POH OF DA 40 (SECTION 7)

1. The fuselage is made of GFRP and is semi monocoque in construction.

2. The wings are designed with one spar in the front and one in the rear. It is based on the Fail Safe concept.

3. The airplane has a T tail and is GFRP construction.

4. The stabilizers have twin spars and the skin has no sandwich.

5. The rudders and elevator are of sandwich construction.

6. The ailerons, elevator and flaps are operated by control rods. The rudder is operated by cables. Flaps are electrically operated. Trim Tab is operated by a Bowden Cable.

7. Flaps are made of GFRP/CFRP composite sandwich.

8. The flaps have three settings. UP, TOFF and LDG

9. The UP and LDG positions of the flaps are protected by a limit switch.

10. Flaps up position is shown by a Green Light and Flap down is shown by a White Light.

11. When flaps are travelling both lights will be on.

12. The flap system is protected by an automatic circuit breaker which can be operated manually.

13. The rudder pedals should be adjusted only on ground.

14. To move pedal forward depress lower side switch. To move pedals rearward depress upper side switch.

15. The main landing gear is of sprung steel struts and the free castering nose wheel is sprung by an elastomer package.

16. The wheel brakes are on the main wheel and are disk type and are hydraulically operated by toe pedals.

17. The DA 40 can have three types of baggage compartment and without a baggage net no baggage can be loaded.

18. The canopy has a cooling gap position and which can be used only on ground.

19. For flying the canopy must be locked and closed but not blocked with locking device.

20. The power plant is air cooled, four stroke, four cylinder, horizontally opposed direct driven with fuel injection system.

21. Displacement of the engine is 5916 Cm cube/ 361 inch cube.

22. The max power of the engine is 180 HP at 2700 RPM at sea level under ISA and 160 HP at 2400 RPM at SL at ISA.

23. The engine ignition switch has four positions OFF-L-R-BOTH positions and further right is the starter motor.

24. The engine is controlled with three levers: the throttle lever, the RPM lever and the Mixture control lever. They are black, blue and red respectively.

25. The RPM should no1t exceed 2700 RPM. The chosen RPM is maintained by the supply of engine oil. In case of defect in governor oil system the propeller goes to fine pitch(max rpm).

26. In case of governor failure the throttle should be used to control the RPM from exceeding 2700 RPM.

27. Alternate air supply is got for the engine from the engine compartment in case of icing/blocking of air filter.

28. The propeller is hydraulically regulated with a CSU and should never be rotated by hand with the ignition ON.

29. Operation at high RPM at ground to be avoided as blades can suffer stone damage.

30. The temperature of EGT and CHT and oil temperature is in Fahrenheit.

31. Oil and fuel press is in PSI. Fuel flow is in US gal/hr.

32. The fuel system is provided with an electrical and mechanical fuel pump. The electrical pump is for emergency and is used during Take Off/Landing, while switching fuel tanks and in case of a fuel pressure decrease. It is to be checked at start up.

33. The fuel tank selector has three positions Left-Right-Off in clockwise pattern. The capacity of each tank is 20 US gallon and total ac fuel is 40 US gallons. The long range tanks have a capacity of 25 gallons each.

34. The fuel capacity measurement works on the principle of capacitance.

35. The maximum fuel indicated is 15 US gal upto 40.054 serial number and 17 US gal for 40.055 serial number onwards. When the indicator reads zero only unusable fuel remains in the tank. The total capacity for standard tanks is 20 US gallons.

36. The DA 40 has a 28 Volt DC system.

37. The alternator is rated at 70 Amps and charges the battery. If alt fails the battery provides the power.

38. The ac uses a lead acid battery with a capacity of 10 amps or more. In the IFR model an additional dry battery provides power to the AH and the flood lights for 1 hour and 30 minutes.

39. The master switch is divided into two parts, Master Switch(Alt) and Master Switch(Batt).

40. The DA 40 uses the SlickStart system and it gives a more spark energy at start. The LASAR electronic ignition can be installed in place of the former and it uses MAP and RPM to optimize engine timing.

41. If electronic ignition fails then the fail light comes on and conventional magneto ignition takes over.

42. While doing magneto check the ignition is not controlled electronically and then electronic ignition fail light should come on.

43. If electronic ignition is U/S then for engine start 500 RPM is required.

44. The magneto system is independent of electrical network and thus will provide safe engine operation in case of power failure.

45. The voltmeter gives the potential of the main bus. If alt is on line the it's voltage is shown or else batt volt is indicated.

46. The ammeter gives the current with which the alternator is loaded.

47. The landing/taxy lights are on the left wing.

48. Combined position and strobe lights are on the wing tips.

49. Floodlights brightness can be adjusted and it illuminates the inst panel and all levers.

50. The internal inst lighting is controlled by a rotary button.

51. The pitot heating system is protected by thermal fuse.

52. The ALT warning is red in colour and only battery power is now available.

53 Low voltage caption comes on at 24 volts and goes off at 25 volts and is amber in colour.

54. Fuel press wx comes on at 14psi and is red in colour.

55. Fuel low level light comes on at 3 US gal +/- 1 US gal. The indication is calibrated for level flight only and is amber in colour.

56. Oil press light comes on at 25 psi and is red in colour.

57. Door warning light comes on when front canopy or/and rear canopy is not closed and locked and is red in colour.

58. The battery is connected to the aircraft electrical system with a 70 amp circuit breaker.

59. The electronic ignition status light is white in colour.

60. The starter warning light is red in colour and comes on when the starter is being operated or when the connection between the starter motor and engine has not broken.

61. The pitot heating caution comes on when a) Pitot heater is off b) Malfunction of pitot heating system and when c) Thermal switch operates. The light is amber in colour.

62. A warning is indicated by the continuous aural alert, flashing of the red wx light and flashing of the red wx light associated with the system.

63. A caution is indicated by the momentary aural alert, flashing of the amber CAUTION light and flashing of the Amber Caution light associated with the system.

64. Low fuel light comes on when the fuel in any one tank is below 3 US gallon +- 1US gallon. This is a caution alarm. When the second tank fuel also drops to less than 3 US gallon +- 1US gallon then the alarm is continuous, caution light is flashed and the LOW FUEL light is flashed. On acknowledged also the LOW FUEL light continues to flash.

65. The pitot heater thermal switch operates to keep the probe from overheating. It resets automatically.

66. There are two static measuring orifices at the lower and rear edge of the probe.

67. If airspeed drops below 1.1 times the stalling speed then the stall warning horn sounds.

CHAPTER 8

AIRPLANE HDLG, CARE AND MAINTENANCE

68. For short term parking the airplane should be parked into the wind.

69. The control surface gust locks are used for locking the primary controls.

70. The airplane must be kept clean the bright structure, this prevents it from overheating.

71 Max difference permitted in the fuel quantity between left and right tank is 10 US gallons for standard tanks.

CHAPTER 1

72. Max take off RPM- 2700.

73. Max take off mass 1200 kg.

74. The place to keep the airplane manual is in the side bag of the forward left seat.

75. Span: 11.94 m

Length: 8.01m

Height: 1.97m

76. Wing Area: 13.54 m sq.

MAC: 1.121m

AR: 10.53

Dihedral: 5 Deg

Sweep: 1 Deg

77. Aileron area: .654m sq (both ailerons)

78. Wing Flap area: 1.56m sq (Both flaps)

79. Horizontal tail:

Area: 2.34m sq

Elevator area: .665m sq

Angle of incidence: - 3 Deg relative to long axis of ac.

80. Vertical Tail:

Area: 1.60 sq m

Rudder area: .047 sq m.

OPERATING LIMITATIONS (CHAPTER 2)

81. Maneuvering speed limits (Va):

980 kg to 1150 Kg- 108 kts

780kg to 980 kg- 94 kts

With MAM 40-227 carried out:

1036 kg to 1200 kg- 111kts

780kg to 1036 kg- 94kts

82. V fe: Max flap extension speed- LDG flaps- 91 KIAS. Take off- 108 KIAS.

83. Max structural cruising speed (Vno): 129KIAS

84. Vne: 178KIAS

85. Prop dia: 74 Inch (Max) 72 Inch (Min)

86. Prop pitch angle: 35 Deg +- 1 deg, to 13.5+-.2Deg, at 30 Inch station.

87. Green Arcs:	**LOWER RED ARC**	**UPPER RED ARC**
MAP: 13 – 30 in Hg	**--**	**--**
RPM: 500-2700	**--**	**ABOVE 2700**
Oil Temp- 149-230 F	**--**	**ABOVE 245 F**
CHT- 150-475 F	**--**	**ABOVE 500 F**

OIL PRESS: 56- 95PSI	**25 PSI**	**ABOVE 97 PSI**
FUEL PRESS: 14 – 35 PSI	**14 PSI**	**ABOVE 35 PSI**
VOLT- 25.1 to 30 V	**24.1V**	**ABOVE 32 V**
AMMETER- 2-75 A	**--**	**--**

FUEL QUANTITY (STD TANK) 0-15/0-17

FUEL QUANTITY (LG RANGE) 0-16 + 0-9 US GAL

Oil quantity min- 4 quarts, max 8 quarts.

88. **There are two types of annunciator panels: DAI and white wire.**

89. **Warning light for oil press- Oil press below 25 PSI**

90. **Warning light for fuel press- Press below 14 PSI**

91. **CAUTION LIGHT FOR FUEL INDICATES US GAL 3 +- 1GAL IN TANK.**

92. **Maximum take off mass Normal -1150 kg**

MAM 40-227 MODIFIED- 1200 KG

93. **Maximum landing mass: (Original Strut) - 1092 kg**

94. **Maximum landing mass: (Modified strut) - 1150 Kg**

95. **Max load in baggage compartment: 30 Kg**

96. **Max load in baggage tube: 5 Kg**

97. **The most forward position of CG is**

a) 2.40m aft of datum point upto 980 kg.

b) 2.46m aft of datum point upto 1150kg.

c) 2.48m aft of datum point upto 1200 kg.

98. The most rearward position of CG is

a) 2.59m aft of datum point with standard tank

b) 2.55 m aft of DP with long range tanks.

99. The normal category ac can carry out maneuvers up to AOB of 60 deg.

100. Utility category can maneuver up to AOB of 90 deg, but AH and DG are affected by AOB over 60 deg.

101. Load factors. Normal/(Utility)Category aircraft.

	AT Va	AT Vne	With Flap Down
Positive	3.8g (4.4)	3.8(4.4)	2.0
Negative	-1.52 (-1.76)	Nil (-1)	Nil

102. The maximum demonstrated operating altitude is 16,400 feet/5000mtrs.

102. Flights into known icing conditions are prohibited and also into known thunderstorms.

103. Maximum number of occupants are 4.

104. Fuel type is AV Gas 100LL.

105. Total fuel quantity: 20.6 X 2 US gal or appx 78 X 2 litres.

106. Total unusable fuel is 2 X .5 US gal or appx 2 X 2 litres.

107. Fuel indication is by capacitance.

108. Upto serial no 40.054 the gauge shows 15 US gallons.

109. Serial no 40.055 and above the fuel gauge shows 17 US gal.

110. Arcs of the ASI.

MARKING	IAS	IMP
WHITE ARC	49-91 KIAS	FULL FLAP OP LIMIT
GREEN ARC	52-129 KIAS	NORMAL OP LIMIT OF AC
YELLOW ARC	129-178 KIAS	CAUTION RANGE – SMOOTH AIR ONLY
RED LINE(Vne)	178 KIAS	MAXIMUM SPD IN ALL CONDITIONS.

111. Max difference in fuel between Lt and Rt tank is 10 US Gallons for standard tanks.

112. Max difference in fuel between Lt and Rt tank is 08 US Gallons for long range tanks.

113. The oil used in the DA 40 is SAE 15W50.

114. The min/max oil required in VFR is 4-8 Quarts.

115. The min/max oil required in IFR is 6-8 Quarts.

116. Max spd with full flap deflection is 91 KIAS.

117. Max spd with partial flap deflection is 108 KIAS.

118. If alternative static is open emergency window and cockpit Vent must be closed.

119. The airplane must not be operated below -40 deg centigrade.

CHAPTER 3 (EMERGENCY PROCEDURES)

120. Air speeds in emergencies.

Engine failure after takeoff flaps T/O: 72 KIAS(1150kg)

: 74 KIAS (1200kg)

121. Air speed for best glide flaps up: 73 KIAS(1150kg)

: 76 KIAS (1200kg)

122. Air speed for Ldg engine off flaps up: 73 KIAS(1150kg)

: 76 KIAS (1200kg)

Flaps toff: 72 KIAS(1150kg)

: 74 KIAS (1200kg)

Flaps Ldg : 71 KIAS(1150kg)

: 73 KIAS (1200kg)

123. Engine rough running in air: 73 KIAS(1150kg)

: 76 KIAS (1200kg)

124. Restarting engine in the air windmilling prop: Min Speed 70 KIAS

: Min spd for wind milling 65 KIAS

: Recommended spd to fly is 80 KIAS.

125. Restarting in air with stationary prop: Min Spd 80 KIAS

126. Ht loss to start engine with prop stationary: 1000 ft/300m

127. Emergency elect system powers AH and floodlight in IFR version of DA 40.

128. Gliding spd of ac with flaps up is 76 KIAS for 1200kg and 73 KIAS for 1150 Kg.

129. The glide ratio is 1: 8.8 in wind milling configuration and for every 1000 ft ht loss the ac travels 1.45 Nm.

130. When the propeller is stationary then the glide ratio is 1: 10.3 and the ac travels 1.7 Nm for every 1000 feet loss of height.

131. Emergency landing speed engine off: 73 KIAS(1150kg)

: 76 KIAS (1200kg)

132. Spin recovery actions: Throttle IDLE, Opposite rudder, Control stick forward, ailerons neutral, Flaps up. When rotation stops, rudder neutral, stick back and ease out keeping below Vne.

133. Incase of suspected CO presence in cockpit front canopy can be unlatched in during flight. Flight characteristics will not vary greatly.

CHAPTER 4A (NORMAL OPERATING PROCEDURES)

134. Airspeed for climb after T/O. Vy or Best ROC with flaps to toff.

1150 KG: 66 KIAS

1200 KG: 67 KIAS

135. Airspeed for cruise climb.

1150 KG: 73 KIAS

1200 KG: 76 KIAS

136. Approach speed. Flaps to landing position.

1150 KG : 71 KIAS

1200 KG : 73 KIAS

137. Minimum spd during touch and go. Flaps to takeoff.

1150 KG: 66 KIAS

1200 KG: 67 KIAS

138. The main tire inflation press is 36 PSI and nose tire inflation pressure is 29 PSI.

139. Do not operate starter motor for more than 10 sec and let it cool for 20 sec. After 06 attempts to start let motor cool for 30 mins.

140. If ambient temp is below 0 Deg cel then pre heat and ext power source is recommended.

141. Warm up engine at 1500 RPM for 2-5 minutes.

142. Oil press should be in green sector within 15 sec of starting. If not then, switch off.

143. Fuel press should be 14 to 35 PSI.

144. Idle rpm should be 600-800 RPM.

145. Nose wheel lift off spd is 59 KIAS. (Page 4a- 25)

145. **To prevent vapor lock at high ambient temperatures run engine at speeds of 1800 RPM or more.**

146. **To check both tanks are feeding run at 1500 RPM for 01 minute.**

147. **In magneto check Max RPM drop permitted is 175 RPM and max difference is 50 RPM.**

148. **Take off spd at 1150 KG is 66 KIAS and at 1200 KG is 67 KIAS. (Page 4A -25a.)**

149. **CHT should be between 150 – 400 deg Fahrenheit and and should not exceed 435 deg F in fast cruise. MAX CHT is 500 deg F.**

150. **Best economy mixture is at 75% power, to achieve it lean mixture till engine runs rough and then enrich till the smooth running and EGT is maximum.**

151. **The max CHT is 500 deg F.**

152. **The best power mixture is at 75 % Power and the enrich till EGT is 100 Deg F lower.**

153. **When reducing power the CHT should not drop more than 50 deg F per minute.**

154. **Approach speed for 1200 KG mass is 73 KIAS and for 1150 Kg mass it is 71 KIAS.**

155. **Go around speed is 67 KIAS for 1200 Kg and 66 KIAS for 1150 kg.**

ABNORMAL OPERATIONS (CHAPTER 4B)

156. **Precautionary approach speed is 76 KIAS for 1200 kg ac and 73 KIAS for 1150 Kg ac.**

157. If the oil temp reads constant 26 deg F or 317 deg F then the sensor is at fault.

158. Take off speed from short grass strip. 67 KIAS for 1200 kg ac and 66 KIAS for 1150 kg ac.

159. Landing with flap up or flaps to take off: for 1200 kg ac use 76 KIAS and for 1150 kg ac use 73 KIAS.

CHAPTER V (PERFORMANCE)

160. At ISA + 15 deg C the ac engine power deteriorates by 3% and at ISA – 15 Deg C it improves by 3%.

161. Stalling speeds: ST AND LEVEL

1200 KG FLAPS UP : 53 KIAS	1150 KG FLAPS UP: 52 KIAS
T/O : 52 KIAS	T/O : 51 KIAS
LDG : 52 KIAS	LDG : 49 KIAS

162. Max cross wind component is 20 KIAS.

163. Lift off speed is 59 KIAS and climb out speed is 67 KIAS for 1200 kg and 66 KIAS for 1150 kg ac.

164. The climb gradient of the DA 40 is 7 % on go around with flaps to LDG the speed is to be maintained 73 KIAS.

165. The correct fuel indication of quantity takes 2 minutes to register after switch actuation.

166. The Datum Plane is 2.194 m ahead of the most forward point of the root wing on the stub wing.

167. The mass of fuel is taken to be .72 kg/ liter and engine oil is .89 kg/liter. Supercedes

168. Forward limit of CG is 2.40m for up to 980 kg, 2.46m for up to 1150 kg and 2.48 for up to 1200 kg ac.

SUPPLEMENTS(CHAPTER 9)

169. The ELT ACK Model E -01 transmits a distress tone 121.5 MHz and 243 MHz . When it transmits then the red LED flashes.

170. The acceleration indicator activates the ELT when it senses a change in velocity in the Longitudinal Axis.

171. The ELT has a three position switch. ON-OFF-ARMED.

172. The ELT may be activated in turbulence and hard landings.

173. For flight the ELT should be in ARMED mode. In this mode it has no power consumption.

174. The ELT is located on the right side of the fuselage.

175. The ELT battery should be replaced after the transmitter has been operative for more than one cumulative hour.

176. The ELT is independent of the AC electrical system. Power is given to the ELT by 8 batteries.

177. The ARTEX ME 406 ELT if fitted operates on 121.5 Mhz and 406.025 Mhz.

178 The 406.025 Tx transmits for 520 millisecond every 50 sec and sends a message to the satellite.

179. It gives the serial number of the Tx or airplane ID, Country Code and ID code.

180. The 406.025Mhz Tx give a very accurate fix and it is 1-2 kms as compared to the 15-20kms of the 121.5Mhz Tx.

INDIRA GANDHI RASHTRIYA URAN AKADEMI
DA-40 : Multiple Choice Questions

Name: **Date:** **(Total Marks: 50)**

Q.1. Engine specification of Diamond A/c is;
(a) IO-320-D1A **(b) IO-360-M1A**
(c) IO-540-M1B (d) AIO-360-M1A

Q.2. The rated output power of engine in DA-40 at max continuous rpm is;
(a) 180 hp at 2400 rpm (b) 180 hp at 2700 rpm
(c) 160 hp at 2400 rpm (d) 160 hp at 270 rpm

Q.3. The normal operating range of oil pressure is between;
(a) 25 to 95 psi (b) 55 to 98 psi
(c) 56 to 95 psi (d) 25 to 98 psi

Q.4. The minimum & maximum oil capacity of the sump in diamond A/c engine is between;
(a) 4 to 6 quarts (b) 3 to 8 quarts
(c) 4 to 8 quarts (d) 4 to 6 quarts

Q.5. maximum oil temperature of engine in DA-40 a/c is;
(a) 145°F **(b) 245°F**
(c) 180°F (d) 247°F

Q.6. The maximum take-off mass of Diamond a/c is;
(a) 1200 lbs (b) 1150 Kgs
(c) 1150 lbs **(d) 1200 Kgs**

Q.7. The maximum indicated fuel quantity (on display) in DA-40 a/c is;
(a) 20 u.s gallon per tank (b) 8.5 u.s gallon per tank
(c) 17 u.s gallon per tank (d) 10 u.s gallon per tank

Q.8. The seats fitted on Diamond DA-40 a/c is/are;
(a) Adjustable fore & aft (b) Adjustable back & forth
(c) Non-adjustable (d) Adjustable very slightly

Q.9. In case of main power failure, the emergency battery supplies power to which of following units;
(a) PFD & MFD **(b) Artificial horizon & flood lights**
(c) Artificial horizon A.S.I. Altimeter & Compass (d) Only to flood lights

Q.10. The emergency battery supplies power to respective units for duration of;
(a) Half an hour only **(b) At least one & half hour**
(c) An hour only (d) None is correct

Q.11. The rudder pedals in Diamond DA-40 a/c is/are;
(a) Non-adjustable **(b) Adjustable back & forth**
(c) Adjustable very small (d) None is correct

Q.12. The rudder tab fitted on DA-40 a/c is;
(a) Adjustable **(b) Fixed**
(c) Trim able (d) Has no tab

Q.13. The Aileron tab fitted on DA-40 a/c is;

(a) Both ailerons have trim able tabs (b) Both ailerons have fixed tabs
(c) Only one ailerons have trim able tabs **(d) Only one aileron has fixed tab**

Q.14. The elevator fitted on DA-40 a/c has which type of tab;

(a) Trim able (b) Fixed
(c) Adjustable on ground only (d) Adjustable in flight only

Q.15. The OAT probe is located at what particular location on DA-40 a/c;

(a) On left side **(b) On right side**
(c) On both sides (d) Has no fixed location

Q.16. The Diamond DA-40 a/c is steerable while taxiing with the help of;

(a) Rudder pedals **(b) Differential brakes**
(c) Both rudder pedals & brakes (d) None is correct

Q.17. The Nose wheel fitted on Diamond DA-40 a/c is;

(a) Castor type (b) Fixed type
(c) Retractable (d) Both 'a & 'b' are correct

Q.18. The alternate static valve is installed at what location;

(a) On left fuselage side wall inside cockpit
(b) On right fuselage side wall inside cockpit
(c) On instrument panel
(d) On center console

Q.19. The main tires have tyre pressure of;

(a) 29 psi (b) 30 psi
(c) 36 psi (d) 32 psi

Q.20. The nose wheel tyre has tyre pressure of;

(a) 30 psi (b) 25psi
(c) 29 psi (d) 32 psi

Q.21. The flaps installed on Diamond DA-40 a/c are of;

(a) Electrical type (b) Pneumatic type
(c) Mechanical type (d) None is correct

Q.22. The throttle lever installed on Diamond DA-40 a/c has what particular combination;

(a) Large, black knob, lever, to forward is max power
(b) Small, red knob, lever, to rear pos in max power
(c) Large, black knob, lever, to rear pos in min power
(d) Small, red knob, lever, to rear color handle is;

Q.23. The central lever with blue color handle is;

(a) Throttle lever **(b) Propeller lever**
(c) Mixture lever (d) Parking brake lever

Q.24. The right hand lever with red color handle is;

(a) Throttle lever **(b) Mixture lever**
(c) Propeller lever (d) Parking brake lever

Q.25. The stall warning orifice located on left wing leading edge is operated by means of;

(a) Suction activating a horn
(b) Pressure activating a horn
(c) Suction activating a horn and annunciator
(d) Pressure activating a horn and annunciator

INDIRA GANDHI RASHTRIYA URAN AKADEMI
WRITTEN TEST

Name: **Date:**

PART-I: DA-40

1. The max landing weight is _____ (1150 kg)
2. The max T/O weight is _____ (1200 Kg)
3. The wing area is _____ (145.7 sq ft)
4. Mean Aerodynamic chord is _____ (3'8.1 ft)
5. Max diameter of propeller is _____ (5'10.9 ft)
6. Total usable fuel _____ and unusable is _____ standard tanks (2x20.1 USG & 2x0.5 USG)
7. The permissible max positive load factor is _____ and -ve load factor is ____ at V_A (+3.8 & -1.52)
8. Min oil capacity is_____ and max oil capacity is_____ (4quarts & 8 quarts)
9. Length of A/c is _____ (26'3 ft)
10. Height of A/c _____ (6'6 ft)
11. Stalls speeds in T/o configuration _____ (52 kts)
12. A/c model No. _____ (Diamond DA-40)
13. Propeller model No._____ (Hartzell HC-C2YR- 1BFP/F-7497)
14. Flaps setting in T/o _____ & landing _____ (17° ± 1° & 42° ± 1°)
15. Type of electrical system is _____ (28 Volts DC system)
16. Aspects of Radio_____ (10.53)
17. Most forward CG _____ & most rearward CG _____for AUW 1200 kg & standard tanks. (2.48 & 2.59)
18. Green arc of the following:
    a) Oil temp (149°- 230°F)
    b) Oil pressure (56 – 95 psi)
    c) CHT (150° - 475°F)
    d) Manifold pressure (13" – 30" Hg)
    e) Fuel pressure (14 – 35 psi)
    f) RPM (500 – 2400 RPM)
    g) Voltage (25.1 – 30 V)
19. State relevant speed
    a) Vso (52 kts)
    b) Vs1 (52 kts)
    c) VFE (ldg – 91 kts, T/o – 108 kts)
    d) VNO (129 kts)
    e) VNE 178 kts)
    f) VA (above 1150 kg) (111 kts)

PART-II : EMERGENCIES: (35 Marks)

Q.1. Procedure for forced landing with engine failed. - (5 Marks)

Ans:
i) Select suitable landing Area. If no level landing area available, select and upward slope
ii) Consider winds
iii) Approach : If possible fly along shortcut rectangular circuit on the d/w leg, landing area should be inspected for obstacles.
iv) Airspeed – 76 kts
v) Advise – ATC
vi) Fuel selector – Off

When certain landing field will be reached.

vii) Flaps landing
viii) Safety harness – Tighten
ix) Ignition – Off
x) Master switch – Off
xi) Touchdown - lowest possible Airspeed.

Q.2. Restarting engine in flight with propeller. - (5 marks)

a)Stationary

Ans:
i) Airspeed – 80 kts
ii) Electrical load – Reduce
iii) Avionics Master Switch – Off
iv) Master Switch (Battery) – On
v) Mixture - Set
vi) Fuel Selector – Fullest Tanks
vii) Fuel Pump - On
viii) Alternate Air - Open
ix) Ignition – Start

Note :- By increasing airspeed above 130 kts propeller will windmill . The ignition switch should be set to both. An altitude loss of at least 1000' must be allowed.

Q.3 Restarting engine in flight with propeller.

b)Wind milling

Ans:
i) Airspeed – 80 kts
ii) Fuel selector – Fullest Tanks
iii) Ignition switch – Both
iv) Mixture – Check Position
v) Fuel Pump - On
vi) Alternate Air – Open

If engine does not start :-

vii) Mixture – Push forward slowly until engine starts.

Q.4. Engine fire :- - (10 Marks)

a) On ground

Ans:
i) Fuel selector – Off
ii) Cabin heat – Off
iii) Brakes – Apply

After stand still :-

iv) Throttle – Max Power

v) Master switch – Off

When engine has stopped

vi) Canopy - Open

vii) Airplane – Evacuate immediately

Q.5. Engine fire :-

b) In flight :-

Ans: i) Cabin Heat – Off

ii) Select appropriate emergency landing field. When landing area is assured.

iii) Fuel selector – Off

iv) Throttle – Max Power

v) Fuel Pump – Off

vi) Emergency windows – Open if required carryout emergency landing with engine – off

Q.6. In flight overvoltage light illuminates. - (5 Marks)

Ans: i) Essential Bus – On

ii) Master switch (Alt side only) – Off

iii) unnecessary Equipment – Off (specially Pitot Heat)

iv) Land – Nearest Airfield

Q.7. Door warning light on. - (5 Marks)

Ans: i) Airspeed – Reduce

ii) Canopy – Check visually if closed

iii) Rear Passenger Door – check visually if closed

iv) Warning – Never unlock the rear passenger door during flight. If may break away. Land as soon as possible.

Q-1 QNH IS:-

(A) the airfield barometric pressure
(B) the setting that will give zero indication on the airfield
(C) the equivalent sea level pressure at the airfield
(D) the setting that will indicate airfield height

Q-2 what is density altitude:

(a) Altitude in the standard atmosphere at which the prevailing density is equal to the density in the standard atmosphere
(b) Pressure altitude corrected for prevailing temp
(c) Temperature altitude
(d) Pressure corrected

Q-3 A radio altimeter is:

(a) Ground based and measures true altitude
(b) Ground based and measure true height
(c) a/c based and measure true altitude
(d) a/c based and measure true height

DIAMOND DA-40 QUESTIONS BY JP SHARMA

Note: Ref means the paragraph number of airplane flight manual

1. Weight of the DA-40 with unusable fuel and maximum oil is called----------
Ans: **Empty mass.**
Ref: 1.5 (d)

2. V_{FE} is ----------
Ans: **Maximum flaps extended speed.**
Ref: 1.5 (a)

3. In Air Speed Indicator, the green arc is ----------
Ans: **52 KIAS – 129 KIAS.**
Ref: 2.3
Note : All the options given were wrong. Objection was filed.

4. Maximum take-off mass for normal category is----------
   (a) 1150 Kg
   (b) 1200 Kg if MAM 40-227 is incorporated
   (c) Both (a) and (b) are correct
Ans: **(c) Both (a) and (b) are correct**
Ref: 2.7 Page 2.11a

5. Maximum continuous power is----------
Ans: **180 HP at 2700 RPM**
Ref: 7.9.1 read with Hartzell supplement page 8 of 10.

6. The engine is----------
Ans: **Lycoming, IO-360-M1A, air cooled, four cylinder, four stroke.**
Ref: 7.9.1

7. Maneuvering speed for mass 1036 Kg to up to 1200 Kg is---------
Ans: **111 KIAS.**
Ref: 2.2 Page 2.3 (a)

8. Low voltage caution is illuminated----------
Ans: **When on board voltage falls below 24 volt.**
Ref: 7.11.2

9. Oil pressure warning light is illuminated----------
Ans: **When oil pressure falls below 25 Psi.**
Ref: 7.11.2

10. Fuel pressure warning light is illuminated----------
Ans: **When fuel pressure falls below 14 Psi.**

Ref: 7.11.2

11. Maximum structural cruising speed is----------
Ans: **129 KIAS**
Ref: 2.2

12. The colour of the starter warning light is ----------
Ans: **Red**
Ref: 2.6 and 7.11.2

13. The datum plane is located----------
Ans: **2.194 M forward of the most forward point of the root rib on the stub wing**.
Ref: 6.2

14. Approved maneuvers for the Normal and utility category are ----------
Ans: **Maneuvers with 60° bank and 90° bank**.
Ref: 2.9

15. Maximum positive load factor for normal category is----------
Ans: **3.8 at V_A and 3.8 at V_{NE}**
Ref: 2.10

16. Emergency battery in IFR model supplies power to the attitude gyro and flood light for----------
Ans: **90 minutes**
Ref: 7.11.1

17. The speed after which take off can not be abandoned----------
Answer: **59 KIAS**
Ref: 4A.3.7
Note: The question has insufficient information. 59 KIAS being the V_R, is the closest answer

18. A stable oil temperature of 26° F or 317° F suggests----------
Ans: **Failure of oil temperature sensor.**
Ref: 3.2.3 (d)

19. Restarting the DA-40 engine is possible at all airspeeds ----------
Ans: **Above 70 KIAS and upto V_{NE}**
Ref: 3.2.4

20. Restarting the engine is possible at all airspeeds ----------
Ans: **Above 80 KIAS and upto V_{NE}**
Ref: 3.2.6

21. Presence of carbon mono-oxide is indicated by ----------
Ans: **Visual alarm**

Ref: 3.7.6

22. The starter duty cycle is----------
Ans: **10 seconds ON, 6 attempts, half an hour cooling period.**
Ref: 4A.3.3 (a)

23. Before take off engine must run on each tank for----------
Ans: **At least 1 minute at 1500 RPM.**
Ref: 4A.3.6

24. Oil pressure should be in green arc----------
Ans: **Within 15 seconds after starting engine.**
Ref: 4A.3.3

25. To optimize engine life, the CHT should lie ----------
Ans: **Between 150° F and 400° F in continuous operation.**
Ref: 4A.3.9

26. Oil temperature should not remain under 180° F for long periods so as to----------
Ans: **Avoid accumulation of condensation water.**
Ref: 4A.3.9

27. The maximum difference permitted in fuel quantity is ----------
Ans: **10 US Gallons**
Ref: 4A.3.9

28. The mixture leaning procedure for best power is----------
Ans: **The mixture should first be set for best economy. The mixture should then be enriched until the EGT is approximately 100° F lower.**
Ref: 4A.3.10
Note: None of the options was correct. Objection was filed.

29. The airspeed for going around for a mass of **(*not remembered*)** is----------
Ans: ***One of the following is the correct answer:-***
67 KIAS (1200 Kg)
66 KIAS (1150 Kg)
60 KIAS (1000 Kg)
54 KIAS (850 Kg)
Ref: 4A.3.13

30. Above a safe height, for a mass of **(*not remembered*)** the RPM and airspeed should be----------
Ans: ***One of the following is the correct answer:-***
RPM 2400, airspeed 76 KIAS
RPM 2400, airspeed 76 KIAS
RPM 2400, airspeed 76 KIAS

RPM 2400, airspeed 76 KIAS
Ref: 4A.3.13

31. An uphill slope of 2% (2 M per 100 M or 2 feet per 100 feet) will result in an increase in the take off distance of approximately----------
Ans: **10 %**
Ref: 5.3.6

32. Refer the given performance chart (the chart is same as in 5.3.7). Pressure altitude is 5000 feet, temperature is 12° F, take off mass is 1150 Kg, The rate of climb is----------
Ans: **3.0 M/S**
Ref: 5.3.7

33. A landing mass above 1150 Kg up to 1200 Kg will increase the landing over-------
Ans: **50 feet**
Ref: 5.3.10 page 5-16a
Note: Question was not complete. None of the options was correct. Correct answer ought to be - "Increase landing distance over 50 feet obstacle by 6 %". "50 feet" was the closest option.

34. The circuit breaker for the rudder pedal adjustment is located----------
Ans: **At the rear wall of the leg room.**
Ref:

35. When the lower white light is illuminated the flaps are in ----------
Ans: **Landing position**
Ref: 7.3

36. In the given diagram (the diagram is same as in 7.4 (IFR Instrument panel) page 7.9) the instrument labeled 11 is----------
Ans: **Altimeter**
Ref: 7.4, IFR instrument panel diagram on page 7.9

37. In the given diagram (the diagram is same as in 7.4 (IFR Instrument panel) page 7.9) the instrument labeled 19 is----------
Ans: **Course Deviation Indicator**
Ref: 7.4, IFR instrument panel diagram on page 7.9

38 Which of the button in the given diagram (the diagram is same as in 7.9.4) has an addition function on switch on: Display mode?
Ans: **Button 3**
Ref: 7.9.4

39. Stall warning horn sounds when----------
Ans: **The speed is below 1.1 times the stall speed.**
Ref: 7.3

40. Autopilot engagement speeds are ----------
Ans: **Minimum 70 KIAS and maximum 165 KIAS**
Ref: Supplement for Autopilot KAP 140 for DA 40 AFM

41. Autopilot should be disengaged below----------
Ans: **200 feet AGL in approach operations and below 800 feet in all other operations.**
Ref: Supplement for Autopilot KAP 140 for DA 40 AFM

42.
Ans:
Ref:

43.
Ans:
Ref:

44.
Ans:
Ref:

45.
Ans:
Ref:

46.
Ans:
Ref:

47.
Ans:
Ref:

48.
Ans:
Ref:

49.
Ans:
Ref:

50.
Ans:
Ref:

NFTI DA 40

Name:…….. Date:……

Marks:……

1. The operating limits are given in section:
    a) Section 1
    b) Section 2 b
    c) Section 3
    d) Section 4
2. The Emergency procedures are given in section:
    a) Section 1
    b) Section 2 c
    c) Section 3
    d) Section 4
3. Leading edge sweep is ……deg.
    a) 1 Deg a
    b) 2 Deg
    c) 3 Deg
    d) 5 Deg
4. The MAC length is ……m
    a) 1.122m
    b) 1.123m
    c) 1.124m d
    d) 1.121m
5. The best angle of climb speed is called
    a) Vx
    b) Vy
    c) Vz a
    d) Vno
6. The max flap extension speed is called
    a) Vfo
    b) Vfa
    c) Vfe c
    d) Vno
7. Density altitude is the altitude at which:
    a) Altitude at ISA conditions when air density equals current air density a
    b) The altitude given by the altimeter with QNH

c) The altitude given by the altimeter when it has QFE set

8. Empty mass has the following
   a) Useable fuel + VFR Oil requirements + All operating consumables
   b) Unuseable fuel + VFR Oil requirements + All operating consumables
   c) Useable fuel + Maximum oil + All operating consumables
   d) Unusable fuel + Maximum Oil + All operating consumables d
9. Green arc of ASI is from:
   a) 49 KIAS to 91 KIAS
   b) 52 KIAS to 129 KIAS b
   c) 53 KIAS to 128 KIAS
   d) 51 KIAS to 129 KIAS
10. Minimum fuel press is
   a) 13 PSI
   b) 25 PSI
   c) 14 PSI c
   d) 23 PSI
11. Maximum CHT is …….def F
   a) 245 Deg F
   b) 500 Deg F
   c) 545 Deg F b
   d) 230 Deg F
12. Minimum oil pressure at idle is ……PSI
   a) 25 PSI
   b) 20 PSI
   c) 21 PSI a
   d) 22 PSI
13. The low Voltage comes on at ……..V
   a) 24. V
   b) 24.1V
   c) 25 V a
   d) 25.1V
14. Up to ……serial number the fuel quantity is shown as 15 US Gallons.
   a) 40.055
   b) 40.056 c
   c) 40.054
   d) 40.057
15. The maximum take off mass is
   a) 1150 Kg

b) 1200 Kg c
c) Both a and b

16. DAI variant light is ……shape.
    a) Square
    b) Circle
    c) Rectangle a
    d) Triangle
17. The most rearward CG position is ……..m with long range tanks.
    a) 2.59m
    b) 2.58m
    c) 2.56m d
    d) 2.55m
18. The datum plane is located ……m from root rib of stub wing.
    a) 2.194m
    b) 2.193m a
    c) 2.194cm
    d) 2.193cm
19. The maximum angle of bank of utility and normal category is ……deg
    a) 60 deg and 90 deg
    b) 90 deg and 60 deg b
    c) 60 deg and 80 deg
    d) 80 deg and 60 deg
20. The accuracy of the AH and DG gets affected above ……deg bank.
    a) 90 Deg
    b) 75 Deg
    c) 60 Deg c
    d) 45 Deg
21. The max load factor with flaps to take off is …….
    a) 2 g
    b) 3.8 g
    c) 4.4 g a
    d) Zero g
22. The max load factor with flaps to landing is
    a) 1 g
    b) 2 g
    c) 3 g b
    d) Zero g

23. The minimum quantity of oil for IFR is ……quarts.
    a) 6 Quarts
    b) 4 Quarts a
    c) 8 quarts
24. The max speed to fly with flaps to landing position is……
    a) 91 KIAS
    b) 91 KTAS
    c) 108 KIAS a
    d) 108 KTAS
25. The maximum time available from emergency power pack is:
    a) 30 minutes
    b) 45 minutes
    c) 60 minutes d
    d) 90 minutes
26. Engine rough running speed for 850 Kg
    a) 57 KIAS
    b) 58 KIAS
    c) 59 KIAS d
    d) 60 KIAS
27. Oil temperature sensor fail is given by oil temp of
    a) 26 deg F and 317 deg F
    b) 26 deg C and 317 deg C
    c) 245 Deg F a
    d) 245 Deg C
28. The minimum speed to restart the engine with wind milling prop is
    a) 65 KIAS
    b) 65 KTAS c
    c) 70 KIAS
    d) 80 KIAS
29. Restarting the engine with wind milling prop will cause a height loss of…….
    a) 1000m
    b) 1000 feet b
    c) 300 feet
    d) 3000m
30. Speed to start engine in air with stationary propeller is ……
    a) 65 KIAS
    b) 70 KIAS
    c) 75 KIAS d

d) 80 KIAS

31. The presence of CO is indicated by a …….alarm.
    a) Alarm sound
    b) Visual Alarm b
    c) Both a and b

32. Air speed for cruise climb for 1150 kg is…….KIAS
    a) 73 KIAS
    b) 76 KIAS a
    c) 68 KIAS
    d) 71 KIAS

33. Minimum speed during touch and go is ……KIAS for 1200 KG
    a) 71 KIAS
    b) 73 KIAS
    c) 67 KIAS c
    d) 76 KIAS

34. Best ROC with flaps to take off is ……KIAS for 1000 KG is
    a) 60 KIAS
    b) 66 KIAS
    c) 67 KIAS a
    d) 54 KIAS

35. In the long range tanks the correct indication takes ……..minutes
    a) 4 Minutes
    b) 3 Minutes
    c) 2 Minutes c
    d) 1 Minutes

36. The stall warning horn comes on at …….times the stall speed.
    a) 1.4 times
    b) 1.3 times d
    c) 1.2 times
    d) 1.1 times

37. The starter motor timings are ……sec of operation …….sec of cooling.
    a) 10 sec and 30 sec
    b) 10 sec and 20 sec
    c) 20 sec and 30 minutes d
    d) 10 sec and 30 minutes

38. The oil pressure should register within ……..sec
    a) 1 Sec
    b) 5 Sec d

c) 10 Sec
d) 15 Sec

39. The warm up time for the engine is ……RPM for ……..to …….minutes.
    a) 1200 RPM for 2 to 5 minutes
    b) 1400 RPM for 2 to 5 minutes
    c) 1500 RPM for 2 to 5 minutes c
    d) 1800 RPM for 2 to 5 minutes
40. In strong cross wind take off the steering can be augmented with the use of ……..
    a) Ailerons
    b) Throttle c
    c) Toe brakes
41. To optimize engine life ensure that the CHT does not cross ……deg F in fast cruise.
    a) 435 Deg F
    b) 400 Deg F c
    c) 450 Deg F
42. If oil temperature stays below …….deg F then condensation will accumulate.
    a) 150 Deg F
    b) 165 Deg F
    c) 180 Deg F c
    d) 220 Deg F
43. The best economy mixture is at a power setting of …….% power and the mixture should be made rich to get …….Deg F lower for best power mixture.
    a) 80 % and 100 Deg F
    b) 90 % and 110 Deg F
    c) 75 % and 90 Deg F d
    d) 75 % and 100 Deg F
44. When reducing power the CHT should not vary …..deg F per minute
    a) 100 Def F
    b) 50 Deg F
    c) 25 Deg F b
    d) 10 Deg F
45. At a safe height the RPM should be …….and speed for 1000 Kg should be…….
    a) 2400 and 68 KIAS
    b) 2700 and 68 KIAS
    c) 2500 and 67 KIAS a
    d) 2100 and 67 KIAS
46. A constant oil temperature of 26 deg F or 317 deg F indicates a ……

a) An oil cooler failure.
b) A faulty indication in the cockpit. c
c) A faulty oil temperature sensor.

47. The circuit breaker for the rudder pedal adjustment is on the ……
a) The rear wall of the leg room.
b) The front wall of the leg room. a
c) The centre wall of the leg room.

48. An uphill slope of 2% increases takeoff run by ……..%
a) 20 %
b) 15 %
c) 10 % c
d) 5 %

49. ROC at an altitude of 5000 feet with mass of 1150 KG and temperature of 12 Deg C is ……..
a) 2 m/s
b) 2.5 m/s c
c) 2.8 m/s
d) 3 m/s

50. Autopilot minimum engagement speed is ……
a) 65 KIAS
b) 66 KIAS
c) 67 KIAS c
d) 70 KIAS

CAE Global Academy

सुरक्षा सहित सेवा

NATIONAL FLYING TRAINING INSTITUTE PRIVATE LIMITED

Registered Address: C/o Airport Authority of India, Birsi Airport, P.O. Paraswada, Gondia – 441614, Maharashtra, India

NAME:_____ **Dt: __/__/09**

1. DA-40 engine Model No ____a_____

A) IO-360 M1A B) IO-370-M2A C) IO-330-M3A IO-360 M1B

2. Nose Wheel Shock Absorber in DA-40 is ……. b

A) Sprung Steel B) Elastomer Pack C) Disk D) Sponge

3. Aspect Ratio of DA-40 is____b___

A) 12.53 B) 10.53 C) 9.53 D) 13.53

4. Glide Ratio of DA-40 is……. a

A) 1: 8.8 B) 1:5.8 C) 1:9.0 D) 1:7.6

5. DA-40 has _____d_____ Fuel System.

A) Gravity feed B) Electrically driven C) Engine driven D) Both B & C

6 DA-40 dihedral angle is …… a

A) 5^{o} B) 3^{o} C) 1^{o} D) 2^{o}

7. DA-40 wing shape is……

A) Tapered B) Elliptical C) Rectangular D) None of the above

8. Angle of Incidence for DA-40 Wings is…… -3 …….

9. DA-40 main wheel landing gear Shock absorbers are___sprung steel struts_____

10. DA-40 Fuel Capacity__40____ Gallons and Usable fuel is___39____ galons.

11. DA-40's Emergency frequency or ELT frequency is __406,121.5_____

12. DA-40 in NFTI has _____fuel tanks

13. DA-40's construction is by ___grpf/crpf_____

14. DA-40 take off speed and Landing Speeds are _____and _76___(without flaps)

15. DA-40 take off speed and Landing Speeds are _67____and __73__(with flaps)

16. Vne Speed in a DA-40 is __178___

17. Engine max horse Power of DA-40 engine is__180___

18. The number of fuel pumps DA-40 has_2___

19. Ideal fuel for DA-40 engine is__Avgas 100ll_____

20. Service Ceiling of DA-40 is__16400'____

21. The landing/taxy lights are on the __left_____wing.

22. Max structural cruising speed (Vno): _129__KIAS

23. Never Exceed Speed is _178___

24. In magneto check Max RPM drop permitted is _175__and max difference is _50___RPM.

25. The glide ratio is _1_:_8.8__in wind milling configuration and for every _1000___ft ht loss the ac

travels _1.45___Nm.

26

32. The ELT has a three position switch.__off, on, arm_____

33. Go around speed is _67_KIAS for 1200 Kg and _66_KIAS for 1150 kg.

34. Restarting in air with stationary prop: Min Spd_80___KIAS

35. Ht loss to start engine with prop stationary: _1000___ ft/_300__m

MARKING	IAS	IMP
36. WHITE ARC	49- 91 KIAS	FULL FLAP OP LIMIT
37. GREEN ARC	52-129 KIAS	NORMAL OP LIMIT OF AC
38. YELLOW ARC	129-178 KIAS	CAUTION RANGE – SMOOTH AIR ONLY
39. RED LINE(Vne)	178 KIAS	MAXIMUM SPD IN ALL CONDITIONS.

40. Max difference in fuel between Lt and Rt tank is _10__US Gallons for standard tanks.

41. The min/max oil required in IFR is 6 - 8 Quarts

42. The Total usable fuel quantity of the main fuel tanks is of DA42 in gallons is

43. Maximum number of occupants are _4__.

44. The airplane has a T tail and is GFRP construction.

45. The Max continuous RPM of the DA42's engines is

46. The rudders and elevator are of __gfrp sandwich_____construction.

47. The main landing gear is of __sprung steel strut____and the free caterings nose wheel is sprung by an __elastomer package_____

48. The wheel brakes are on the main wheel are _hydraulically operated disc brakes_____ and operated by toe pedals.

49. Displacement of the engine is _5916____Cm cube/ 361____inch cube.

50. The max power of the engine is _180____HP at 2700 RPM at sea level under ISA and _160___HP at

2400 RPM at SL at ISA.

1. An aircraft including maximum oil, all consumables and maximum fuel
    a. Empty mass
    b. Max t/o weight b
    c. Max landing weight
    d. Payload
2. Certificate if Airworthiness is issued in the form of
    a. C.23
    b. C.23A c
    c. C.23A & AFM
3. Positive load factor for normal category at Va&Vne
    a. 3.8 & 3.8
    b. 3.0 & 2.0 a
    c. 3.2 & 3.5
    d. 2.7 & 3.5
4. Instrument No. 15 in the conventional instrument panel is
    a. Altimeter and slaving meter
    b. Airspeed indicator b
    c. Vertical speed indicator
    d. Compass
5. Which button will show display mode
    a. Button 1 [engine soft key in MFD]
    b. Button 3
    c. Button 5 a
    d. Button 7
6. Minimum airspeed for restarting engine in air is
    a. 65
    b. 79
    c. 89 a
    d. 78
7. Da-40 aircraft is
    a. Lycoming IO-360-M1A aircooled 4 stroke
    b. Lycoming IO-360-M2A aircooled 4 stroke
    c. Lycoming IO-360-M1A oilcooled 4 stroke a
    d. Lycoming IO-260-M1A aircooled 4 stroke
8. Green in ASI is
    a. 52-129
    b. 91-129 a
    c. 50-133
    d. 49-91
9. Max continous RPM for DA-40 aircraft is
    a. 160 BHP a
    b. 180 BHP

c. 190 BHP
d. 170 BHP

10. Angle of Bank should not be performed in normal and utility category
    a. 60^{o} & 90^{o}

    a
    b. 40^{o} & 90^{o}
    c. 50^{o} & 90^{o}a
    d. 60^{o} & 80^{o}
11. Section to be refered in Pilot Operating Procedures for emergency procedures is
    a. Sec 4
    b. Sec 6
    c. Sec 8 d
    d. Sec 3
12. Maneuvering Speed for 1150 Kg
    a. 111
    b. 94
    c. 110 a
    d. 90
13. The ideal centre of gravity position is
    a. 2.194
    b. 2.30
    c. 1.95 a
    d. 3.9
14. Switch for electrically adjusted rudder pedals is situated at
    a. Rear of the leg room
    b. Front of the leg room
    c. Side of the instrument panel a
    d. None of the above
15. In how many seconds must the oil pressure be registered after start up
    a. 15 sec
    b. 30 sec
    c. 45 sec a
    d. 20 sec
16. Color of taxi lights is
    a. White
    b. Yellow a
    c. Red
    d. Blue
17. Life of emergency battery is
    a. 2 hrs
    b. 3 hrs
    c. 1.5 hrs c

d. 1 hr

18. The oil temperature must be avoided to remain under 180^{o} F for long periods to
    a. To avoid corrosion
    b. To avoid leakage of oil
    c. To avoid accumulation of condensation of water c
    d. To avoid the increase of oil pressure
19. Strong crosswind steering is augmented by
    a. Use of ailerons
    b. Use of rudders
    c. Use of elevators d
    d. Use of parking brakes
20. Maximum fuel indication in the Sl.No.40.055 is
    a. 40 Gallons
    b. 20 Gallons
    c. 35 Gallons d
    d. 17 Gallons
21. Distance of datum plane in DA-40 is located ____meters forward of the most forward point of the root rib on the stub wing
    a. 2.194
    b. 3.256
    c. 1.456 a
    d. 3.287
22. On approach at which altitude auto pilot must be disengaged
    a.
23. Maximum Landing Weight is given by
    a.
24. At what voltage does the warning indication comes ON
    a. 24 V
25. The third section of the Aircraft flight manual is
    a. EMERGENCY
26. Speed at which take-off cannot be abandoned is
    a. 59 KIAS
27. Height at which auto pilot can be engaged is
    a.
28. Maximum allowable difference in fuel tanks in DA-40
    a. 10 Gallons
    b. 12 Gallons
    c. 6 Gallons a
    d. 15 Gallons
29. High oil pressure indications are on and the oil temperature remains normal , the probable reason is
    a. Faulty Gauges

b. Low oil content a
c. Dirty oil
d. Oil leak

30. The empty mass of DA-40 aircraft is given as
    a. 802 KG
31. The Centre of gravity limits in DA-40 is
    a. 2.48m to 2.59m(STANDARD) , 2.48m to 2.55m(LONG RANGE)
32. Operation time of electrical equipments incase of electrical failures
    a. 1hr
    b. 1.5 hr b
    c. 0.5hr
    d. 2hrs
33. Glide ratio of DA-40 aircrafts is 1000ft loss of height the aircraft travels
    a. 1.45 Nm
    b. 1.45 Km
    c. 1.45 Sm a
    d. 1.45 Ft
34. The touch and go speed of DA-40 for 1200 Kgs is
    a. 67
    b. 70 a
    c. 60
    d. 55
35. The Best economy mixture of DA-40 is at
    a. 75% of power
    b. 65% of power
    c. 85% of power a
    d. 70% of power
36. The Best power Mixture of DA-40 is at
    a. 75% of power and EGT of 125^0F
    b. 65% of powerand EGT of 110^0F
    c. 85% of powerand EGT of 120^0F a
    d. 70% of powerand EGT of 130^0F
37. The Go-around Speed of DA-40 for 1200 Kg is
    a. 67
    b. 70 a
    c. 60
    d. 55
38. Take of distance over a 50 Ft obstacle (refer to the graph)
    a. TORA
39. The minimum auto pilot engagement speed of DA-40 is given as
    a. 75kias
40. The maximum auto pilot engagement speed of DA-40 is given as

a. 165kias

41. For a safe landing the available landing distance must be
    a. More than the available landing distance over a 50 ft obstacle
    b. Less than the available landing distance over a 50 ft obstacle a
    c. Equal to the available landing distance over a 50 ft obstacle
    d. None of the above
42. The carbon monoxide indications in VISUAL ALARM
43. The engine restart without electronic ignition then minimum RPM required
    a. 400 RPM
    b. 500 RPM
    c. 1000RPM b
    d. 800 RPM