S3 Music Practice Paper 1 | Pitch and frequency, time signatures, tempo, intervals, chords and concert income

Junior Secondary Music

S3 Music practice paper with answers: pitch and frequency, note values and time signature, tempo and playing time, intervals, chords, transposition and concert costs.

1. Pitch and frequency (18 marks)

The frequency doubles at each octave; take A4 as 440 Hz.

#	Question
1	(a) A4 has a frequency of 440 Hz. Find the frequency of A5 one octave above and A3 one octave below.
2	(b) Middle C (C4) has a frequency of 261.6 Hz. State whether it is higher or lower than A4 and find the difference in Hz (1 decimal place).
3	(c) A flute sounds a note of 1760 Hz. Using A4 = 440 Hz, find how many octaves above A4 that note is.
4	(d) That 440 Hz sound travels at 340 m/s in air. Find its wavelength in m (3 decimal places) and its period in s (4 decimal places).

2. Note values and time signatures (16 marks)

A crotchet is one beat, a semibreve four beats, and a dot adds half the value.

#	Question
5	(a) A piece is in 4/4 time and has 32 bars. Find the total number of beats.
6	(b) Two dotted minims are placed in one bar of 4/4. Decide whether this fits and state the difference.
7	(c) A piece in 3/4 time has 24 bars and is played at 90 beats per minute. Find the total beats and the playing time in seconds.
8	(d) A piece in 6/8 time has 18 bars. Find the total number of quavers and the equivalent number of crotchets.

3. Tempo and playing time (16 marks)

Tempo is given in beats per minute (BPM); playing time = total beats / BPM x 60.

#	Question
9	(a) A piece in 4/4 time is played at 120 BPM and has 60 bars. Find the seconds per bar and the total playing time.
10	(b) A piece lasts 5 minutes 30 seconds at 90 BPM. Find the total number of beats.
11	(c) A piece in 3/4 time has 240 bars at 100 BPM. Find the playing time in minutes (1 decimal place).
12	(d) The same piece is sped up from 100 BPM to 120 BPM. Find the time saved in seconds and the percentage increase in speed.

4. Intervals and semitones (16 marks)

An octave has 12 semitones; a perfect fifth has 7, a perfect fourth 5, a major third 4 and a minor third 3.

#	Question
13	(a) C to G is a perfect fifth. State the number of semitones in this interval.
14	(b) Starting on C4, move up 7 semitones. Name the note reached.
15	(c) How many semitones apart are a major third and a minor third? Give both semitone counts.
16	(d) A melody rises from D to A (perfect fifth) and then from A to the D above (perfect fourth). Find the total semitones and decide whether it equals one octave.

5. Chords and transposition (18 marks)

A major triad is built from the root, a major third and a perfect fifth; transposition moves every note by the same number of semitones.

#	Question
17	(a) The C major triad is C, E and G. Find the semitones from C to E and from E to G.
18	(b) Transpose that chord up 2 semitones and name the three notes of the new chord.
19	(c) A piece is in C and the instrument needs the music 3 semitones lower. Find the new first note and state the direction of transposition.
20	(d) In a four part chord the soprano sings G4 (392 Hz) and the bass sings G2 (98 Hz). Find the frequency ratio and the number of octaves apart.

6. Orchestra layout and concert ticket income (16 marks)

Percentages must total 100 and money is in dollars.

#	Question
21	(a) An orchestra has 80 players: strings 50 per cent, woodwind 20 per cent, brass 15 per cent and percussion 15 per cent. Find the number in each group.
22	(b) A hall has 850 seats and 782 tickets are sold. Find the attendance rate as a percentage (1 decimal place).
23	(c) Student tickets at 180 dollars sell 320 copies and adult tickets at 450 dollars sell 462 copies. Find the total ticket income.
24	(d) The concert costs 210,000 dollars. Find the profit or loss of the first concert, then of a second concert with the same cost, 80 per cent attendance and all adult tickets.