

Human Resources Department

OPEN COMPETITION

Syllabus for Captain/Jr. Captain, Grade VIIIA/VIIIB

A. Stage and Procedures of Examination System

Phase	Subject	Marks	Examination System	No. of Questions X Marks	Time
First 70 %	Written Exam	Full Mark 100 Pass Mark 80	Objective Questions (50 x 2) = 100		1 Hours
Second 10 %	Aptitude Test	Full Mark 20	1. Mental Abilities	2 x 4 = 8	20 Minutes
			2. Situational Judgment	2 x 2 = 4	
			3. Memory	2 x 1 = 2	
			4. Course of Action	2 x 1 = 2	
			5. Communication Skill	2 x 2 = 4	
Third 20 %	Interview	20	Oral (only of medically fit candidates)		

B. Content Materials

- 1. Airframe and Systems: 12 Marks (6 Questions)**
 - a) Airfoils
 - b) Flight Controls, Types and uses
 - c) Operational Procedures and limitations of power plants (Air density)
 - d) Pitch, Yaw, Roll

- 2. Aerodynamics (Theory of flight) 8 Marks (4 Questions)**

- 3. Aircraft Performance 8 marks (4 Questions)**
 - a) Factors affecting aircraft performance C.G
 - b) Effect of Temperature
 - c) Effect of Altitude

- 4. Flight Planning 6 Marks (3 Questions)**
 - a) IFR / VFR Operation
 - b) Necessary of obtaining weather briefing

- 5. Aircraft Instrument 6 Marks (3 Questions)**
 - a) Basic flight instruments

- b) Basic navigations instruments
- c) Basic engine instruments (Turbo Prop)
- d) RNAV / VNAV / LNAV

6. Air navigation

6 Marks (3 Questions)

- a) Great circle, small circle, thumb lines
- b) Latitude, longitudes
- c) Directions (Compass-true and magnetic, definitions, their interrelationships and use)
- d) Magnetic Compass

7. Charts

4 Marks (2 Questions)

8. Metrology

8 Marks (4 Questions)

- a) Atmosphere and physical process
- b) Humidity and precipitation
- c) Monsoonal Weather in Nepal
- d) Motion of atmosphere (Mountain waves, wind shears, local winds, pressure gradient)
- e) Surface weather (Fog, mist, haze, snow)
- f) Air mass (Fronts, turbulence, thunderstorms, squall lines)
- g) Weather observations

9. Human performance and Limitations

4 Marks (2 Questions)

- a) Hypoxia, hyperventilation, disorientation
- b) Visual illusions
- c) Effect of Fatigue flying and health (alcohol, smoking, drugs and medication)
- d) CRM

10. Operations Procedures and rules of the air

10 Marks (8 Questions)

- a) Definitions as per ICAO Annex 6
- b) Flight operations
- c) Aerodrome operating minima
- d) Minimum safe Altitude
- e) Requirement for alternate aerodrome
- f) Duties and responsibilities of PIC and Co-pilot
- g) Fuel requirements / Fuel Calculation
- h) Safe Carriage of dangerous goods
- i) Flight safety (use of seat belts and shoulder harness, wake turbulence hazard)

11. Rules and regulations for ALTP holders

4 Marks (2 Questions)

- a) Necessity, requirements, privileges, responsibility and limitations

- b) Logging of flight time
- c) Maintaining and renewal of license

12. Basic requirements of flying procedures

4 Marks (2 Questions)

- a) Basic Instrument flying
- b) Loss of situational awareness

13. Attitude flying

6 Marks (3 Questions)

- a) Flying with reference to the instruments
- b) Establishing co-ordinated turns climbs and descends at various speeds and power setting
- c) Relation between speed, power and attitude of aircraft
- d) Definitions of standard rates of turns

14. Navigation

6 Marks (3 Questions)

- a) VOR / DME
- b) NDB
- c) ILS
- d) TCAS
- e) GPS / GPWS / EGPWS

15. Emergency Procedures

8 Marks (3 Questions)

- a) Choice of alternates
- b) Communication failure
- c) Power plant failure
- d) ELT
- e) Unusual attitudes / Dynamics of unusual attitude
