Supplementary question 2:

The answer is that it makes no difference to the relative average powers – we can still control the average power to come out in one or the other of the output beams, or any relative ratio between them that we wish, just as we could with higher powers. In this question, I am just interested to see how the examinee reasons on this one, and I do not expect that they know the quantum mechanics that might otherwise help with the answer.

Supplementary question 3:

The answer is that you could not combine the powers in such a way as to heat up another body to a hotter temperature. There are several ways of looking at the answer to this. One is to rely on the Second Law of Thermodynamics, which forbids such processes. A second way is to look at the microscopic physics. One argument would be that the phase of the light from the two different bodies is completely independent, and so on the average, one could not add the powers reliably into one output port or another. A third way is to rely on the Constant Brightness Theorem (or Constant Radiance Theorem) of optics, which also forbids such processes, though it is unlikely the examinee would have heard of this, and the most convincing way to prove that theorem is anyway by starting from the Second Law of Thermodynamics.