Biopsychology

Explain the difference between infradian rhythms and ultradian rhythms.

[2 marks]

Mark Scheme:

Marks for this question: 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.

Examiner Comment:

Question 07

Generally well answered, with most students achieving full marks. However, some students muddled the durations whilst others presented differences based on internal vs external rhythms.

Julia complains that her baby is sleeping all day and keeping her awake all night.

Using your knowledge of research into exogenous zeitgebers, discuss what Julia could do to encourage her baby to sleep more at night.

[8 marks]

Mark Scheme:

Marks for this question: AO1 = 3 and AO2 = 2 and AO3 = 3

Level	Marks	Description
4	7 - 8	Knowledge of research into exogenous zeitgebers is accurate with some detail. Application to Julia's baby is effective. Discussion is effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear, coherent and focused. Specialist terminology is used effectively.
3	5 - 6	Knowledge of research into exogenous zeitgebers is evident but there are occasional inaccuracies/omissions. Application and/or discussion is mostly effective. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately.
2	3 - 4	Limited knowledge of research into exogenous zeitgebers is present. Focus is mainly on description. Any discussion/application is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1 - 2	Knowledge of research into exogenous zeitgebers is very limited. Discussion/application 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.

Possible content:

- external cues act as zeitgebers (Klein and Wegmann)
- these cues may influence/entrain biological rhythms (endogenous pacemakers)
- light suppresses the production of melatonin from the pineal gland which influences people's sleep/wake cycle
- knowledge of relevant studies.

Possible application:

- Julia should try to keep her baby in the dark at night (eg shutting curtains and keeping lights off) but expose her baby to light in the day time (eg keep curtains open, go outside)
- Julia should use social cues, eg ensuring verbal communication, eye contact and feeding are only in the day time.

Possible discussion:

- use of research to provide support for the importance of light as a zeitgeber, eg Vetter et al. (2011), Burgess et al. (2003), Campbell and Murphy (1998)
- use of research to provide evidence against the importance of social cues as a zeitgeber, eg Lughton Miles et al. (1977)
- discussion of methodological issues is only creditworthy if the implications are linked to the stem
- discussion for and against the role of light as an exogenous zeitgeber
- counterarguments, eg the role of endogenous pacemakers – biological clock

Credit other relevant material.
Note: Application should be sensible and reasoned

Examiner Comment:

Question 09

There were some excellent responses but generally this question was not answered very well. Overall, students tended to be less knowledgeable in this area, with answers focussed mainly on application, but this was not always appropriate. There was some excellent knowledge of studies but these were often inappropriately selected or not used effectively. Some students gave a lot of biological detail of endogenous pacemakers and made this relevant though entrainment. Light as an exogenous zeitgeber was generally applied well and often supported with biological knowledge of the effects of light on the production of melatonin; although some students mistakenly suggested trying to replicate daytime conditions at night time with night lights, etc. Students struggled more with temperature, suggesting the baby should be kept warm and cosy, and with social cues, which frequently led into learning / classical conditioning or focussed on tiring the baby out with activities. Discussion was the weakest element overall, with a lot of time wasted on generic evaluations and often research which could have provided excellent discussion, was simply described. Where discussion was done well, students tended to provide counterarguments of the role of endogenous pacemakers and compared contrasting research findings. Some students also effectively discussed issues with generalising from adults to babies and/or animals to humans. The best responses were those which were able to provide a sophisticated blend of application and discussion with knowledge intertwined throughout.