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### **09.5. Physical Environment.**

Explanation. CAP 715 Ch.8 Para.1.5.4.

Question Number. 1. Environmental stresses are.

Option A. caused by noise, fumes, heat and vibration.

Option B. tolerated by everyone equally.

Option C. not normally cumulative.

Correct Answer is. caused by noise, fumes, heat and vibration.

Explanation. CAP 715 Ch. 5 & Ch.4 Para.2.3.2.

Question Number. 2. Employers must provide their employees with personal ear protectors if the noise level reaches.

Option A. 70 dB.

Option B. 85 dB.

Option C. 60 dB.

Correct Answer is. 85 dB.

Explanation. CAP 715 Ch.2 Para.3.7.2.

Question Number. 3. The maximum allowable noise dose is.

Option A. 85 dB.

Option B. any combination of noise and time which exceeds 90 dB TWA.

Option C. 90 dB for 24 hours.

Correct Answer is. any combination of noise and time which exceeds 90 dB TWA.

Explanation. CAP 715 Ch.2 Para.3.7.3.

Question Number. 4. Environmental capture' is a type of error possible when an engineer does the same job repeatedly.

Option A. but on different types of aircraft.

Option B. on the same type of aircraft.

Option C. in a short timescale.

Correct Answer is. on the same type of aircraft.

Question Number. 5. In the UK, an air-side ramp vehicle driver is most likely to go deaf in.

Option A. the left ear.

Option B. both ears.

Option C. the right ear.

Correct Answer is. the right ear.

Explanation. Because he usually has the window open.

Question Number. 6. Up to what proximity to an aircraft with engines running is the use of ear protection recommended for maintenance personnel?.

Option A. 200 - 300 metres.

Option B. 20 - 30 metres.

Option C. 2 - 3 metres.

Correct Answer is. 200 - 300 metres.

Explanation. CAP 715 Ch.2 Para.3.8.2.

Question Number. 7. Studies have shown that working outside in a temperature of 55°F will have what effect on hand dexterity?.

Option A. Around 50%.

Option B. Very slight.

Option C. None.

Correct Answer is. Around 50%.

Explanation. Daanen H. Deterioration of manual performance in cold and windy climates. AGARD Conference Proceedings 540 The support of air operations under extreme hot and cold weather conditions 1993 May. Nato; 1993. p. 1-10.

Question Number. 8. When working with bright lights consideration should be given to.

Option A. blurred image.

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Option B. shadows.

Option C. glare.

Correct Answer is. glare.

Explanation. CAP 715 Ch.5 Para.3.4.

Question Number. 9. Which of the following is true?

Option A. Noise affects the standard of work proportionately with the level of the noise.

Option B. Noise does not affect a person's standard of work.

Option C. Noise does affect the standard of work with certain people.

Correct Answer is. Noise does affect the standard of work with certain people.

Explanation. CAP 715 Ch.2 Para.3.6.2 and CAP 716 App.K Para.5.2.

Question Number. 10. The effect on an engineer of environmental noise is.

Option A. it improves concentration and quality of work.

Option B. it decreases concentration and quality of work.

Option C. it has no affect on concentration or quality of work.

Correct Answer is. it decreases concentration and quality of work.

Explanation. CAP 716 App.K Para.5.

Question Number. 11. Excess noise in a working environment can.

Option A. raise resistance to other stresses.

Option B. not affect performance.

Option C. lower resistance to other stresses.

Correct Answer is. lower resistance to other stresses.

Explanation. CAP 716 App.K Para 5.5.

Question Number. 12. If the temperature is - 15°C and you are working on the line, you should.

Option A. rotate engineers regularly and have a supervisor keep an eye on them.

Option B. carry on regardless of the weather to keep the aircraft flying.

Option C. stop all maintenance until the weather improves.

Correct Answer is. stop all maintenance until the weather improves.

Explanation. JAR 145 AMC 145.25(c) and CP 715 Ch.5 Para.4.4.

Question Number. 13. Studies have shown that working outside in a temperature of 55°F will have what effect on hand dexterity?

Option A. None.

Option B. Around 50% reduction.

Option C. Very slight reduction.

Correct Answer is. Around 50% reduction.

Explanation. So studies have shown - but you won't find it in either CAP 715 or 716.

Question Number. 14. Cold stress can be influenced by.

Option A. insufficient vitamins in the diet.

Option B. a drop in body temperature.

Option C. the wind chill factor.

Correct Answer is. the wind chill factor.

Explanation. Contributory factors of cold stress are temperature, wind speed and wetness.

Question Number. 15. Environmental stresses in an extreme high temperature and noisy environment causes.

Option A. attention to be disturbed and distributed.

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Option B. no loss of attention or distraction.

Option C. total loss of attention.

Correct Answer is. attention to be disturbed and distributed.

Explanation. CAP 715 Ch.5.

Question Number. 16. Which of the following environments is best suited to aircraft maintenance?.

Option A. Working outside, at night, in the rain.

Option B. Working outside, in the direct midday sun.

Option C. Working inside in a well lit, comfortable hangar.

Correct Answer is. Working inside in a well lit, comfortable hangar.

Explanation. NIL.

Question Number. 17. Intense or loud noise may lead to.

Option A. deafness.

Option B. fatigue.

Option C. no effects.

Correct Answer is. fatigue.

Explanation. CAP 715 Ch.2 Para.3.6.1.

Question Number. 18. Facility lighting in a hangar should be.

Option A. no brighter than 10 lux.

Option B. provided by fixed light units giving light to shadow ratio of 3:1.

Option C. portable so that individual tasks may be well lit.

Correct Answer is. provided by fixed light units giving light to shadow ratio of 3:1.

Explanation. CAP 716 Appendix L Para.2.2.3 (although no reference can be found for the 3 to 1 bit).

Question Number. 19. When tasks are being designed, the maximum mass an engineer should lift is.

Option A. 32 kg.

Option B. 23 kg.

Option C. 50 kg.

Correct Answer is. 23 kg.

Explanation. 23 kg or 50 lbs.

Question Number. 20. Sensing and perception errors are most likely to result from.

Option A. distraction of other engineers.

Option B. poor lighting or noise.

Option C. lack of adequate training.

Correct Answer is. poor lighting or noise.

Explanation. Sensing and perception are 2 stages in the Information Processing Model (CAP 715 Ch.2 Para.4.1) and affected by lighting and noise.

Question Number. 21. Task lighting in a hangar is mainly.

Option A. provided by fixed lighting.

Option B. provided by fluorescent tubes.

Option C. portable so that individual tasks may be well lit.

Correct Answer is. portable so that individual tasks may be well lit.

Explanation. CAP 715 Ch.5 Para.3.2 and 3.3.

### **09.6. Tasks.**

Question Number. 1. When inspecting an airframe structure for small cracks, to avoid a crack being missed you should.

Option A. hold the vision stationary for several seconds on each area to allow the eye to focus correctly.

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Option B. not use a mirror as mirrors absorb and refract light and may obscure a crack.

Option C. constantly move the eye across and around the area of interest to avoid the crack falling into the eye's natural blind spot.

Correct Answer is. interest to avoid the crack falling into the eye's natural blind spot.

Explanation. CAP 715 Ch.2 Para.2.5.2.

Question Number. 2. When a person moves from a poorly lit area to a well lit area, what is the minimum time they should allow for the eyes to adapt?.

Option A. 7 minutes.

Option B. 7 seconds.

Option C. 30 seconds.

Correct Answer is. 7 minutes.

Explanation. CAP 715 Ch.2 Para.2.9.1.

Question Number. 3. Itemized checklists should be dealt with.

Option A. in any order, provided all steps are completed.

Option B. item by item, in order, to cover every step diligently.

Option C. as memorized.

Correct Answer is. item by item, in order, to cover every step diligently.

Explanation. Closest reference found to this is CAP 715 Ch.6 Para.4.5.

Question Number. 4. The main disadvantage of carrying out critical inspections under very bright artificial light is.

Option A. glare.

Option B. shadows.

Option C. filtered light.

Correct Answer is. glare.

Explanation. CAP 715 Ch.5 Para.3.4.

Question Number. 5. When carrying out a visual inspection, an engineer is likely to make a parallax error when.

Option A. inspecting a component using a 5x or 10x magnifying glass.

Option B. using precision measuring instruments such as a vernier gauge or AVO meter.

Option C. Nothing.

Correct Answer is. using precision measuring instruments such as a vernier gauge or AVO meter.

Explanation. Parallax = 'The apparent displacement of an object as seen. from two different points that are not on a line with the object'

### **09.7. Communication.**

Question Number. 1. What constitutes a good work handover?.

Option A. A written and verbal account of the work done.

Option B. A written documentation of the work done.

Option C. A verbal account of the work done.

Correct Answer is. A written and verbal account of the work done.

Explanation. CAP 716 Ch.9 Para.1.4.

Question Number. 2. A good shift handover should include details of.

Option A. tasks that have been completed; persons who carried out the tasks; tasks to be carried out and general company and technical information.

Option B. tasks that have been completed; tasks in progress, their status, any problems encountered etc.; tasks to be carried out and tools required to carry out the tasks.

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Option C. tasks that have been completed; tasks in progress, their status, any problems encountered etc.; tasks to be carried out and general company and technical information.

Correct Answer is. tasks that have been completed; tasks in progress, their status, any problems encountered etc.; tasks to be carried out and general company and technical information.

Explanation. CAP 715 Ch.7 Para.1.5.1 and CAP 716 App.M Para.3.7.3.

Explanation. Nil.

Question Number. 10. What is the most important means of communication in aircraft maintenance engineering?.

Option A. Written.

Option B. Implicit.

Option C. Verbal.

Correct Answer is. Written.

Explanation. CAP 716 App T Para 1.

Interrogation and confirmation can be used in verbal communication to ensure that the receiver has understood. 'Implicit communication' is implied (non-verbal) communication and is open to interpretation and errors..

Question Number. 4. A good practice for a shift handover is for shifts to be specifically rostered so there is an overlap of.

Option A. 2 - 3 hours.

Option B. 5 - 10 minutes.

Option C. 20 - 30 minutes.

Correct Answer is. 20 - 30 minutes.

Explanation. CAP 716 Ch.9 Para.1.3.

Question Number. 5. Asynchronous' communication includes.

Option A. immediate voice communication by radio link.

Option B. technical manuals, memos, Advisory Circulars and Airworthiness Directives.

Option C. face-to-face communications.

Correct Answer is. technical manuals, memos, Advisory Circulars and Airworthiness Directives.

Explanation. Nil

Question Number. 13. If you are given a task that you are unsure of you should.

Option A. consult the appropriate approved data.

Option B. ask someone who has done it before.

Option C. consult type course notes.

Correct Answer is. consult the appropriate approved data.

Explanation. Nil.

Question Number. 7. The most effective form of communication is.

Option A. verbal communication.

Option B. written communication.

Option C. explicit communication.

Correct Answer is. explicit communication.

Question Number. 16. The alerting system for an important system failure should be.

Option A. an aural warning.

Option B. a flashing visual signal, preferably red.

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Option C. a dolls-eye indicator.

Correct Answer is. an aural warning

Explanation. Nil.

Correct Answer is. errors are caused by a chain of linked events, and the breaking of one link in the chain will prevent the error.

Explanation. CAP 715 Ch.1 Para.2.7.2.

### **09.8. Human Error.**

Question Number. 1. The SHEL model of human factors takes into account.

Option A. Software, hardware, environment and liveware.

Option B. Software, hardware, efficiency and liveware.

Option C. Software, hardware, environment and location.

Correct Answer is. Software, hardware, environment and liveware.

Explanation. CAP 715 Ch.1 Para.1.5.1.

Question Number. 4. What part of the SHEL model would the aircraft design fit into?.

Option A. Liveware.

Option B. Hardware.

Option C. Environment.

Correct Answer is. Hardware.

Explanation. CAP 715 Ch.1 Para.1.5.2.

Question Number. 2. What part of the SHEL model would the writing and interpretation of maintenance manuals fit into?.

Option A. Hardware.

Option B. Software.

Option C. Environment.

Correct Answer is. Software.

Explanation. CAP 715 Ch.1 Para.1.5.2.

Question Number. 5. Which part of the SHEL model is most difficult to protect from errors by 'designing out' or to 'work around'?.

Option A. Liveware.

Option B. Software.

Option C. Environment.

Correct Answer is. Liveware.

Explanation. CAP 715 Ch.1 Para.1.5.4.

Question Number. 3. The 'error chain' theory refers to.

Option A. a chain of errors within an organization can be investigated, and similar errors prevented by determining a common link between them.

Option B. a company is only as good as its weakest employee or employees, and removal of that/those employee from the chain should prevent errors.

Option C. errors are caused by a chain of linked events, and the breaking of one link in the chain will prevent the error.

Question Number. 6. A violation in an aircraft maintenance procedure.

Option A. is usually carried out with the best intentions from a genuine desire to 'get the job done'.

Option B. is always considered an act of vandalism or sabotage.

Option C. is always carried out to satisfy some personal need, often unrelated to the actual task.

Correct Answer is. is usually carried out with the best intentions from a genuine desire to 'get the job done'.

Explanation. CAP 715 Ch.8 Para.1.4.5.

Question Number. 7. Which type of human error is easiest to correct?.

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Option A. Constant error.

Option B. Reversible error.

Option C. Variable error.

Correct Answer is. Constant error.

Explanation. CAP 715 Ch.8 Para.1.2.1.

Option B. skill and knowledge based behaviour.

Option C. skill and rule based behaviour.

Correct Answer is. knowledge and rule base behaviour.

Explanation. CAP 715 Ch.8 Para.1.5.1 and Ch.6 Para.3.4.

Question Number. 8. In the 'slips, lapses and mistakes' definition of errors, forgetting to replace an engine cowling would be considered a.

Option A. mistake.

Option B. lapse.

Option C. slip.

Correct Answer is. lapse.

Explanation. CAP 715 Ch.8 Para.1.4.3.

Question Number. 12. Troubleshooting is.

Option A. rule based.

Option B. skill based.

Option C. knowledge based.

Correct Answer is. rule based.

Explanation. CAP 715 Ch.8 Para.1.5.

Question Number. 9. In the 'slips, lapses and mistakes' definition of errors, a mistake would typically occur at the.

Option A. storage (memory) stage.

Option B. execution stage.

Option C. planning stage.

Correct Answer is. planning stage.

Explanation. CAP 715 Ch.8 Para.1.4.4.

Question Number. 13. A violation is.

Option A. an unintentional error.

Option B. a deliberate departure from the rules.

Option C. an intentional act of sabotage.

Correct Answer is. a deliberate departure from the rules.

Explanation. CAP 715 Ch.8 Para.1.4.5.

Question Number. 10. On a task that is complex, an engineer uses his own procedures due to pressure. This is legally termed.

Option A. modification.

Option B. initiative.

Option C. violation.

Correct Answer is. violation.

Explanation. CAP 715 Ch.8 Para.2.4 and Para.1.4.5.

Question Number. 14. A mistake is.

Option A. a deliberate departure from the rules.

Option B. an intentional act of sabotage.

Option C. an unintentional error.

Correct Answer is. an unintentional error.

Explanation. CAP 715 Ch.8 Para.1.4.3.

Question Number. 11. Visual inspection by an 'experienced' maintenance engineer is.

Option A. knowledge and rule base behaviour.

Question Number. 15. Whilst working on an aircraft a spanner placed on the wing surface is kicked off and subsequently falls into an open engine cowl, breaking off a sensor connector. This is an example of.

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Option A. a skill based error.

Option B. Murphy's law.

Option C. a punishable occurrence.

Correct Answer is. Murphy's law.

Explanation. A Skill based error are errors

associated with 'intrinsic variability of force, space or time coordination' (Human Error, James Reason pg.43).

Question Number. 16. An experienced engineer fits the wrong seal during a routine component change. This is.

Option A. skill based.

Option B. rule based.

Option C. knowledge based.

Correct Answer is. rule based.

Explanation. Using the IPC is a rule based behaviour.

Question Number. 17. An engineer is working on a wing and kicks a spanner off into an engine cowl and breaks a sensor. This is.

Option A. knowledge based error.

Option B. skill based error.

Option C. rule based error.

Correct Answer is. skill based error.

Explanation. A skill based error (slip) is an error in force, space or time coordination (Reason, Human Error pg 43).

Question Number. 18. The difference between a mistake and a violation is.

Option A. a mistake is less serious than a violation.

Option B. a violation is not deliberate.

Option C. a mistake is unintentional and a violation is deliberate.

Correct Answer is. a mistake is unintentional and a violation is deliberate.

Explanation. CAP 715 Ch.8 Para.1.4.

Question Number. 20. An experienced engineer is fitting a valve. A required seal is not fitted. What type of error is this?

Option A. Knowledge based.

Option B. Rule based.

Option C. Skill based.

Correct Answer is. Rule based.

Explanation. This is a rule based error. In Rule Base errors are typically associated with misclassification of situations leading to the application of the wrong rule or with the incorrect recall of procedures. (Reason, Human Error pg 43).

Question Number. 21. The hub of the SHEL model of human factors is.

Option A. liveware.

Option B. hardware.

Option C. environment.

Correct Answer is. liveware.

Explanation. CAP 715 Ch.1 Para. 1.5.

Question Number. 22. A type 1 visual inspection error occurs when.

Option A. a faulty item is missed.

Option B. a good item is incorrectly identified as faulty.

Option C. a duplicate inspection is not carried out.

Correct Answer is. a good item is incorrectly identified as faulty.

Explanation. CAP 715 Ch.8 Para.2.6.

Question Number. 23. What is the difference between error and violation?.

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Option A. Violation is deliberate, error is not.

Option B. Error is deliberate, violation is not.

Option C. No difference.

Correct Answer is. Violation is deliberate, error is not.

Explanation. CAP 715 Ch.8 Para.1.4.5.

Question Number. 24. What is a latent failure?.

Option A. A mistake that has already been made, but has not yet caused an accident.

Option B. Receiving bad instruction from a manager who is out of touch with maintenance.

Option C. A failure which could not have been predicted.

Correct Answer is. A mistake that has already been made, but has not yet caused an accident.

Explanation. CAP 715 Ch.8 Para.1.6.2.

Question Number. 25. What happens when you break the 'chain of error'?.

Option A. Accident happens.

Option B. Pilot submits report within 72 hours.

Option C. Accident does not happen.

Correct Answer is. Accident does not happen.

Explanation. CAP 715 Ch.1 Para.2.7.2.

Question Number. 26. If an engineer forgets to fit a seal to an engine drain plug, he or she has.

Option A. made an error of commission.

Option B. committed a violation.

Option C. made an error of omission.

Correct Answer is. made an error of omission.

Explanation. CAP 715 Ch.8 Para.1.4.3.

Question Number. 27. An engineer is performing a task in less than ideal conditions in order to meet an operational deadline is.

Option A. committed a routine error.

Option B. committing a situational violation.

Option C. making a rule based slip.

Correct Answer is. committing a situational violation.

Explanation. CAP 715 Ch.8 Para.2.4.3.

Question Number. 28. An engineer who has developed his or her own method of performing a complex task.

Option A. should be commended for his/her resourcefulness.

Option B. is performing a rule based behaviour.

Option C. is violating on a regular basis.

Correct Answer is. is violating on a regular basis.

Explanation. CAP 715 Ch.8 Para.2.4.2.

Question Number. 29. Error tolerance in maintenance progress refers to.

Option A. performance of tasks specifically designed to identify errors during a maintenance task.

Option B. ability of a system to remain functional after a maintenance error.

Option C. process of eliminating the contributing factors to error.

Correct Answer is. process of eliminating the contributing factors to error. OR ability of a system to remain functional after a maintenance error.

Explanation.

### 09.9. Hazards in the Workplace.

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Question Number. 1. Engineers often work on raised platforms, ladders etc. What dangers can this contribute to?.

- Option A. Staging may be made of wood.
- Option B. Ladder may slip and man falls.
- Option C. Two workers may be carrying out maintenance on the same lift.

Correct Answer is. Ladder may slip and man falls.

Explanation. CAP 716 Ch.5 Para.5.1.

Question Number. 2. Risk assessment and management is.

- Option A. reduction of risks to a tolerable standard and monitoring the situation.
- Option B. the investigation of risks and totally removing them and the monitoring of new work practices.
- Option C. choosing a cheaper supplier or manufacturer for parts.

Correct Answer is. reduction of risks to a tolerable standard and monitoring the situation.

Explanation. NIL.

Question Number. 3. When carrying out a risk assessment.

- Option A. a hard hat should be worn.
- Option B. it is necessary to identify where equipment/procedures might fail.
- Option C. Nothing.

Correct Answer is. it is necessary to identify where equipment/procedures might fail.

Explanation. NIL.