S5 Music Practice Paper

S5 | Music | Time: 75 minutes | Total: 100 marks | 24 questions

---

Part A Intervals and Equal Temperament (18 marks)

Take A4 = 440 Hz and compute every interval in twelve-tone equal temperament. Give answers to 3 significant figures.

1. Find the frequency of (a) A5 one octave above A4; (b) the note a perfect fifth (7 semitones) above A4; (c) the note a major third (4 semitones) above A4. (6 marks)

Answer: (a) A5 = 440 x 2 = 880 Hz; (b) 440 x 2^(7/12) = 659.3 Hz; (c) 440 x 2^(4/12) = 554.4 Hz.

2. State the size in cents of an ascending perfect fifth in equal temperament. (4 marks)

Answer: 7 semitones = 7 x 100 = 700 cents.

3. A just perfect fifth has frequency ratio 3:2. Find its size in cents and the difference from the equal-tempered fifth. (4 marks)

Answer: 1200 x log2(1.5) = 701.96 cents, which is 1.96 cents wider than the equal-tempered fifth.

4. C4 has frequency 261.63 Hz. Find the frequency of the note 10 semitones above it. (4 marks)

Answer: 261.63 x 2^(10/12) = 466.2 Hz.

Part B Rhythm and Time (16 marks)

Tempo marks are given in beats per minute (BPM). Time signatures are as stated in each question.

5. With the tempo mark crotchet = 96, find the duration of one beat in seconds and the total duration of four bars of 4/4. (4 marks)

Answer: One beat = 60 / 96 = 0.625 s; four bars = 16 beats, so the total is 16 x 0.625 = 10 s.

6. In 6/8 time with dotted crotchet = 60, find the duration of one bar. (4 marks)

Answer: A dotted crotchet lasts 1 s and one bar of 6/8 holds two of them, so one bar lasts 2 s.

7. A piece in 3/4 time has 96 bars at crotchet = 120. Find its total duration in seconds and in minutes. (4 marks)

Answer: 96 x 3 = 288 beats at 0.5 s each, giving 144 s, that is 2.4 minutes.

8. In one bar of 4/4 the notes are a crotchet, two quavers, a dotted crotchet and a quaver. Find the total number of beats and state whether the bar is complete. (4 marks)

Answer: 1 + 1 + 1.5 + 0.5 = 4 beats, so the bar is exactly complete in 4/4 time.

Part C Keys and the Circle of Fifths (16 marks)

For each question, state the key, its key signature and the number of sharps or flats.

9. How many sharps are in the key signature of G major, and which note is sharpened? (4 marks)

Answer: One sharp: F sharp.

10. How many flats are in the key signature of E flat major, and which notes are flattened? (4 marks)

Answer: Three flats: B flat, E flat and A flat.

11. Moving four steps clockwise from C major on the circle of fifths (C, G, D, A, E), state the final key and its number of sharps. (4 marks)

Answer: E major, with four sharps: F sharp, C sharp, G sharp and D sharp.

12. What is the relative minor of A major, and how many sharps does it have? (4 marks)

Answer: F sharp minor, which also has three sharps.

Part D Chords and Harmony (16 marks)

Unless stated otherwise, all chords are in root position.

13. In C major, write out the three chords of the progression ii - V - I with their names and qualities. (4 marks)

Answer: D minor (minor triad), G major (major triad) and C major (major triad).

14. Write out the four notes of a G7 chord from lowest to highest. (4 marks)

Answer: G, B, D, F.

15. In C major, what is the root of the chord on degree V of the seventh, and what is its quality? (4 marks)

Answer: The root is G and the chord is a dominant seventh (G7), a major triad with a minor seventh.

16. What is the cadence from V to I called, and what is the cadence from V to vi called? (4 marks)

Answer: V to I is an authentic cadence; V to vi is a deceptive cadence.

Part E Musical Form and Listening (16 marks)

Sections are labelled with letters; the same letter means the same material.

17. What are the structure labels of binary and ternary form, and what is one common example of each? (4 marks)

Answer: Binary form is AB (for example a Baroque dance movement); ternary form is ABA (for example a minuet with trio).

18. Name the three main sections of sonata form. (4 marks)

Answer: Exposition, development and recapitulation, sometimes with an introduction and a coda.

19. A song in AABA form lasts 32 bars and each A section is 8 bars long. Find the length of the B section. (4 marks)

Answer: 32 - 3 x 8 = 8 bars.

20. A theme lasts 16 bars and there are 6 variations, with a 2-bar link between consecutive sections. Find the total number of bars. (4 marks)

Answer: 16 x 7 + 2 x 6 = 124 bars.

Part F Instruments, Timbre and Hong Kong Music (18 marks)

Show your working in the last question.

21. Name the four main woodwind instruments of a symphony orchestra. (4 marks)

Answer: Flute, oboe, clarinet and bassoon.

22. By the way sound is produced, what family does the erhu belong to, and what is characteristic of its timbre? (4 marks)

Answer: It is a bowed string instrument, played with a bow across the strings, and its timbre is continuous and voice-like.

23. Name four of the note names used in the gongche notation of Cantonese opera. (4 marks)

Answer: He, shi, yi and shang, alongside chi, gong, fan and liu.

24. A Cantonese pop song is in 4/4 time at crotchet = 72 and lasts 128 bars, with a 4-bar introduction and a 4-bar coda. Find (a) the total duration in seconds and (b) the number of bars that carry the sung material. (6 marks)

Answer: (a) 128 x 4 = 512 beats at 60 / 72 = 0.8333 s each, giving about 427 s, that is about 7 minutes 7 seconds; (b) 128 - 4 - 4 = 120 bars.
