

MUS227—Theory IV

Study Guide for Exam 2 — chapter 1-2 Straus

The exam will include short writing exercises and short analysis questions.

Pitch (C₅, D₆)

Pitch-class (C=C)

Set (collection of pitch classes)

OPI (ordered pitch interval... +4, -15, +33)

UPI (unordered pitch interval... 4, 15, 33)

OPCI (ordered pitch class interval... only 0-11 — so -2 = 10 / -4 = 8)

UPCI (unordered pitch class interval... only 0-6, choose the smaller complement — so 10=2, 8=4, 9=3, etc.)

<Interval-class vector> (add up UPCIs between all notes)

e.g. 0123 = 0-1, 0-2, 0-3 / 1-2, 1-3 / 2-3 = **1,2,3,1,2,1**

then tally how many of each interval class you have = 3 ones, 2 twos, and 1 three
answer is <321000> assuming first slot is 1's, 2nd is 2's, etc... 1-6 (skip 0)

[Normal Form] — 7E320

1. Write notes in ascending order — 0237E
2. Rearrange order so smallest OPCI possible is on outside, first to last
[E0237] + [7E023] both have outer interval of 8
3. If there is a tie, choose the arrangement that has smallest first to second-to-last interval, then smallest first-to-third-to-last, etc.
[E0237] = 4 + [7E023] = 7, so the correct answer is [E0237]

(Prime Form)

1. Put your set in normal form [E0237]
2. Mark the UPCI between notes [E¹0²2¹3⁴7]
3. Choose direction that starts with smallest interval first
4. Transpose set to start on 0 = (01348)

Transposition

1. Put set in normal form (easier to see relationships this way)
2. Transpose by OPCI (down 2 = +10) — just add numbers together mod₁₂ L->R
3. T₆[E0237] = [56891]

Inversion

1. Put set in normal form
2. Subtract each integer (note) from the index # n (I_n) — flip answer backwards
3. $I_4[E0237] = [54219]$ flipped = $[91245]$
4. Make sure your answer is in normal form... $[12459]^*$
*both = 8 on outside whether starting on 9 or 1, but because $5-1=4$ and $4-9=7$, starting on 1 wins

Finding relationships between sets (T_n or I_n)

1. Put sets in normal form and stack on atop the other
2. If transpositionally related, you'll see each number adding N to get from X to Y
$$\begin{array}{r} [01234] \\ +33333 \\ [34567] = T_3 \end{array}$$

NB: if you start on $[34567]$ and want to transpose to $[01234]$ it is T_9 (always go up!)
3. If inversionally related, they will add up to the same number, but instead of adding straight down 0-3, 1-4, you have to criss-cross first + last, etc.
$$\begin{array}{r} [01234] \\ [6789T] \end{array}$$

$0+T = 10, 1+9 = 10, 2+8=10, 3+7=10, 4+6=10$, so answer is I_{10}
4. If it doesn't work, check that it's in normal form or try the retrograde version