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6.2.5	Determine typical landing gear system faults from wiring diagrams.	2
<b>6.3</b>	<b>Wheels, Tyres and Tubes</b> <i>Study Ref. 2 &amp; 4</i>	
6.3.1	Describe the construction of new and retreaded aeroplane tyres, identify them by their markings, and state their applications.	2
6.3.2	Describe the following factors in respect of aircraft tyres: <ul style="list-style-type: none"> <li>a. Types of tread pattern</li> <li>b. Tyre size classification</li> <li>c. Tyre construction</li> <li>d. Speed limits</li> <li>e. Identification and markings</li> <li>f. Pressures</li> <li>g. Valves</li> <li>h. Safety devices</li> <li>i. Inflation</li> <li>j. Inspection and maintenance practices</li> </ul>	2
6.3.3	Describe the various types of wheel assembly used on aeroplane, and state their application.	2
6.3.4	Describe the types of wheel componentry including, bearings, grease and dust seals, spacers and locking devices.	2
6.3.5	Specify typical procedures for wheel bearing servicing and adjustment.	1
6.3.6	State how sealing is accomplished on split half wheel assemblies.	2
6.3.7	Specify the procedures and precautions to be observed during the fitment, deflation/inflation and balancing of wheel, tyre and tube assemblies.	2
6.3.8	State the purpose of vent holes in tubeless aeroplane tyres.	2
6.3.9	Explain the use of balance and slip marks and why the valve is located in a particular position relative to the tyre.	2
6.3.10	Determine faults and damage to tyres, including such things as uneven wear and creep.	2
6.3.11	Describe the common maintenance practices associated with the following: <ul style="list-style-type: none"> <li>a. Nose wheel shimmy damping</li> <li>b. Toe-in</li> <li>c. Toe-out</li> <li>d. Camber (positive and negative)</li> </ul>	2

6.3.12	Specify the handling and storage procedures associated with tyres and tubes.	2
<b>6.4</b>	<b>Aeroplane Brakes</b> <i>Study Ref. 2 &amp; 4</i>	
6.4.1	Describe the construction, function and operation of the following basic braking systems: <ul style="list-style-type: none"> <li>a. Disc brakes (single)</li> <li>b. Master cylinders</li> <li>c. Compensator valves</li> <li>d. Park brakes</li> <li>e. Single and dual-servo brakes</li> <li>f. Drum brakes</li> </ul>	2
6.4.2	State how pad pressure is equalised on single disk brakes.	2
6.4.3	Specify the cause, effects, and rectification of common brake faults including deterioration of brake hoses.	2
6.4.4	Specify common heat dissipation methods in simple aircraft braking systems.	2
<b>6.5</b>	<b>Maintenance of Aeroplane Brakes</b> <i>Study Ref. 2 &amp; 4</i>	
6.5.1	Describe in general terms the following brake maintenance activities on light aeroplane: <ul style="list-style-type: none"> <li>a. Bleeding</li> <li>b. Adjusting</li> <li>c. Checking pads for wear</li> <li>d. Oil decontamination</li> <li>e. Deglazing</li> <li>f. Checking discs for buckling, cracks, scoring and wear</li> <li>g. Rectification of; brake binding, uneven wear, slipping, leaking seals and uneven braking effect</li> <li>h. Equalisation of pad/disc pressures</li> </ul>	2

<b>7 Fuel Systems</b>		
<b>ATA 28</b>		
<b>7.1</b>	<b>Aviation Fuels</b>	
	<i>Study Ref. 2 &amp; 4</i>	
7.1.1	Describe the following: <ul style="list-style-type: none"> <li>a. Types, properties and applications of aviation fuels</li> <li>b. Fuel colour coding</li> <li>c. Fuel storage</li> <li>d. Common causes of fuel contamination</li> <li>e. Quality control of fuel including water testing procedures, proprietary test products and test equipment</li> <li>f. Storage life and fuel deterioration</li> <li>g. Fuel dispensers including hydrants, bowsers and hand pumps</li> <li>h. Pressure refuelling precautions</li> <li>i. Refuelling procedures including electrostatic bonding</li> <li>j. Reuse of drained or decanted fuel</li> <li>k. Disposal of fuel</li> <li>l. Drum refuelling precautions</li> <li>m. Fuel compatibility with seals</li> <li>n. Common sources of fuel system contamination</li> <li>o. Preventing/ rectifying fuel system contamination</li> <li>p. Fuel dispenser filtration devices</li> <li>q. Fuel-specific gravity</li> <li>r. Useable and unusable fuel</li> </ul>	2
<b>7.2</b>	<b>Fuel System Components</b>	
	<i>Study Ref. 2 &amp; 4</i>	
7.2.1	Describe the construction, operation, function, inspection and maintenance of the following fuel system components: <ul style="list-style-type: none"> <li>a. Filters</li> <li>b. Fuel heaters</li> <li>c. Primers</li> <li>d. Fuel pumps (rotary vane and gear)</li> <li>e. Pumps - auxiliary/booster/ejector/jet</li> <li>f. Strainers</li> <li>g. Tanks (rigid, flexible, integral) cells and associated hardware</li> <li>h. Fuel tank scuppers and baffle plates</li> <li>i. Check valves, non return valves, flapper valves and cocks</li> <li>j. Fuel pipes and hose assemblies</li> <li>k. Drains, water drains, sumps, and stack/stand pipes</li> <li>l. Flow meters</li> <li>m. Contents/pressure indicating and warning systems</li> <li>n. Cross feed, transfer and dump devices and systems</li> <li>o. Refuelling, defuelling and dump valves</li> <li>p. Fuel tank venting systems</li> </ul>	2
<b>7.3</b>	<b>Fuel Tanks</b>	
	<i>Study Ref. 2 &amp; 4</i>	
7.3.1	Describe the construction, operation and maintenance of the following types of fuel tanks: <ul style="list-style-type: none"> <li>a. Integral fuel tanks</li> <li>b. Detachable fuel tanks</li> <li>c. Internal/external fuel tanks</li> <li>d. Bladder fuel cells</li> </ul>	2



<b>7.4</b>	<b>Fuel System Maintenance</b> <i>Study Ref. 2 &amp; 4</i>	
7.4.1	From given information, identify the location and state the relationship of basic fuel system and cross feed system components for a typical fuel system supplying piston and gas turbine-engine aeroplane. Includes the electrical and instrument interfaces.	2
7.4.2	Describe the following maintenance activities: <ul style="list-style-type: none"> <li>a. Fuel flow checks</li> <li>b. Fuel transfer checks</li> <li>c. Fuel system and dip stick calibration</li> <li>d. Fuel system decontamination</li> <li>e. Fuel tank/system leak testing and sealing, both internal and external</li> <li>f. Rectification of asymmetric fuel feeding</li> <li>g. Identification marking of fuel lines</li> </ul>	2
7.4.3	Explain why the airspaces are interconnected on gravity feed fuel tanks.	3
7.4.4	Describe the operation (electrical and mechanical) of a typical fuel system when feeding an engine and transferring fuel between tanks.	2
7.4.5	Describe the operation of a jet pump in an aeroplane fuel tank.	2
7.4.6	State the reasons a jet pump is used in lieu of an electrical or mechanical driven pump.	1
7.4.7	From given information, describe the effects on engine operation of faults in fuel supply system components.	1
7.4.8	Describe how vapour is removed from the fuel in a centrifugal booster pump.	2
7.4.9	Explain the safety precautions when working inside an aeroplane fuel tank. Includes breathing apparatus, lighting, vapour decontamination, safety lookouts and use of mechanical and electrical tools.	3
7.4.10	Describe the construction, maintenance and installation of bladder type fuel cells and their supporting hardware.	2

<b>8 Heating and Ventilation</b>		
<b>ATA 21</b>		
<b>8.1</b>	<b>Temperature Control and Air Distribution</b>	
	<i>Study Ref. 2 &amp; 4</i>	
8.1.1	Specify the principles of operation, system layout, maintenance requirements and safety precautions relating to the following: <ul style="list-style-type: none"> <li>a. Ventilation/circulation systems including the purpose of ventilating air</li> <li>b. Exhaust heat exchangers and exhaust gas cabin heating systems</li> <li>c. Combustion heaters (Example Janitrol)</li> <li>d. Valves (including air/fire valves), ducts and controls</li> <li>e. Expansion bellows and supports</li> <li>f. Vapour wick pre-heater elements</li> <li>g. Thermal cut-outs and glow plugs</li> <li>h. Electrical heaters</li> <li>i. Temperature control equipment</li> </ul>	2
8.1.2	Specify the essential requirements for the operation of a combustion heater.	2

<b>9 Aeroplane Weight and Balance</b>		
<b>ATA 8</b>		
<b>9.1</b>	<b>Theory of Weight and Balance Control for Aeroplanes</b>	
	<i>Study Ref. 2, 4 &amp; 7</i>	
9.1.1	Describe the meaning and application of the following weight and balance terms and show appropriate calculations where required: <ul style="list-style-type: none"> <li>a. Centre of gravity (CG)</li> <li>b. Aeroplane weight, total weight and empty weight</li> <li>c. Theory of weight and balance</li> <li>d. Weight limitations</li> <li>e. Mean aerodynamic chord (MAC)</li> <li>f. CG design limits</li> <li>g. Aeroplane loading aspects</li> <li>h. Aeroplane operating weight</li> <li>i. Overloaded aeroplane</li> <li>j. Empty weight CG range</li> <li>k. Useful load and loading for unaffected C of G</li> <li>l. Arm</li> <li>m. Datum/reference datum</li> <li>n. Main wheel centreline</li> <li>o. Moments (positive and negative) and total moment. Includes calculation of the moment of an item about the datum</li> <li>p. Total moment</li> <li>q. Aeroplane weighing configuration</li> <li>r. Weighing points</li> <li>s. Minimum fuel requirements</li> <li>t. Zero fuel weight</li> <li>u. Unusable fuel and oil</li> <li>v. Ballast</li> <li>w. Shifting weight</li> <li>x. Adverse-loaded CG</li> <li>y. Forward/rearward adverse-loading check</li> <li>z. Extreme condition check</li> <li>aa. Maximum gross weight check</li> <li>bb. Maximum takeoff weight</li> <li>cc. Maximum landing weight</li> <li>dd. Ramp weight</li> <li>ee. Tare weight</li> <li>ff. Fluid levels</li> <li>gg. Installed equipment</li> </ul>	2
9.1.2	Apply the formulae for making weight and balance calculations as follows: <ul style="list-style-type: none"> <li>a. Calculation of ballast required to shift C of G by a specified amount</li> <li>b. Location of C of G for nose and tail wheel aeroplanes</li> <li>c. Empty weight changes</li> <li>d. Percentage of MAC</li> <li>e. Calculation of moments</li> <li>f. Shifting weight</li> <li>g. Addition and removal of equipment or ballast</li> </ul>	2

<b>10 Equipment and Furnishings</b>		
<b>ATA 25</b>		
<b>10.1</b>	<b>Emergency and Role Equipment</b>	
	<i>Study Ref 2, 4 &amp; 5</i>	
10.1.1	Specify the principles of operation, precautions, installation and maintenance requirements for the following equipment and furnishings: <ul style="list-style-type: none"><li>a. Life jackets</li><li>b. Life rafts, dinghies and slides</li><li>c. First aid kits and crash axes</li><li>d. Emergency floatation equipment</li><li>e. Portable fire extinguishers</li><li>f. Emergency Locator transmitters</li><li>g. Cargo handling and retention devices</li><li>h. Seats, seatbelts, harnesses (passengers and crew)</li><li>i. Fire and smoke detection and warning systems</li><li>j. Fire extinguisher squibs and pyrotechnics</li><li>k. Floats, skis, panniers and stretchers</li><li>l. Loud hailers</li></ul>	1

<b>11 Ground Servicing</b>		
<b>ATA 5 &amp; 7</b>		
<b>11.1</b>	<b>Aeroplane Inspection</b> <i>Study Ref. 2 &amp; 4</i>	
11.1.1	Describe the various routine and special servicings commonly performed on aeroplane and define associated terms.	2
11.1.2	Describe lifting of components.	2
<b>11.2</b>	<b>Jacking and Levelling</b> <i>Study Ref. 2 &amp; 4</i>	
11.2.1	Explain the following criteria in regard to jacking and levelling an aeroplane: a. Jacking points b. Jacking procedures c. Maintenance of jacks d. Use of levelling equipment e. Identification of levelling points f. Levelling to the flying position	2
<b>11.3</b>	<b>Testing of Aeroplanes After Maintenance</b>	
11.3.1	Specify the requirements for ground and flight-testing of aeroplanes.	1