

Syllabus	CT_IK_05, POM_IK_01, POM_IK_06
Topic	Cardiopulmonary exercise testing (CPET)

a)

List 3 main measures of fitness that are obtained by a cardiopulmonary exercise test (CPET) (3 marks)

- 1)
- 2)
- 3)

b)

List 3 indications for the use of CPET (3 marks)

- 1)
- 2)
- 3)

c)

List 5 absolute contraindications for CPET. (5 marks)

- 1)
- 2)
- 3)
- 4)
- 5)

d)

List 3 situations where CPET may be impractical? (3 marks)

- 1)
- 2)
- 3)

e)

How else can a patient's functional capacity be assessed? (3 marks)

1)

2)

3)

f)

List 3 other scoring systems are commonly used to assess perioperative risk before major non-cardiac surgery? (3 marks)

1)

2)

3)

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	Answer	Mark	Guidance
a)	<ul style="list-style-type: none"> • Anaerobic threshold • Peak oxygen delivery (VO₂ peak) • Workload achieved 	<p>1</p> <p>1</p> <p>1</p>	
b)	<ul style="list-style-type: none"> • To estimate morbidity and mortality • Inform multidisciplinary decisions • To guide postoperative care e.g. destination: Level 1, 2, 3 • To guide prehabilitation • To guide rehabilitation 	<p>1 mark for each (Max. 3 marks)</p>	
c)	<ul style="list-style-type: none"> • Acute MI within 3-5 days of event • Unstable angina • Uncontrolled arrhythmia causing Haemodynamic compromise • Syncope • Uncontrolled asthma or heart failure • Active endocarditis/myocarditis/pericarditis • Symptomatic severe AS • Acute PE/pulmonary infarction • Thrombosis of lower extremities • Suspected dissecting aneurysm • Pulmonary oedema • Room air desaturation at rest <85% • Mental impairment leading to non-compliance 	<p>1 mark for each (Max. 5 marks)</p>	
d)	<ul style="list-style-type: none"> • History of amputation, compromising ability to use equipment • Severe peripheral vascular disease • Severe arthritis • Balance/coordination problems • Inability to tolerate facemask/mouth piece e.g. claustrophobia • Lack of motivation 	<p>1 mark for each (Max. 3 marks)</p>	
e)	<ul style="list-style-type: none"> • Hand crank CPET • Duke Activity Status Index • Incremental Shuttle Walk Test • 6 minute walk test 	<p>1 mark for each (Max. 3 marks)</p>	

f)	<p><u>Generic:</u></p> <ul style="list-style-type: none"> American Society of Anaesthesiologists Physical Status Score (ASA) Physiological and Operative Severity Score for the enUmeration of Mortality and Morbidity (POSSUM) Surgical Outcome Risk Tool (SORT) American College of Surgeons Surgical Risk Calculator (ACS NSQIP) <p><u>Cardiac:</u></p> <ul style="list-style-type: none"> Revised Cardiac Risk Index <p><u>Specific:</u></p> <ul style="list-style-type: none"> Nottingham hip fracture score POSSUM for vascular surety (V-POSSUM) Carlisle risk calculator for survival after AAA repair 	1 mark for each (Max. 3 marks)	
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References

- 1) Agnew N. Preoperative cardiopulmonary exercise testing. CEACCP (2010) 10(2)33–37, <https://academic.oup.com/bjaed/article/10/2/33/310040>
- 2) Chambers D, Wisely N. Cardiopulmonary exercise testing - a beginner's guide to the nine-panel plot. BJA Education (2019) 19(5)158-164 [https://bjaed.org/article/S2058-5349\(19\)30021-6/fulltext](https://bjaed.org/article/S2058-5349(19)30021-6/fulltext)