4.4 Sport Psychology: Arousal and the Inverted-U Theory: 30-minute Pack

AQA 8582 · Calculators not allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 State one named technique, other than breathing control, that a performer could use to lower their arousal before competing.

(Total for Question 1 is 1 mark)

2 State two symptoms a performer might show when their arousal is too low (under-aroused).

(Total for Question 2 is 2 marks)

3 Discuss the inverted-U theory, referring to a named performer of your choice and a named sporting situation, explaining how the theory could be used to help that performer manage their arousal for optimal performance.

(Total for Question 3 is 6 marks)

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4 Explain why a football penalty taker might experience a higher level of arousal in a penalty shoot-out to decide a cup final than in a penalty during a routine training session.

(Total for Question 4 is 3 marks)

5 State what is meant by the term 'arousal' in a sporting context.

(Total for Question 5 is 1 mark)

6 A javelin thrower and a snooker player are both about to compete in major finals.

(a) State and justify whether the javelin throw is likely to have a higher or lower optimal level of arousal than the snooker shot. **(2)**

(b) Suggest what might happen to the snooker player's performance if their arousal rose to the same level that would suit the javelin thrower. **(2)**

(Total for Question 6 is 4 marks)

7 Explain one problem with using a single, identical method to manage arousal for an entire team rather than for each individual performer.

(Total for Question 7 is 3 marks)

8 State what is meant by 'optimal arousal'.

(Total for Question 8 is 1 mark)

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9 A 400 m hurdler needs to combine high running speed with precise timing of each hurdle clearance. State whether this event is likely to have a HIGH or a LOW optimal level of arousal compared with archery, and give one reason for your answer.

(Total for Question 9 is 2 marks)

10 State one way a coach could collect evidence to estimate a performer's optimal level of arousal for a given skill.

(Total for Question 10 is 1 mark)

11 Discuss how a football team's manager could use knowledge of the inverted-U theory when preparing different players in the squad for a cup final, applying your answer to at least two named playing positions with different optimal arousal needs (for example a goalkeeper and a central striker), and reach a judgement about why a single pre-match approach for the whole squad would not be ideal.

(Total for Question 11 is 6 marks)

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12 Which of the following performers is showing signs of being over-aroused before competing?

- ☐ A) A sprinter who feels calm, focused and slightly excited before the race
- ☐ B) A footballer whose hands are shaking, whose muscles feel tight and who has rushed and misjudged two simple passes
- ☐ C) A swimmer who is fully warmed up and ready to race at the sound of the gun
- ☐ D) A gymnast who is calmly visualising their routine before performing

(Total for Question 12 is 1 mark)

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13 A darts player throwing for a match-winning double describes feeling their 'hands shake slightly and their focus narrow onto only the dartboard, losing awareness of the crowd around them'. Explain, using the inverted-U theory, why arousal that has risen too far past this player's optimal point could reduce their accuracy.

(Total for Question 13 is 2 marks)

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Mark scheme · 4.4 Sport Psychology: Arousal and the Inverted-U Theory: 30-minute Pack

Question 1

any valid technique, e.g. progressive muscular relaxation, mental rehearsal/imagery, or positive self-talk, oe **B1**

Answer: For example, progressive muscular relaxation.

Question 2

any one of: lack of concentration/focus, low motivation, sluggish/slow reactions, lack of effort, oe **B1**

a second, distinct symptom from the list above, oe **B1**

Answer: For example, lack of concentration and low motivation.

Question 3

Level 3 A detailed and coherent response that accurately explains the inverted-U theory (including that optimal arousal differs by skill/performer) and applies it specifically to the named performer and situation, with a clear, sensible strategy for managing their arousal. Sustained, accurate use of sport psychology terminology. **5-6**

Level 2 Mostly accurate explanation of the inverted-U theory with some application to the named performer and situation, though the link between the theory and the specific example may be underdeveloped. Generally correct use of terminology. **3-4**

Level 1 Basic or generic statements about arousal and performance with little or no accurate reference to the inverted-U shape or specific application to the named example. **1-2**

Level 0 No relevant content. **0**

Indicative content:

- Definition: the inverted-U theory states that performance improves as arousal increases, up to an optimal point, after which further increases in arousal cause performance to decline again, producing an upside-down U-shaped graph.
- Optimal arousal is not fixed: it varies between performers and, importantly, between skills - gross/simple skills generally have a higher optimal arousal than fine/complex skills.
- Application: correctly identifies whether the named performer's situation demands a fine or gross skill, and reasons about roughly where their optimal arousal should sit as a result.
- Strategy if likely over-aroused: e.g. controlled breathing, relaxation techniques, positive self-talk, narrowing focus onto a simple process goal, to bring arousal down towards the optimum.
- Strategy if likely under-aroused: e.g. an energetic warm-up, upbeat music, a motivational team talk, to raise arousal up towards the optimum.
- Evaluative point: because the theory predicts a decline in performance on both sides of the peak, simply trying to maximise arousal (or minimise it) is not the correct strategy; the goal is always to move towards the performer's specific optimum, not towards one extreme.
- Evaluative point/limitation: the theory is a simplified model; in reality other factors (personality type, experience level, and the performer's own anxiety/interpretation of arousal) also affect how a given arousal level is experienced, so the optimal point can shift for the same performer over time.

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Question 4

the importance/consequence of the situation is much greater in the cup final (winning or losing the competition), oe **B1**

there is likely to be a large crowd and greater pressure/expectation than in training, oe **B1**

both factors raise the performer's perceived pressure, which increases their level of arousal, oe **B1**

Answer: The cup final carries far greater importance (the outcome decides the competition) and greater pressure from a large crowd and expectation than a routine training session, and both factors raise the performer's perceived pressure, which increases their level of arousal.

Question 5

a performer's level of physical and mental readiness/alertness/excitement to perform, oe **B1**

Answer: A performer's level of physical and mental readiness or excitement to perform.

Question 6

(a) higher, oe **B1**

(a) the javelin throw is a gross, explosive, strength-based skill, which can tolerate more arousal than the fine, precise control needed for a snooker shot, oe **B1**

(a) Answer: Higher, because the javelin throw is a gross, explosive, strength-based skill, which can tolerate more arousal than the fine, precise control a snooker shot needs.

(b) their performance would be likely to decline/suffer, oe **B1**

(b) because that level of arousal is well past their own, lower optimal point, causing increased muscle tension that disrupts the fine control the shot needs, oe **B1**

(b) Answer: Their performance would be likely to decline, because that arousal level is well past the snooker player's own, lower optimal point, causing muscle tension that disrupts the fine control the shot needs.

Question 7

different players are likely to have different optimal levels of arousal and different starting points before the talk, oe **B1**

an energetic team talk could push an already excitable player past their optimal point (over-aroused), while it may correctly raise a naturally calm player towards theirs, oe **B1**

so the same method can help some players and harm others at the same time, oe **B1**

Answer: Different players are likely to have different optimal levels of arousal and different starting points, so an energetic team talk could push an already excitable player past their optimal point into over-arousal, while correctly raising a naturally calm player towards theirs, meaning the same method can help some players and harm others at the same time.

Question 8

the ideal/best level of arousal for a performer to produce their best possible performance, oe **B1**

Answer: The ideal level of arousal at which a performer produces their best possible performance.

Question 9

higher than archery, oe **B1**

because although precise hurdle timing is needed, the event also demands gross muscular power and speed over the whole race, which benefits from a higher arousal level than a purely fine, static skill like archery, oe **B1**

Answer: Higher than archery. Although precise hurdle timing is needed, the 400 m hurdles also demands gross muscular power and speed throughout the race, which benefits from a higher level of arousal than a purely fine, static skill such as archery.

Question 10

record performance alongside arousal indicators such as heart rate, self-ratings, observation notes or competition results across repeated practices, oe **B1**

Answer: They could record performance alongside arousal indicators such as heart rate, self-ratings or observation notes across repeated practices.

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Question 11

Level 3 A well-developed discussion that applies the inverted-U theory clearly and accurately to at least two named positions with contrasting demands, explains why their optimal arousal differs, and reaches a clear, well-justified judgement about why a uniform pre-match approach is not ideal for the whole squad. **5-6**

Level 2 Some accurate application of the theory to named positions, but the contrast between them may be underdeveloped, or the judgement about a uniform approach is only partly explained. **3-4**

Level 1 Basic or generic statements about arousal with little or no application to specific playing positions, and no clear judgement. **1-2**

Level 0 No relevant content. **0**

Indicative content:

- A goalkeeper needs sustained concentration and fine judgement of shot placement and distance, closer to a fine skill, so their optimal arousal is likely to be lower than an outfield attacker's, and over-arousing a goalkeeper before kick-off risks costly errors of judgement.
- A central striker's role involves gross, powerful, explosive actions (sprinting into space, shooting with power), so a higher level of arousal is likely to be closer to their optimum, and an energetic pre-match approach may suit them better than the goalkeeper.
- Using the same loud, highly motivational team talk for the entire squad risks pushing already highly-strung or naturally anxious players (who may include the goalkeeper) past their optimal point into the descending, performance-reducing side of the inverted-U curve.
- The same generic approach could also under-arouse a naturally calm player who actually needs more stimulation to reach their optimum, so treating arousal preparation individually, rather than as one team talk for everyone, would better match each player to their own optimal level.
- A manager applying the theory well might give individual, position-specific instructions or techniques (e.g. calming self-talk for the goalkeeper, an energising cue for the striker) rather than relying on one shared pre-match speech for the whole squad.
- A balanced judgement should conclude that because optimal arousal varies with the nature of the skill/position, a single approach cannot suit every player, so at least some individualised preparation is needed for the squad to perform closer to its collective best.

Question 12

B **B1**

Answer: B

Question 13

shaking hands shows increased muscle tension, which directly disrupts the fine motor control a precise throw needs, oe **B1**

once arousal passes the optimal point performance falls, as shown by the descending right-hand side of the inverted-U graph, oe **B1**

Answer: Shaking hands shows increased muscle tension, which disrupts the fine motor control a precise dart throw needs, and once arousal rises past the optimal point performance falls, as shown by the descending right-hand side of the inverted-U graph.

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