:

- A, B, C, D, E
- I, II, III, IV, V
- A, B, C, D
- I, II, III, IV

Question **5**

Complete

Mark 1.00 out of 1.00

J.F. is a fit 40 year old male still physically active (jogging or briskly walking 5 times per week). He is diagnosed with grade 2 hypertension. His BP averages 166/102 mmHg, HR averages 58 bpm. He has type 2 diabetes and is a current smoking. Which one of the initial combinations would be least appropriate for J.F?

Select one:

- Telmisartan (ARB)+Hydrochlorthiazide (diuretic)
- Perindopril (ACEi)+Amlodipine (CCB)
- Metoprolol (BB)+Hydrochlorthiazide (diuretic)
- Perindopril (ACEi)+Indapamide (diuretic)

Question **6**

Complete

Mark 1.00 out of 1.00

For which patient the carotid endarterectomy is indicated?

Select one:

- A patient who has never had a stroke or transient ischemic attack, with complete occlusion of the carotid artery
- A patient who was diagnosed with a transient ischemic attack a few weeks ago, with carotid artery <50 percent stenosis
- A patient who has never had a stroke or transient ischemic attack, with a 50 percent carotid artery stenosis
- A patient to whom 3 months ago manifested ischemic stroke with 90 percent carotid artery stenosis

Question **7**

Complete

Mark 1.00 out of 1.00

What is the emergency indication for surgical treatment of infective endocarditis ?

Select one:

- Severe aortic regurgitation without heart failure
- Severe aortic regurgitation and refractory pulmonary oedema
- Moderate-severe mitral regurgitation
- Large (> 1cm) vegetation on aortic valve

Question **8**

Complete

Mark 1.00 out of 1.00

The patient with stable angina pectoris entered the in-hospital rehabilitation stage II. A 6MWT was performed. The patient walked a distance of 355m, he developed dyspnea and fatigue by Borg scale 11 points.

What is the physical capacity of this patient?

Select one:

- Moderate physical capacity
- Low physical capacity
- Strong physical capacity

Question **9**

Complete

Mark 1.00 out of 1.00

What is the advantage of valve repair compared to replacement:

Select one:

- Shorter duration of cardiopulmonary bypass
- Outpatient cardiologist observation is not required
- No risk of prosthetic valve degeneration
- Lower risk of operative wound complications

Question **10**

Complete

Mark 1.00 out of 1.00

A 54-year-old woman complains of dyspnea. Shortness of breath usually occurs during moderate to heavy physical exertion, which goes away easily after cessation of physical exertion. The mentioned symptoms have been ongoing for about 2 years. The patient suffers from dyslipidemia (takes rosuvastatin), arterial hypertension (takes perindopril and amlodipine). She is a non-smoker, patient's mother developed a myocardial infarction at the age of 78.

How do you assess the pre-test probability of obstructive coronary artery disease (OCD)? One correct answer.

Patients with angina and/or dyspnoea and suspected coronary artery disease

ESC European Society of Cardiology

Pre-test probability of coronary artery disease

	Typical		Atypical		Non-anginal		Dyspnoea[a]	
Age	M	W	M	W	M	W	M	W
30–39	3%	5%	4%	3%	1%	1%	0%	3%
40–49	22%	10%	10%	6%	3%	2%	12%	3%
50–59	32%	13%	17%	6%	11%	3%	20%	9%
60–69	44%	16%	26%	11%	22%	6%	27%	14%
70+	52%	27%	34%	19%	24%	10%	32%	12%

- High CAD pre-test probability
- Moderate CAD pre-test probability
- Low CAD pre-test probability

CAD is not suspected

Question **11**

Complete

Mark 1.00 out of 1.00

At what minimal size an elective operative strategy of open-surgery or endovascular treatment of the abdominal aortic aneurysm is recommended?

Select one:

- >6 cm
- >2,5 cm
- >5.5 cm
- >4 cm

Question **12**

Complete

Mark 0.70 out of 1.00

In which cases the surgical treatment of valvular heart disease should be recommended? Several correct answers are possible.

- [x] Dyspnea only during strenuous exercise, AV orifice area 0.58cm2, left ventricular EF 45%, coronary arteries without stenosis
- [x] Patient has palpitations, posterior MV prolapse, MV regurgitant volume 30 ml, EROA 0.25cm2, left ventricular EF 60%, coronary arteries without stenosis
- [x] Patient has permanent chest pain at the heart area, mitral valve blood flow mean gradient 7 mmHg, rheumatic MV lesion
- [x] The patient has shortness of breath and pain behind the sternum during light exercise, AV orifice area 1.6 cm2, left ventricular EF 55%
- [x] The patient has no complaints, bicuspid aortic valve, AV regurgitation volume 71ml, ascending aorta diameter 60mm

Question **13**

Complete

Mark 1.00 out of 1.00

Which of the following deseases belong to the group of non-shunt defects?

Select one:

- Taussig - Bing malformation
- Ebsteins anomaly
- Trilogy of Fallot
- Aortic coarctation

Question **14**

Complete

Mark 1.00 out of 1.00

Risk factors that are significant for development of atherosclerosis:

Select one or more:

- [ ] Factors that influence oxidative phosphorylation and mitochondrial function
- [x] Serum lipid alterations
- [x] The vascular smooth muscle functions and factors that influence vascular wall smooth muscle proliferation
- [x] Endothelial dysfunction and factors that damage the endothelial function

Question **15**

Complete

Mark 1.00 out of 1.00

Which pre-analytical factors affecting B-type natriuretic peptide (BNP) and NT-proBNP tests results and their effects:

Select one or more:

- [x] Age directly correlates with increased values
- [x] Women have higher values than men
- [ ] Smoking directly correlates with increased values
- [x] High body mass index directly correlates with decreased values
- [x] Hemolysis directly correlates with increased values
- [ ] Food intake directly correlates with increased values

Question **16**

Complete

Mark 1.00 out of 1.00

Which of the following organ is not the target for the hepertension-mediated injury?

- Arteries
- Heart
- Brain
- Thyroid gland

Question **17**

Complete

Mark 1.00 out of 1.00

Which of the following vitamins or enzymes are unable to protect against free radicals damage?

Select one:

- Vitamin B6
- Vitamin E
- Vitamin C
- β carotene
- Superoxide dismutase
- Glutathione peroxidase

Question **18**

Complete

Mark 1.00 out of 1.00

The patient is in rehabilitation phase II after treated acute myocardial infarction, he underwent an ergometry test. The test was interrupted after reaching 100W in 1 min. The test was terminated due to a pathological ECG ST depression and angina pectoris at max HR of 134 bpm. At rest HR was 84 bpm. Dyspnea and fatigue by Borg scale was 11 points. What target HR would you recommend to train this patient safely (50% HRR according to Karvonen method) ?

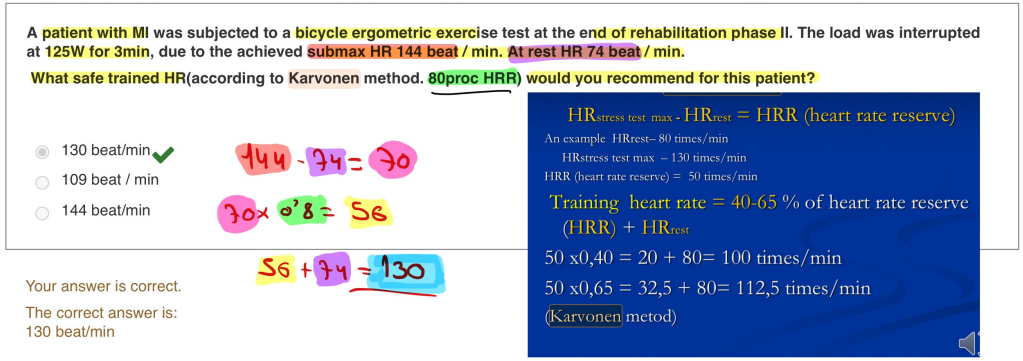
Select one:

- 94 bpm
- 122 bpm
- 109 bpm

134 - 84 = 50

50 · 0,5 = 25

84 + 25 = 109



Question **19**

Complete

Mark 0.67 out of 1.00

What combination of antithrombotic medications should be prescribed for a patient who was diagnosed with acute ischemic syndrome without ST elevation, which was treated by the implantation of a drug eluting stent. The patient has no history of Atrial fibrillation.

Choose a few answers:

Stroke + AF
venous thromboembolism

Edoxaban + Heparin + Clopidogrel; => ↑ Bleeding risk

Aspirin + Ticagrelor + Clopidogrel; => Aspirin + 2 PyI2 = ↑ bleeding risk

Enoxaparin + Aspirin + Clopidogrel; Anticoagulation + 2 dual therapy Aspirin + P2Y12 ✓ :)

Heparin + Aspirin + Ticagrelor; ↗ Same :)

Aspirin + Ticagrelor; ✓ :)

Question **20**

Complete

Mark 1.00 out of 1.00

What is the dominant component of chylomicrons ?

Select one:

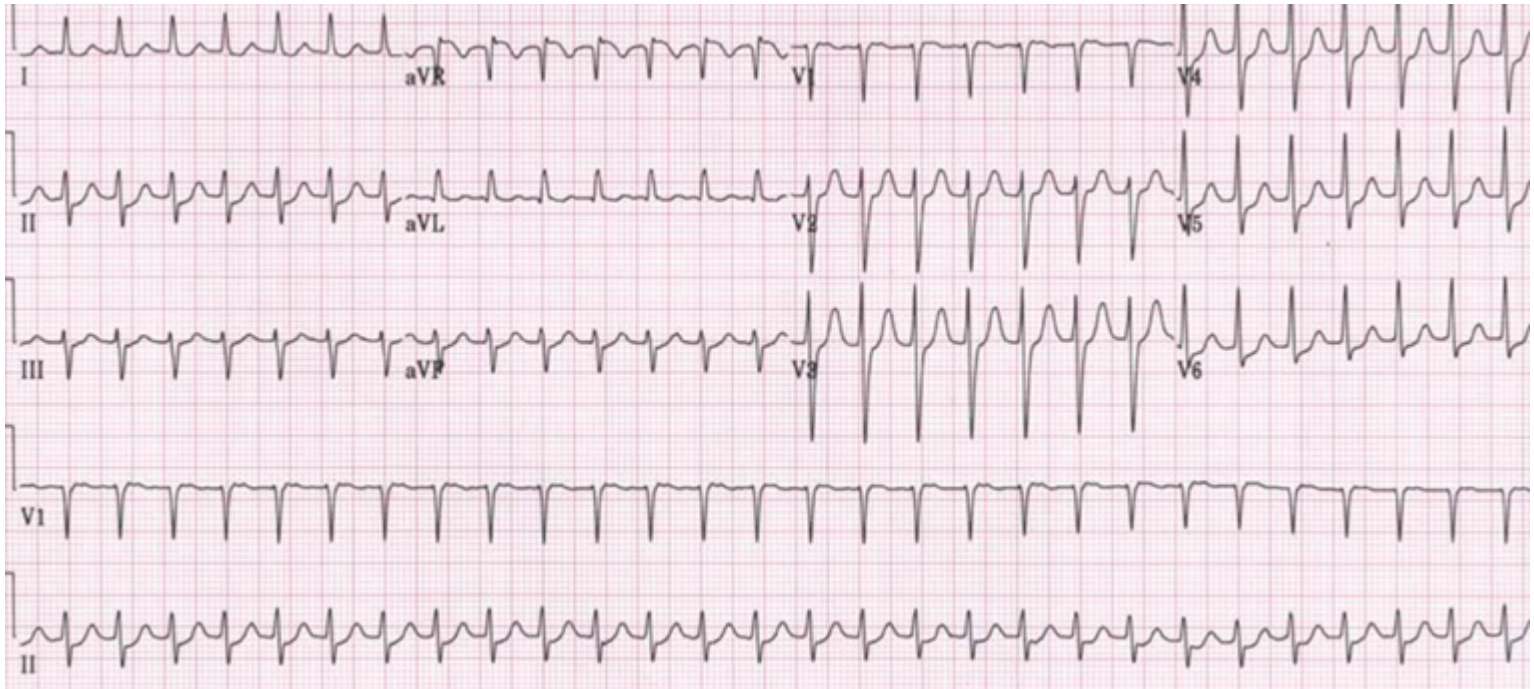
- Cholesterol ester
- ApoB -48
- Phospholipid
- Triglyceride
- Cholesterol

Question **21**

Complete

Mark 1.00 out of 1.00

A 40 year old lady comes to the emergency department with a sensation of 'fluttering' in her chest. She is feeling very anxious. An ECG is performed.



What is the diagnosis? One correct answer.

- Ventricular tachycardia
- Atriall fibrillation

- Atrioventricular nodal reentry tachycardia
- Atriall tachycardia

Question **22**

Complete

Mark 1.00 out of 1.00

Causative agents of infectious pericarditis are:

Select one:

- Bacteria (*Corynebacterium diphteriae*, *Clostridium perfringens*, *Mycobacterium tuberculosis*, *Legionella pneumophila*, *Mycoplasma pneumoniae*), viruses (Hepatitis B virus, mumps, influenzae A and B types) and fungi (*Aspergillus spp.* and *Candida spp*.)
- Bacteria (*Corynebacterium diphteriae*, *Mycobacterium tuberculosis*, *Legionella pneumophila*, *Mycoplasma pneumoniae*), viruses (Hepatitis B virus, mumps, influenzae A and B types) and fungi (*Aspergillus spp.* and *Candida spp*.)
- Viruses (Hepatitis B virus, mumps, influenzae A and B types), bacteria (*Streptococcus pneumoniae*, *Mycobacterium tuberculosis*, *Legionella pneumophila*, *Mycoplasma pneumoniae*) and fungi (*Aspergillus spp.* and *Candida spp*.)

Question **23**

Complete

Mark 1.00 out of 1.00

Choose the correct statements about acute myocardial infarction (AMI) laboratory diagnostics.

Select one or more:

- [x] AMI can be confirmed by elevated levels of cardiac biomarkers in context of ischaemia. Ischaemia must be evident. At least single value of cardiac Tn must outside upper reference limit (99-th percentile) in serial measurements during 24 h
- [x] Laboratory criteria used for diagnostics of acute myocardial injury in AMI are cardiac biomarkers: Cardiac Troponin (cardiac Tn), CK-MB (mass measurement)
- [ ] AMI can be confirmed by elevated levels of cardiac biomarkers (single measurement of single marker)

Question **24**

Complete

Mark 0.00 out of 1.00

A 56 year old man, was hospitalised to the Intensive Coronary Care Unite with diagnosis of NSTEMI which was treated by a successful stenting of the right coronary artery two days ago. Suddenly he complained of a sudden crushing chest pain ago, the ECG was recoded - without any dynamic changes. Which of the following enzymes would be most suitable to determine whether he had a second infarct?

Select one:

- Lactate dehydrogenase
- Cardiac troponins
- Total creatinine kinase
- Myoglobin

Question **25**

Complete

Mark 1.00 out of 1.00

What are the contraindications for phase II rehabilitation?

Select one or more:

- [x] Unmotivated patient
- [x] Acute conditions requiring active treatment
- [x] Terminal clinical group oncological diseases

Question **26**

Complete

Mark 0.00 out of 1.00

Where dual chamber pacemaker electrodes are placed?

- [ ] Left atrium and left ventricle
- [ ] Right atrium and right ventricle
- [ ] Right atrium and coronary sinus
- [x] Right atrium and left ventricle

Question **27**

Complete

Mark 1.00 out of 1.00

What of the following factors are recommended to take the blood samples for detection of infective endocarditis causative agent:

Select one:

- Optimal interval between sets - 12 hours. The need for taking the culture sample prior to antibiotic administration is self-evident.
- Optimal interval between sets - 30 min. Antimicrobial treatment is insignificant for culture results.
- In acute cases optimal interval between sets - 30 min. In chronic cases optimal interval between sets - 12-24 hrs. The need for taking the culture sample prior to antibiotic administration is self-evident.

Question **28**

Complete

Mark 1.00 out of 1.00

Which patient has indications for aortic valve (AV) replacement?

Select one:

- AV flow velocity 4,5m/s, AV orifice area 0,90cm^2, patient climbs without dyspnea up to 5th floor
- AV flow velocity 2,8m/s, AV orifice area 1,6cm^2, patient had syncope
- AV flow velocity 3,0m/s, AV orifice area 1,2cm^2, left ventricular ejection fraction 40 %
- AV flow velocity 4,3m/s, AV orifice area 0,96cm^2, dyspnea climbing up to 2nd floor
- AV flow velocity 4,3m/s, AV orifice area 0,96cm^2, patient climbs without dyspnea up to 5th floor

Question **29**

Complete

Mark 1.00 out of 1.00

A 60 year-old man suddenly felt the pain in his right leg, the leg got numb, became cold. What is the most suspect extent of the operation:

Select one:

- Mechanical thrombectomy
- Amputation
- Arterial bypass surgery

Question **30**

Complete

Mark 1.00 out of 1.00

Which characteristics of the left internal thoracic artery (ITA) comparing to venous grafts as a bypass graft has been proven to provide superior early and late graft patency results?

Select one or more:

- [x] Resistance to intimal hyperplasia, significantly high basal production of the vasodilators nitric oxide and prostacyclin, remodeling over time
- [x] Demonstrates remarkable resistance to development of atherosclerosis, adapting to the demand for increased flow by often increasing in diameter over time
- [ ] Resistance to spasm, ease of harvest, ready availability, versatility, reserve for increased flow demand