

## Mark schemes

## Q1.

[AO1 = 6 AO3 = 10]

Level	Mark	Description
4	13-16	Knowledge of research into the effects of endogenous pacemakers and exogenous zeitgebers on the sleep/wake cycle is accurate and generally well detailed. Discussion is thorough and effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear, coherent and focused. Specialist terminology is used effectively.
3	9-12	Knowledge of research into the effects of endogenous pacemakers and exogenous zeitgebers on the sleep/wake cycle is evident but there are occasional inaccuracies/omissions. Discussion is mostly effective. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately.
2	5-8	Limited knowledge of research into the effects of endogenous pacemakers and exogenous zeitgebers on the sleep/wake cycle is present. Focus is mainly on description. Any discussion is of limited effectiveness. The answer lacks clarity, accuracy, and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1-4	Knowledge of research into the effects of endogenous pacemakers and exogenous zeitgebers on the sleep/wake cycle is very limited. Discussion is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

**Note** that 'research' refers to theories and/or studies of the effects of endogenous pacemakers or exogenous zeitgebers on the sleep/wake cycle.

**Possible content:**

- knowledge of sleep/wake cycle
- knowledge of the role of the SCN, pineal gland and/or melatonin in sleep/wake cycle
- knowledge of the role of light and/or social cues on sleep/wake cycle
- description of the role of endogenous pacemakers and/or exogenous zeitgebers on sleep/wake cycle
- description of research into the effects of endogenous pacemakers and/or exogenous zeitgebers on sleep/wake cycle, eg Decoursey et al. (2000),

- Ralph et al. (1990), Campbell & Murphy (1998)  
description of studies of sleep/wake cycle, eg Siffre's cave study, Aschoff & Wever (1976), Folkard et al. (1985).

**Possible discussion:**

- research evidence used to support the effects of endogenous pacemakers and/or exogenous zeitgebers on sleep/wake cycle, eg Decoursey et al. (2000), Ralph et al. (1990), Morgan (1995), Campbell & Murphy (1998), Siffre's cave study, Aschoff & Wever (1976), Folkard et al. (1985)
- application of research to understanding of changing the sleep/wake cycle, eg jet lag, shifting the school day
- discussion of individual differences in the sleep/wake cycle, eg owls and larks
- discussion of an interactionist system
- methodological critique of evidence – issues of generalisation from case studies and animal studies; correlation-causation issue in correlational studies; ethical issues of animal studies.

Credit other relevant material.

[16]

**Q2.**

[AO1 = 2]

**2 marks** for a clear outline with appropriate use of examples.

**1 mark** for a limited/muddled outline with inappropriate/no use of examples.

**Possible content:**

- endogenous pacemakers are internal whereas exogenous zeitgebers are external
- endogenous pacemakers are body clocks which regulate biological rhythm whereas exogenous zeitgebers are cues that entrain our biological rhythms
- examples used to illustrate the difference between the two influencers, eg the effects of the SCN (endogenous pacemaker) as opposed to light (exogenous zeitgeber).

Credit other relevant material.

[2]

**Q3.**

[AO1 = 2]

**2 marks** for a clear, coherent explanation with some elaboration.

**1 mark** for a limited or muddled explanation.

**Content:**

- the rhythms have different durations: infradian rhythms have a duration of over 24hrs whereas ultradian rhythms are cycles that last less than 24hrs.

**Note** – a definition of one type of rhythm or examples of the rhythms are not creditworthy in isolation.

[2]