



## SAUDI FELLOWSHIP TRAINING PROGRAM

### PEDIATRIC CARDIOLOGY

#### Final Written Examination

##### **Examination Format:**

The Saudi subspecialty fellowship and diplomas final written examination shall consist of one paper with 80-120 multiple-choice questions (single best answer out of four options). 10 unscored items can be added for pretesting purposes.

##### **Passing Score:**

1. The passing score is 70%.
2. If the percentage of candidates passing the examination before final approval is less than 70%, the passing score must be lowered by one mark at a time aiming at achieving 70% passing rate or 65% passing score whichever comes first. Under no circumstances can the passing score be reduced below 65%.





### Blueprint Outlines:

No.	Sections	Percentage
1	Invasive cardiology <sup>1</sup>	15%
2	Non-Invasive cardiology <sup>2</sup>	25%
3	Cardiac surgery <sup>3</sup>	5%
4	Intensive care <sup>3</sup>	5%
5	Electrophysiology <sup>4</sup>	15%
6	Clinical Cardiology <sup>5</sup>	30%
7	Adult congenital <sup>6</sup>	5%
<b>Total</b>		<b>100%</b>

<sup>1</sup> Hemodynamics and cardiac catheterization including cardiac output (Fick), shunt calculation (Qp/Qs), pulmonary and systemic vascular resistance (PVRi/SVRi), pressure gradients, diagnostic catheterization, angiogram and projections, interventional procedures, indication hemodynamic assessment, and procedure-related complications.

<sup>2</sup> Transthoracic echocardiography including M-mode, 2D and 3D echo, Color Flow Doppler, PW and CW Doppler, Tissue Doppler Imaging, strain imaging, contrast echocardiography, and stress echocardiography, as well as TEE and ICE.

cardiac CT and cardiac MRI.

<sup>3</sup> Common surgery, indication, complication, follow up and ICU care and management

<sup>4</sup> Arrhythmias, syncope, inherited channelopathy, Devices (indications, complications and troubleshooting) and EP study basics.

<sup>5</sup> Fetal, neonatal and pediatric cardiology, acquired heart disease, cardiovascular anatomy and pathology, cardiac embryology and development, cardiovascular pharmacology, heart failure, genetic and syndromic cardiovascular disorders, and family and patient counseling.

<sup>6</sup> Heart Failure (systemic RV dysfunction, Fontan failure)

Pulmonary Hypertension / Eisenmenger. Valve Degeneration (post TOF repair or systemic AV valve disease). Aortopathy (BAV, coarctation, Marfan spectrum). Transcatheter therapies (TPVR, stent and Device closures). Pregnancy with congenital heart disease.





**Note:**

- Blueprint distributions of the examination may differ up to +/-5% in each category.
- Percentages and content are subject to change at any time. See the SCFHS website for the most up-to-date information.
- Research, Ethics, Professionalism and Patient Safety are incorporated within various domains.





### Suggested References:

- Moss & Adams' Heart Disease in Infants, Children, and Adolescents, Including the Fetus and Young Adult (2 Volume Set)
- Atlas of Congenital Heart Disease Nomenclature: An Illustrated Guide to the Van Praagh and Anderson Approaches to Describing Congenital Cardiac Pathology by David S. Ezon MD, Jason F. Goldberg MD
- Nadas' Pediatric Cardiology, 2e by John F. (Barry) Keane MD and Donald C. Fyler MD
  - Echocardiography in Pediatric and Congenital Heart Disease: From Fetus to Adult Wyman W. Lai, Luc L. Mertens, Tal Geva, Meryl S. Cohen
- Cardiac catheterization in congenital heart disease: pediatric and adult Charles E. Mullins
- Congenital Heart Disease: The Catheterization Manual Lisa Bergersen, Susan Foerster, Audrey C. Marshall, Jeffery Meadows
- How to Read Pediatric ECGs Myung Kun Park, Warren G. Guntheroth
- Pediatric ECG Interpretation: An Illustrative Guide Barbara J. Deal, M.D., Christopher L. Johnsrude, M.D., Scott H. Buck, M.D.
- Pediatric and Congenital Cardiology, Cardiac Surgery and Intensive Care Eduardo da Cruz, Dunbar Ivy, James Jagers
- Pediatric Cardiac Intensive Care Jan by Anthony Chang MD and Frank Hanley MD
- Critical Heart Disease in Infants and Children David Gregory Nichols
- Comprehensive Surgical Management of Congenital Heart Disease, Second Edition by Richard A Jonas Atlas of Pediatric Cardiac Surgery 1st ed by Constantine Mavroudis, Carl Lewis Backer, Rachid F. Idriss
- [www.acc.org/guidelines](http://www.acc.org/guidelines)
- [https://professional.heart.org/professional/GuidelinesStatements/UCM\\_316885\\_Guidelines-Statements.jsp](https://professional.heart.org/professional/GuidelinesStatements/UCM_316885_Guidelines-Statements.jsp)
- <https://www.escardio.org/Guidelines>

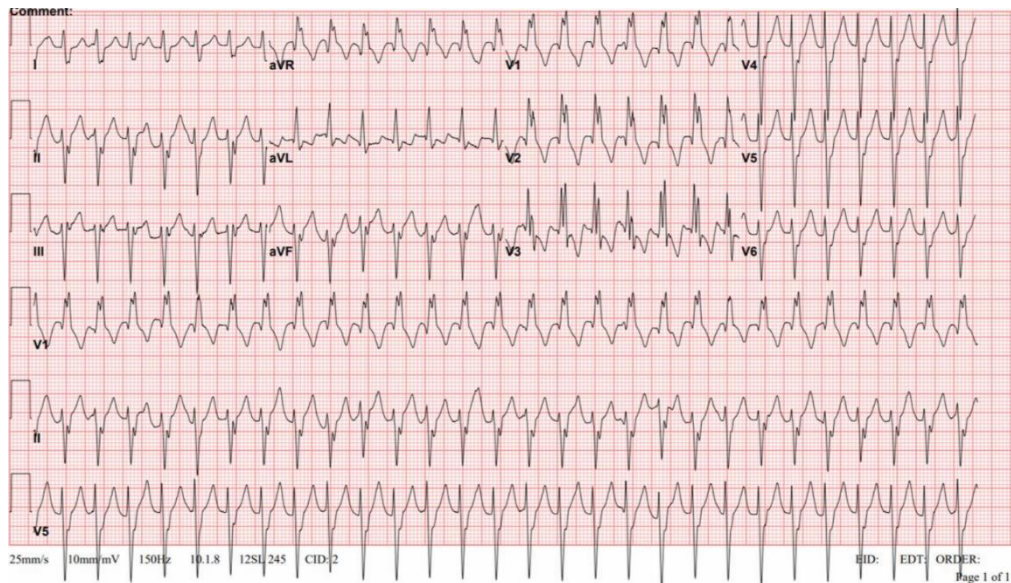
### **Note:**

This list is intended for use as a study aid only. SCFHS does not intend the list to imply endorsement of these specific references, nor are the exam questions necessarily taken solely from these sources.





**Examples 1:**



A 9-year-old boy with no known structural heart disease presents with recurrent palpitations and mild dizziness. There are no signs of heart failure. ECG in emergency room obtained. Adenosine is administered without effect (see image and report).

Blood pressure	100/65 mmHg
Heart rate	170 beats/min
Respiratory rate	18 breath/min
Oxygen saturation	98% on room air

**Echocardiography:**

Normal.





Which of the following is the most appropriate next step in management to terminate the tachycardia?

- A. Intravenous lidocaine
- B. Intravenous verapamil
- C. Intravenous amiodarone
- D. Synchronized cardioversion

**Correct Answer:**

B. Intravenous verapamil due to calcium-dependent reentry within the left fascicular system (Verapamil sensitive VT)





**Examples 2:**



A 5-year-old boy referred from the GI clinic for cardiac evaluation before possible liver transplantation. He has easy fatiguability. His examination revealed dysmorphic features. Pulses were normal and no radiofemoral delay. Ejection systolic murmur noted on auscultation. Echocardiography revealed high RV pressure (estimated 85 mmHg). Patient underwent cardiac catheterization (see image).

Blood pressure	110/68 mmHg
Heart rate	120 beats/min
Oxygen saturation	96% on room air
Weight	21 kg
Height	113 cm

What is the most likely diagnosis?

- A) Alagille syndrome
- B) Noonan syndrome
- C) Williams syndrome
- D) Supra pulmonary artery stenosis

**Correct Answer:**

- A) Alagille syndrome

Alagille syndrome is a genetic disorder that affects primarily the liver and the heart.

The most frequently occurring structural abnormality is stenosis/hypoplasia of the branch pulmonary arteries.

