S3 PE Practice Paper 1 | Fitness data, target heart rate, pacing, energy cost

Junior Secondary Physical Education

S3 PE practice paper with answers: BMI and healthy weight, Karvonen heart rate zones, 800 m pacing, MET energy cost, flexibility and strength test progress.

1. BMI and healthy weight management (16 marks)

Give answers to 1 decimal place; use kcal for energy.

#	Question
1	(a) A student is 1.6 m tall and weighs 64 kg. Find the BMI.
2	(b) If the healthy BMI limit is 22.9, find the upper limit of healthy weight.
3	(c) Find the weight to be reduced, then the energy deficit at 7,700 kcal per kg of fat.
4	(d) If the daily deficit is 500 kcal, find the minimum days needed (round up) and state one exercise to pair with it.

2. Karvonen target heart rate (18 marks)

Answer in beats per minute; show working.

#	Question
5	(a) Estimate the maximum heart rate of a 15-year-old using 220 minus age.
6	(b) The resting heart rate is 60 bpm. Find the heart rate reserve.
7	(c) Use the Karvonen formula to find the 60% target heart rate.
8	(d) Find the 80% target heart rate and explain why beginners should start at 60%.

3. 800 m pacing and speed (16 marks)

Give speed to 2 decimal places and km/h to 1 decimal place.

#	Question
9	(a) A student runs 800 m in 4 minutes 00 seconds. Find the time in seconds.
10	(b) Find the average speed in m/s.
11	(c) Convert the average speed to km/h.
12	(d) If the first 400 m takes 110 s and the second 400 m takes 130 s, find the second-half speed and compare.

4. MET energy cost and diet balance (18 marks)

Use kcal for energy and 2 decimal places for fat mass.

#	Question
13	(a) Running has a MET value of 10. A student of 60 kg runs for 30 minutes. Find the energy used.
14	(b) A bag of crisps has 250 kcal. At the same intensity, how many minutes of running offset it?
15	(c) If the student trains 4 times a week for 30 minutes each, find the weekly energy cost.
16	(d) Taking 7,700 kcal as 1 kg of fat, how many kg of fat does the weekly cost equal?

5. Fitness tests and rate of progress (16 marks)

Give percentages to whole numbers, except the last part to 1 decimal place.

#	Question
17	(a) Sit-and-reach improves from 20 cm to 25 cm. Find the percentage improvement.
18	(b) Pull-ups improve from 4 to 7. Find the percentage improvement.
19	(c) Standing long jump improves from 1.60 m to 1.84 m. Find the percentage improvement.
20	(d) Find the mean percentage improvement of the three tests and say which needs priority work.

6. Hydration and exercise safety (16 marks)

Give fluid volumes in mL.

#	Question
21	(a) Body mass falls from 60.0 kg to 59.2 kg. Find the sweat loss and the fluid needed at 1.0 to 1.5 L per kg.
22	(b) A session lasts 60 minutes and warm-up takes 15%. Find the warm-up time.
23	(c) On the RPE 6 to 20 scale, what intensity does 13 represent?
24	(d) In a 2-hour session the student drinks 150 mL every 20 minutes. Find the total intake.