

Student Name:

Student ID No.:

Put answers in this paper (4 pages)

Part A: (6 marks) Choose the correct answer (Shade the correct circle in the answer table):

- 1- For the operating engine at high power, it's recommended to operate at idle power for 5 minutes before shutting down in order to:  
**A- Prevent seizure of engine bearings**                      **B- Prevent vapor from locking in fuel lines**  
**C- Allow turbine rotor to cool before the case contract around it**
- 2- The ----- maintenance is often most expensive type of maintenance.  
**A- Preventive**                      **B- corrective**                      **C- Predictive**
- 3- For GTE, the turbine blades are ----- than the compressor blades  
**A- rectangular and have lower camber**                      **B- curved and have more camber**  
**C- rectangular and have more airfoil chord**
- 4- The ----- are used to locate major assemblies and parts of the structure by a number indicating the distance in inches on each side of aircraft center-line.  
**A- Water lines**                      **B- Buttock lines**                      **C- Station lines**
- 5- The ----- extracts energy from the gases to drive output shaft of the TSE reduction gearbox.  
**A- compressor turbine**                      **B- high pressure turbine**                      **C- power turbine**
- 6- The ----- is an aircraft power generation device which generates constant frequency power at all flight modes.  
**A- auxiliary power unit**                      **B- integrated drive generator**                      **C- starter/generator unit**
- 7- The air cooling-turbine case system is used in Gas Turbine Engine (G.T.E.) to  
**A- Improve engine performance during take offs**                      **B- Control cooling of HPT discs at cruise flight**  
**C- Control turbine tip clearance at all flight modes**
- 8- The APU electrical power is mainly used when:  
**A- A/C Engine ON and Aircraft flight**                      **B. A/C Engine ON and Aircraft on ground**  
**C- A/C Engine OFF and Aircraft on ground**
- 9- The igniter plug part number can be found in  
**A- Engine IPC manual ATA 74**                      **B- Engine Maintenance manual ATA 73**  
**C- Aircraft Maintenance manual ATA 73**
- 10- A ----- should be carried out if an aircraft makes a hard landing  
**A- scheduled inspection**                      **B- special Inspection**                      **C- conditional Inspection**
- 11- The metal ----- is a loose practice of metal on a surface or removal evidence of surface covering.  
**A- pitting**                      **B- flaking**                      **C- abrasion**
- 12- A ----- of metal surfaces is a sharp bottomed depression with rough outer edges.  
**A- void**                      **B- dent**                      **C- nick**
- 13- Generally, standard torque tables of engine bolts and nuts can be obtained from ATA CH # .....  
**A- 70**                      **B- 72**                      **C- 20**

- 14- The tachometer and the transmitter units are .....devices for aircraft and engine systems.  
**A) indicating                      B- measuring                      C- monitoring**
- 15- The ..... air flow keeps the flame in the center of the combustion chamber away from its walls.  
**A- primary                      B- secondary                      C-) tertiary**
- 16- At the tip of the ..... , the gas leakage can be reduced using a shrouded abradable seal  
**A- compressor turbine rotor    B- compressor turbine stator    C- power turbine rotor**
- 17- The temperature ..... is electrically connected to two wires to engine oil temperature indicator on instrument panel to indicate oil temperature value.  
**A- transmitter                      B- switch                      C- bulb**
- 18- The ----- is the main expected damage that the compressor turbine blades will be inspected for?  
**A- corrosion                      B- sulphidation                      C- erosion**

### MCQ Answer Table

Question No.	A	B	C	Result	Question No.	A	B	C	Result
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		11	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		12	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		13	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		14	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		15	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		16	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		17	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		18	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

**/ 6**

### **Part B: Answer the following questions (9 marks)**

- 19- Define Maintenance and mention the maintenance activities **(.5 marks)**  
 Any activity intended to retain or restore a functional unit in or to a specified state in which the unit can perform its required functions.
- 1 Troubleshooting-Adjustment    2 Inspection    3 Replacements  
 4 Overhauls and Repair

20- Who have the authority to issues the technical publications of aircraft maintenance? Give example of technical publication for each one of them. (1.5 marks)

**1- MFR (Manufacturer): (A/C (Aircraft) , Engine or component)**

**MM: Maintenance Manual**

**IPC: Illustrated Parts Catalogue**

CR&O: Component Repair and Overhaul

SRM: Structure and Repair Manual

TB: Technical Bulletin

ASB: Alert Service Bulletin

MEL: Minimum Equipment List

**2 - GOV Government : Federal Aviation Authority (FAA), Egyptian Civil Aviation Authority ECAA)**

**-(Airworthiness Directives (AD's) - Regulations**

– Documents on Board – Blue Book)

**3 - AMO Approved Maintenance Organization:**

**Egypt Air, PAS**

**EO: Engineering Order**

**WS: Worksheet**

SIL: Service Information Letter

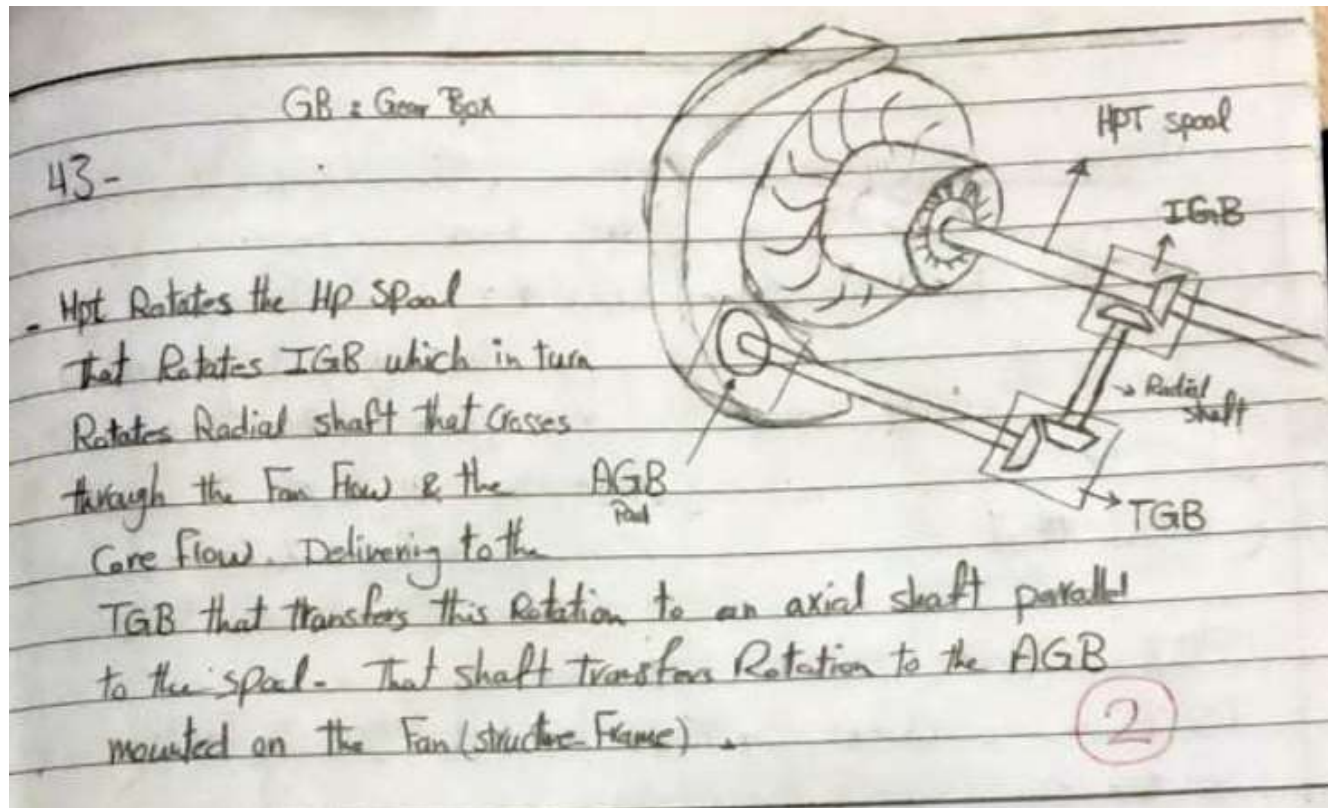
ATLB: Aircraft Technical Log Book

C. Run: Computer Run

21- What are the functions of Accessories Gear Box (AGB) and describe with drawing the main components to drive the AGB from the engine rotating shaft in TFE.(1.5 Marks)

1- Drive Engine Accessories

2- Reduces RPM



22- What are the main engine checks before T/O (takeoff)? (1.5 Marks)

- 1- FOD (foreign object debris) on fan blades
- 2- Inlet cone
- 3- Engine Oil Level
- 4- Nose cowl
- 5- Ensure that the cowl latches are closed
- 6- See if there is any oil accumulated under the engine on ground and in the engine case.

**23- If the compressor turbine TSN = 14179 hours, and its TBO is 4800 fhs and to be inspected every 2400 fhs (TBI), for engine normal operation, what are the current compressor turbine TSO, TSI, OR and IR(R= remain hours)? And how many times, this turbine was overhauled? And how many times it was inspected? (3 marks)**

TSO = 4579 fhs    TSI = 2179 fhs    OR= 221 fhs    IR = 221 fhs,  
Engine was overhauled 2 times and Engine was inspected 5 times.

Good Luck  
Dr. Yasser Kamal