

Approved in 20<sup>th</sup> NSQC, 09.04.18

## CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

### Name and address of submitting body:

Ground crew Examining Board (GEB)  
Air Force Station Chandigarh  
Chandigarh- 160003

### Name and contact details of individual dealing with the submission

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### List of documents submitted in support of the Qualifications File

1. Curriculum and training contents for Joint Basic Physical Training (JBPT) – Annexure-I
2. Curriculum and training contents for Trade Phase Training Term – Annexure-II
3. Curriculum and training contents for Trade Phase Training Term –Annexure-III
4. Curriculum and training contents for Trade Phase Training Term – Annexure-IV
5. Curriculum and training contents for Trade Phase Training Term –Annexure-V
6. Air Force Order (AFO) 57/15 specifying the role of Electrical Fitter (R)- Annexure-VI
7. Blue Print of REB(T)- Annexure-VII

**SUMMARY**

<b>1. Qualification Title</b>	AC/LAC : Propulsion Fitter
<b>2. Qualification Code</b>	IAF/Prop/190
<b>3. NCO Code and Occupation</b>	7232.0600, Mechanic Aircraft, Engine; 7233.0100, Fitter General; 7232.0500, Mechanic Aircraft Engine Executive; 5414.0111, Security Supervisor; 5411.9900, Fire fighter others
<b>4. Nature and purpose of the qualification</b>	A trade and rank certificate to the personnel with adequate knowledge and skill to perform the duties of Aircraftsman/Leading Aircraftsman in the Engine Section of aircraft division.
<b>5. Body/bodies which will award the qualification</b>	Mechanical Training Institute (MTI) & Regional Examining Board (Training) [REB(T)]
<b>6. Body which will accredit providers to offer courses leading to the qualification</b>	Directorate of Training at Air HQs, New Delhi
<b>7. Whether accreditation/affiliation norms are already in place or not (if yes, attach a copy)</b>	N/A as specific to Defence Forces
<b>8. Occupation(s) to which the qualification gives access</b>	Leading Air Craftsman (LAC) of Propulsion Fitter
<b>9. Job Description of the Occupation</b>	Maintenance and 1 <sup>st</sup> & 2 <sup>nd</sup> servicing of aero engine, refueling, defueling, replenishing of oil charging of starting and cooling system of aircraft. Marshalling of aircraft and helicopter during day and night, picketing & covering ground handling and pushing of aircraft. For details refer Annexure: II
<b>10. Licensing requirements</b>	N/A
<b>11. Statutory and regulatory requirements of the relevant sector (documentary evidence to be provided)</b>	Air Force Act, Air Force Regulations, Air Force Order,
<b>12. Level of the qualification in the</b>	4

<b>NSQF</b>	
<b>13. Anticipated volume of training/learning required to complete the qualification</b>	4140 Hrs comprising of: (a) 1050 Hrs of Joint Basic Phase Training (b) 2640 Hrs comprising of following three terms: (i) Trade Phase Training Term –I : 660 Hrs (ii) Trade Phase Training Term –II : 660 Hrs (iii) Trade Phase Training Term –III : 660 Hrs (iv) Trade Phase Training Term-IV : 660 Hrs (c) On Job Training (OJT) of 450 Hrs at Field Unit
<b>14. Indicative list of training tools required to deliver this qualification</b>	Classroom with modern AV aids, Principles of piston and jet engine, Computer based training, Error reporting software, Online data recording software's. Fire Arms, Range, Ground training.
<b>15. Entry requirements and/or recommendations</b>	<b>Education Qualification:</b> Passed Intermediate / 10+2 / equivalent examination in science stream / subjects approved by Central / State Education Boards with minimum 60% marks in aggregate and 50% marks in English. OR Passed two year vocational course affiliated / recognized by CBSE / State Education Boards/ Councils duly recognized at par with 10+2 by AIU with minimum 60% marks in aggregate, and 50% marks in English in Vocational Course or in Intermediate / Matriculation if English is not a subject in Vocational Course. <b>Age :</b> 17 Yrs -21 Yrs <b>Prerequisite for TPT:</b> Tradesmen should have successfully completed Joint Basic Phase Training
<b>16. Progression from the qualification</b>	Job Progression <b>AC→LAC→Cpl*→Sgt*→JWO*→WO→MWO</b> *Subject to clearing promotion exam for Corporal (Cpl), Sergeant (Sgt) and Junior Warrant Officer (JWO) called as Corporal Promotion Exam (CPE), Sergeant Promotion Exam (SPE) and Junior Warrant Officer Promotion Exam (JPE)
<b>17. Planned arrangements for the Recognition of Prior learning (RPL)</b>	N/A
<b>18. International comparability where known</b>	Not Known
<b>19. Date of planned review of the qualification.</b>	Every 5 yrs/earlier in case of change in training syllabus/pattern.

<b>20. Formal structure of the qualification</b>			
<b>Title of component and identification code.</b>	<b>Mandatory/ Optional</b>	<b>Estimated size (learning hours)</b>	<b>Level</b>
1. Workshop Technology IAF/Prop/190/01	M	500	4
2. Aeronautical Technology IAF/Prop/190/02	M	400	4
3. Sports Utility Aero-Engine IAF/Prop/190/03	M	400	4
4 Aero-Engine IAF/Prop/190/04	M	300	4
5. Aero-Engine and their support system IAF/Prop/190/05	M	300	4
6. Specialist vehicles IAF/Prop/190/06	M	400	4
7. Computer & information technology IAF/Prop/190/07	M	400	4
8. Safety, (Aerospace , Road , Maintenance, Arms & immunisation and other safety related to life risk) IAF/Prop/190/08	M	500	4
9. Instructional Visits to Various aeronautical sight. (HAL, BRD) IAF/Prop/190/09	M	400	4
10. Cross training IAF/Prop/190/10	M	400	4
<b>Total</b>		<b>4000</b>	

## **SECTION 1** **ASSESSMENT**

### **21. Body/Bodies which will carry out assessment:**

There are two bodies, which carry out the assessment:

1. Trade Phase Training (TPT) is completed through three/four terms respectively for Non Tech/Tech tradesmen. The formative and Summative Assessment during and at the end of the training is carried out by Unit Examining Board (UEB) of MTI respectively.
2. Regional Exam Board (Training) [REB (T)] is responsible for conducting the End Term Exam for gauging the knowledge acquired by the Personnel. The final certification and mustering into the trained trade is done by REB (T).

### **22. How will RPL assessment be managed and who will carry it out?**

N/A

### **23. Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.**

Assessment is carried out by both UEB and independent REB (TRG). Both the boards have all necessary infrastructure and pool of qualified Instructors, Examiners and Assessors to carry out detailed assessments. REB (T) uses all the modern trends like Online Testing and Evaluation System (OTES) for conducting the exams, evaluation and in depth analysis of the result. The exams are conducted in the following manner

1. Written Exams are conducted by both boards for the theory part of curriculum consisting of questions divided into three categories (factual, comprehension, application) for testing the knowledge of Personnel in their trade:
  - (a) Objective: Multiple Choice Question, True & False, Fill in the blanks
  - (b) Subjective : Very Short Answer, Short Answer, Long Answer
2. Practical Exam to test the :
  - (a) Professional Skill
  - (b) Core Skill of the Personnel
3. Viva Voce to gauge the overall knowledge, and its application in resolving an issue.

Blue Print for conduct of Exam is attached as Annexure – VII.

**ASSESSMENT EVIDENCE**

Complete a grid for each component as listed in “Formal structure of the qualification” in the Summary.

*NOTE:* This grid can be replaced by any part of the qualification documentation which shows the same information – i.e. learning Outcomes to be assessed, assessment criteria and the means of assessment.

**24. Assessment Evidences**

**Title of Component:**

<b>Outcomes to be assessed</b>	<b>Assessment criteria for the outcome</b>
<b>1. Workshop Technology</b>	Able to understand workshop terminology, common technical, engineering & workshop drawing, properties of metallurgy, general purpose tools, precision instruments
<b>2. Aeronautical Technology</b>	Able to understand basic principles of aero engine ,Aviation system components , working principles on aero engines system and various safety equipment and their working principles'
<b>3. Sports Utility Aero-Engine</b>	Able to understand operation and functioning of various aero engines fitted on various prodigious (aircraft) defence system.
<b>4 Aero-Engine</b>	Able to understand operation and function of various type of aero engine fitted on various advance aircraft. (Turbo prop, turbo shaft and other engines)
<b>5. Aero-Engine and their support system</b>	1. Able to understand the basic terminology of Aero-Engine and their support system 2. Able to understand basic principles and components of other various advance system like structure , electrical and others
<b>6. Specialist vehicles</b>	Able to understand operation and maintenance of specialist vehicles like Refueller (Ashok Leyland, Tata and others ),petrol ,oil and lubricant used at different load and temperature, and other ground support vehicles like ground power unit(GPU) compressors, refuelling rig ,air compressor etc.
<b>7. Computer &amp; information technology</b>	Able to understand computer concept and its application to assimilate ample working knowledge on basic Computer operation, Operating systems, computer security, basic knowledge of IW, e-MMS

	and operation of i-keys
<b>8.Safety,(Aerospace , Road , Maintenance, Arms &amp; immunisation and other safety related to life risk)</b>	<p>1.Able to understand specifications and functioning of Fire Fighting equipment, Aerospace safety, Maintenance safety, Road sign&amp; safety , armaments safety and other safety during natural and climate condition</p> <p>2. Our aim is to PEOPLE FIRST MISSION ALWAYS</p>
<b>9. Instructional Visits to Various aeronautical sight.(HAL, BRD)</b>	Air Warriors are being taken to concerned BRD (Base repair depot) and HAL for familiarisations on various major activities to assimilate the production process of Aero engines.
<b>10. Cross training</b>	<p>1.To impart comprehensive knowledge of Aircraft Structure to Airwarriors that they become conversant with Airframe Construction, Composite materials, main plane construction</p> <p>2. To impart detailed knowledge on the various terms used in Aerodynamics, Atmosphere, Wind Tunnels, Lift &amp; Drag, Controls of an Aircraft, Forces acting during Gliding &amp; Climbing, Stability, Lift augmentation Devices and Transonic Flight.</p>
<b>11. Snag analysis of Aero engine system</b>	<p>1. Able to identify basic problems in an aero- engine and their cause.</p> <p>2.Able to Remove ,rectify and replace any components of an aero-engines</p>
<b>12. Rectification on various systemof Aero-engines.</b>	<p>1. Able to rectify snags of various aero engine system like fuel, oil, enginecontrols ,air and others system.</p> <p>2. Removal, fitments of various component, and functional checks during snag rectification.</p> <p>3. To able to understand of sings provided related his trade and various safety sings.</p> <p>4.Full performance ground run check of aero engine on aircraft and uninstalled at aero engine at test bed</p>
<b>13. Various systems</b>	Able to understand and repair simple faults of fuel system, oil system and other systems.

### **Means of assessment 1**

There are two types of Assessments viz. Formative and Summative.

- (a) The Formative Assessment is carried out continuously during the conduct of course Exam & is conducted by UEB.
- (b) Summative Assessment is carried out at the end of the course. **Exam is conducted by REB (T)**

Details are mentioned under 'Means of Assessment-2'. Written test, Practical examination/ Skill test & Viva voce.

### **Means of assessment 2**

#### **1. Means of Formative Assessment (Total marks allotted- 250) conducted by UEB**

- (a) Assignments for each module of Theory component      100 Marks
- (b) Assignments for each module of Trade Skills component      25 Marks
- (c) Job practical      75 Marks
- (d) Viva-voce      50 marks

#### **2. Means of Summative Assessment (Total marks allotted- 250) conducted by REB (T)**

- (a) Written test for Theory component      100Marks
- (b) Written test for Trade Skills component      25 Marks
- (c) Job practical      75 Marks
- (d) Viva voce      50 Marks

Component wise distribution of marks is given in the Annexure-II.

### **Pass/Fail**

The minimum qualifying standard is 50% marks in each part and 50% in aggregate of all parts of Course End Knowledge Test (CEKT) Exam conducted by REB (T). Those who score 70% in aggregate are directly mustered as Leading Aircraftsman (LAC).

Should pass within 2 attempts



**SECTION 2**

**25.EVIDENCE OF LEVEL**

**OPTION A**

Title/Name of qualification/component: : Aircraftsman/Leading Aircraftsman of Engine/Propulsion Fitter trade Level: 4			
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
Process	Air warriors is able to perform his duties and responsibilities in routine servicing and unscheduled servicing of Aero engine as per job description of AC/LAC.	<ol style="list-style-type: none"> <li>1. Air Warriors are able to identify troubleshooting problems related to various system of Aero engine</li> <li>2. Recognize their cause and carry out routine servicing and unscheduled servicing of Aero engines</li> </ol>	4
Professional knowledge	<ol style="list-style-type: none"> <li>1. Air Warriors are able to different cite system of Aero engine and their uses</li> <li>2. Air Warriors are able to Define working principle of Aero engines and their system</li> <li>3. Air Warriors are able to Identify ground equipment, various tools along with their use</li> <li>4. Air Warriors are able to understand basic troubleshooting problems and their causes regarding various systems of Aero engine</li> </ol>	<ol style="list-style-type: none"> <li>1. Air Warriors are able to acquire basic knowledge on different system of Aero engine and their uses</li> <li>2. They are also able to acquire the working principle of Aero engine and their uses</li> <li>3. They are able to identify ground equipment and various tools along with their use.</li> <li>4. The Air Warriors are able to understand basic troubleshooting problems and their causes</li> </ol>	4

Professional skill	Air Warriors are able to recognise the troubleshooting problems, carry on rectification works on Aero engine system, (Fuel, oil ,pneumatic, hydraulic, ignition & electrical system)	1. Air Warriors are able to recognise troubleshooting problems and corresponding cause on different system of Aero engine. 2. Air Warriors are able to service and repair different system of Aero engine with their practical skill.	4
Core skill	1. Air Warriors are able to communicate within Air Force and outside agencies  2. Air Warriors are able to read the instruction manuals, job card in English 3. Air Warriors are able to have basic computer knowledge	Air Warriors have communication skill, arithmetic skills, computer skill and basic understanding of social and natural environment	4
Responsibility	Able to carry out the day to day activities related to his trade with ease.	Capable of working independently and is responsible for his work.	4

**SECTION 3**  
**EVIDENCE OF NEED**

**26. What evidence is there that the qualification is needed?**

In IAF many types of sophisticated and costly equipment are used both in ground system as well as in aircrafts. These personnel should be able to carry out day to day operation and maintenance of this equipment, also they should be able to undertake minor defect repair either at their own or under the guidance of a supervisor so that serviceability of all the equipment is always maintained at optimum level

Thus, after the JBPT, the TPT course gives the recruits in depth knowledge to undertake the maintenance and repair of all electrical equipment and instrument used both in ground and air.

**What is the estimated uptake of this qualification and what is the basis of this estimate?**

Is based on the cadre and actual figures cannot be revealed.

**27. Recommendation from concerned Line Ministry of Govt/Regulatory Body. To be supported by documentary Evidences**

The trade has been cleared by MoD and notification to the same effect is confidential in nature.

**28. What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF?**

This qualification is especially tailor made to suit the specific organisational requirements of IAF In some parts it does have some similarity with civil agency as regards to some portion of the syllabus for which the NOS have been equated.

**29. What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?**

IAF has well defined Directorates responsible for monitoring both the training and testing aspects. **Directorate of Training** is responsible for ensuring that right training is imparted to the recruits. The syllabus is based on various studies and feedback received from field units/ REB(T).

**Directorate of Education** is responsible for Trade Testing and evaluation of the knowledge and skill level of the personnel passing out from the training institute and their performance in field units.

This qualification will be reviewed and revised at an interval of five years or earlier, in case of change in syllabus based on the feedback from field Units/REB (T/Z).

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## **SECTION 4**

### **EVIDENCE OF PROGRESSION**

**30. What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?**

1. On completion of the training at Mechanical Training Institute, an Air Warrior is detailed to undergo specialised training on aero-engine/aircraft systems for 24 weeks and after acquiring the required qualification and skill he is posted to the various unit/station where he is undergoing On Job Training (OJT) on the system in which he is trained . On successful completion of OJT, the Air Warrior starts working on aero-engine/aircraft systems where he learns maintenance and repair of all aero-engine/aircraft systems related equipments fitted on that airborne /ground platform..

2. The Air warrior will be promoted to LAC after one year. After three months of skill refinement as an LAC he will be in a position to appear for CPE. On successful completion of CPE he will be promoted to Cpl after five years from date of enrolment. He will further keep climbing the promotion ladder by appearing for SPE for Sgt and JPE for JWO ranks. As per new policy in vogue, ACRs have been linked to skill levels. So, he will be motivated to enhance his skill levels and get them tested by appearing for Skill Gradation Test(SGT).

The progression flow is given below.

AC→**LAC**→Cpl\*→Sgt\*→JWO\*→WO→MWO

\*Subject to clearing promotion exam for Cpl, Sgt and JWO called as CPE, SPE and JPE respectively

**INSTRUCTOR PREREQUISITES:** For posting as an instructor following prerequisites are to be fulfilled:-

(a) **Personal attributes:-**

- (i) Should be energetic, motivating, innovative and good at communication.
- (ii) Should be able to establish rapport with the trainees and employ innovative methods to impart instructions.

(b) **Qualification:-**

- (i) Should have attained rank of Sgt and above (at least 13 yrs of service).
- (ii) Should have been assessed 'Superior' and above during preceding 5 yrs.

(c) **QRs:-**

- (i) Should have in depth knowledge and be highly skilled in his trade.
- (ii) Should be recommended for instructional duties by GEB/REB on attaining stipulated standards during assessment.
- (iii) Should have undergone Methods of Instruction Course conducted by Ground Training Instructors School.

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**Annexure-I**  
Curriculum and training contents  
 For Joint Basic Phase Training (JBPT)

**SCHEDULE OF TRAINING - JBPTC**

Sl No.	Syllabus Index	Subject	Total Periods
<b>TRAINING ACTIVITIES DURING WORKING HOURS: SIX DAYS PER WEEK EXCEPT SECOND SATURDAYS</b>			
1.	JBPTC / GST / 1 to 12	General Service Training (including Field Craft Training (camp))	590
2.	JBPTC / Eng / 1 to 4	English	350
3.	JBPTC / GSK / 1 to 11	General Service Knowledge	165
4.	JBPTC / Comp / 1 to 08	Basic Computer Training	50
5.	JBPTC/MAC/1 to 07	Mentoring & Counselling	45
<b>TOTAL (SL NO 1 TO 5)</b>		1200	
<b>TRAINING ACTIVITIES BEYOND WORKING HOURS – 200 PERIODS</b>			
6.	JBPTC / Hindi / 1 to 6	Hindi Training	36
7.	JBPTC / WTC / 1	Weak Trainees Classes / Night Classes	64
8.	JBPTC / GSD / 1	General Service Duties & Stn Duties	100
<b>TOTAL (SL NO 6 to 8)</b>		200 periods	
<b>GRAND TOTAL (SL NO 1 TO 8)</b>		1400 periods	
<b>TOTAL EFFECTIVE TRAINING PERIODS</b>		1400 periods=1400x45/60=1050 hour	

**Annexure-II**  
**IPT SYLLABUS FOR TERM - I(CALCULATION OF PERIODS)**

**Total duration of course 16 W x 4 T = 64 Weeks**

Periods available(45 min each) in 01 Term of 16 weeks = **12 W x 6 Working days x 10 P + 4 W x 5 Working days x 10 P - 04 Close Holidays x 10 P = 880 Periods per Term.**

Total periods available in 04 Terms = **880 P x 4 T = 3520 P**

Periods for common activities for 64 weeks Course = **40% of 3520 P = 1408 P**

<b>TERM-I</b>		:	
(a)	Duration of Term-I		16 Weeks = 60x16=960 Periods
(b)	Arrival	:	No Time is required as the trainees arrive in advance. Briefing, billeting etc are to be completed before actual commencement of training.
(c)	Gazetted Holidays @ 14 per 52 week	:	04 days= 40
(d)	Second Saturday	:	periods 04 daysx10= 40 Periods
(e)	Periods available {a-(c+d)}	:	<b>960-(40+40) = 880 Periods (45 Minutes Each)</b>
<b>Common Activities</b>		:	
(a)	Health Run, PT and OTW		166 Periods
(b)	GST	:	48 Periods
(c)	GSD (Mentoring, counseling and other allied activities like guest lecture etc for personality development)	:	28 Periods
(d)	Mid Term Examination	:	04 Periods



(e)	End Term examination	:	32 Periods
<b>Total</b>			<b>278 Periods</b>
<b>Subjects Specific to Trade</b>			
(a)	Basic Electronics and Electricals	:	50 Periods
(b)	Thermodynamics	:	50 Periods
(c)	Fundamentals of Flight	:	12 Periods
<b>Total</b>			<b>58 Periods</b>
<b>Trade Subjects</b>			<b>414 Periods</b>

Term-I				
Summary Common Activities	Common Subjects	Subjects specific to Trade	Trade Subjects	Total
278	130	161	414	880

**Term-I**

**Total theory hoysr: 602 Periods**

**Total practical hoysr: 278 Periods**

**IPT SYLLABUS FOR TERM - II (CALCULATION OF PERIODS)**

<b>TERM-II</b>		:	
(a)	Duration of Term-II		16 Weeks = 60x16=960 Periods
(b)	Gazetted	:	04 days = 40 periods
(c)	Holidays @ 14 per 52 week Second Saturday	:	04 daysx10 = 40 Periods
(d)	<b>Periods available {a-(c+d)}</b>	:	<b>960-(40+40) = 880 Periods (45 Minutes Each)</b>
Common Activities	<b>Health Run, PT and OTW</b>	:	<b>148 Periods</b>
(a)			
(b)	<b>GST</b>	:	<b>48 Periods</b>
(c)	<b>GSD (Mentoring, counseling and other allied activities like guest lecture etc for personality development)</b>	:	<b>28 Periods</b>
(d)	<b>Mid Term Examination</b>	:	<b>04 Periods</b>
(e)	<b>Pre -REB</b>	:	<b>16 Periods</b>
(f)	<b>REB</b>	:	<b>88 Periods</b>
<b>Total</b>		:	<b>332 Periods</b>
<b>Common Subjects</b>		:	
(a)	Computer & IW Fundamentals		37 Periods
<b>Total</b>		:	<b>37 Periods</b>

<b>Subjects Specific to Trade</b>				
(a)		Aerospace Safety-I		<b>36 Periods</b>
(b)	IMMOLS	:		20 Periods
<b>Total</b>		:		<b>56 Periods</b>
<b>Trade Subjects</b>		:		<b>455 Periods</b>
<b>Term-II Summary Common Activities</b>	<b>Common Subjects</b>	<b>Subjects specific to Trade</b>	<b>Trade Subjects</b>	<b>Total</b>
332	37	56	455	880

**Term-II**

**Total theory hoysrs: 548 Periods**

**Total practical hoysrs: 332 Periods**

**Annexure-IV**

**IPT SYLLABUS FOR TERM – III (CALCULATION OF PERIODS)**

<b>TERM-III</b>			
(a)	Duration of Term-III	:	16 Weeks = 60x16= 960 Periods
(b)	Gazetted	:	04 days = 40 Periods
(c)	Holidays @ 14 per 52 week Second Saturday	:	04daysx10 = 40 Periods
(d)	Periods available {a-(c+d)}	:	<b>960-(40+40) = 880 Periods (45 Minutes Each</b>
Common Activities (a)	Health Run, PT and OTW	:	<b>166 Periods</b>
(b)	GST	:	<b>48 Periods</b>
(c)	GSD (Mentoring, counseling and other allied activities like guest lecture etc for personality development)	:	<b>30 Periods</b>
(d)	Mid Term Examination	:	<b>04 Periods</b>
(e)	End Term examination	:	<b>32 Periods</b>
<b>Total</b>	:		<b>280 Periods</b>

<b>Common Subjects Nil</b>				
<b>Subjects Specific To Trade (a)</b>		Aerospace Safety-II	28 Periods	
(b)	Maintenance practices	:	51 Periods	
<b>Total</b>		:	<b>79 Periods</b>	
<b>Trade Subjects</b>		:	<b>555 Periods</b>	
<b>Term-III Summary Common Activities</b>	<b>Common Subjects</b>	<b>Subjects specific to Trade</b>	<b>Trade Subjects</b>	<b>Total</b>
280	--	79	521	880

**Term-III**

**Total theory hoysr: 600 Periods**

**Total practical hoysr: 280 Periods**

**Annexure-V**

<b>TERM-IV</b> (a)	Duration of Term-IV	:	16 Weeks = 60x16=960
(b)	Gazetted	:	04 days = 40 Periods
(c)	Holidays @ 14 per 52 week Second Saturday	:	04 Daysx10 = 40 Periods
(d)	Periods available {a-(b+c)}	:	<b>960-(40+40) = 880 Periods of 45 Minutes each</b>
Common Activities (a)	Health Run, PT and OTW	:	<b>144 Periods</b>
(b)	GST	:	<b>48 Periods</b>
(c)	GSD	:	33 Periods
(d)	Mid Term Examination	:	04 Periods
(e)	Pre-REB	:	16 Periods
(f)	REB	:	88 Periods
(g)	POP	:	08 Periods
(h)	Valedictory Function and Departure	:	08 Periods
Total	:	:	<b>349 Periods</b>

**Trade Subjects : 531 Periods**

Term-IV Summary Common Activities	Common Subjects	Subjects specific to Trade	Trade Subjects	Total
349	--	--	531	880

**Term-IV**

**Total theory hoysr: 531 Periods**

**Total practical hoysr: 349 Periods**

**Annexure-VI**

(Air Force Order (AFO) 57/15  
specifying the role of Engine /Propulsion  
Fitter)

**AIRCRAFTMAN &  
LEADING AIRCRAFTMAN  
ENGINE /PROPALSON FITTER: GROUP 'X'**

**1. To undertake the following under supervision :-**

- (a) First line servicing of aero engine, refueling, defueling, replenishing of oil charging of starting and cooling system of aircraft.
  - (b) Marshalling of aircraft and helicopter during day and night, picketing & covering.
  - (c) Ground handling and pushing of aircraft.
  - (d) Duties of take off Inspector.
  - (e) Assists in second line servicing simple repairs such as removal and refitting of damaged studs, and servicing of ground equipment and use of fire appliances.
2. All jobs mentioned against aircraftman and in addition the following jobs under supervision:-
- (a) Minor snag rectification, diagnosis of faults.
  - (b) Assist in second line servicing and documentation.
  - (c) Servicing/ Repair/ Maintenance of ground equipment and recording/ documentation.
  - (d) Dismantling, assembling, servicing of

**1. Should have basic knowledge of the following:-**

- (a) First line servicing procedure of aero engine, method & precautions for refueling and defueling, replenishing of oil, principle of operation, construction and working of starting and cooling systems and the relevant equipment used for charging with their safety and fire precautions.
- (b) Marshalling signals by day and night of aircraft and helicopter, approved method and precaution while marshalling and picketing with knowledge of use of picketing equipment.
- (c) Approved method and precaution of ground handling and pushing of aircraft.
- (d) Method of removing air intake guards (where applicable) and precautions against FOD.
- (e) (i) Construction and principles of operation of all types aero engines and their associated components and accessories.  
Type of corrosion, detection & prevention.  
(ii) Elementary metallurgy, properties and heat treatment of metal and their alloys, Care, maintenance and use of hand and special tools and precisions instruments, Interpretation of

<p>various engine components/accessories.</p>	<p>engineering drawing, workshop practice &amp; safety precautions.</p> <p>(iii) Servicing system and method of carrying out various routing servicing of aero-engine and their components, use of forms and publications method of recording.</p> <p>(f) (i) Inhibition &amp; de-inhibition procedure, purpose &amp; method of handling associated equipment.</p> <p>(ii) Long &amp; short term packing procedure and safety precaution.</p> <p><b>2. Should have practical knowledge of:-</b></p> <p>(a) Causes of common running faults of aero-engine and methods of their rectification.</p> <p>(b) Second line servicing procedures of aero-engines and their components. Method of testing and adjustments of engine parameters and instruments.</p> <p>(c) Construction, function, types, servicing procedure and operation of ground equipment appropriate to trade with method of recording/documentation.</p> <p>(d) (i) Use of appropriate tools, gauges and precision instruments and standard test equipment tolerance of fits and clearance.</p> <p>(ii) Method of removing stripping cleaning viewing and assembling of Components/ accessories precautions thereof types of locking devices.</p> <p>(e) ERS and bay servicing procedure salvaging procedure salvaging equipment their operation &amp; safety precautions.</p> <p>(f) Equipment procedure</p> <p>(g) Procedure for removal and installation of aero-engine and their components &amp; accessories use of special tools &amp; equipment, safety precautions.</p>
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**Annexure-VII**

REGIONAL EXAMINING BOARD (TRAINING), AIR FORCE

BLUE PRINT OF EXAMINATION SCHEME  
**CEKT EXAMINATION: PROPULSION FITTER****SECTION –‘A’**Total Marks: 500

1. The examination consists of four parts namely Part-I, Part-II and Part-III (A & B). The details of part wise examination are given below: -

<b>PART No.</b>	<b>NATURE OF EXAMINATION</b>	<b>DURATION OF EXAM</b>	<b>MARKS ALLOTTED</b>	<b>EXAM SCHEME PLACED AT</b>
Part – I	Trade (Theory)	3 Hours	100	Section 'B'
Part – II	Trade (Theory)	3 Hours	100	Section 'C'
Part – III (A)	Trade Practical + Project	As required	200	Section 'D'
Part – III (B)	Trade Viva-Voce	As required	100	Section 'E'

**DISTRIBUTION OF MARKS AND QUESTIONS FOR PART-I & PART-II**

<b>TYPE OF QUESTION</b>	<b>NO OF QUESTIONS</b>	<b>MARKS FOR EACH QUESTION</b>	<b>TOTAL MARKS</b>
MCQ	20	01	20
VSA	10	02	20
S A	10	03	30
L A	06	05	30
<b>TOTAL</b>	<b>46</b>	<b>-</b>	<b>100</b>

2. The minimum qualifying standard is 50% marks in each Part and 50% in Aggregate of all parts of CEKT examination.
3. The effective date of implementation of this blue print is from Jan 2014 (Intake No. 01/2014) onwards.
4. Syllabus Reference: Syllabus approved vide Air HQ letter Air HQ/18934/10/Trg (G) dated 05 Mar 14.
5. Scheme of examination and assignment of marks conform to TCASI/Part-II/TG/01/2014.
6. The guidelines issued by GEB for preparation of blue print has been followed.
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## SCHEME OF EXAMINATION (PROP FIT)

## PART-I OF WRITTEN EXAMINATION

**DISTRIBUTION OF MARKS AND SYLLABUS****SECTION –‘B’**

Duration: 03 Hrs

Marks: 100

SL No	Syllabus Index	TOPIC	Total (Theory + Demo) Periods As per syllabus	DISTRIBUTION OF QUESTION (Marks)												
				M C Q			THEORY									
							VSA			SA			LA			
				F	C	A	F	C	A	F	C	A	F	C	A	
1	PROP / NDI /1-5	Non Destructive Inspection	21	1	-	-	-	1	-	-	1	-	-	-	-	-
2	COM T/MAINT P /1-9	Maintenance Practice	41	1	1	-	1	-	-	1	-	-	-	1	-	
3	PROP /PET / 12-15	Piston Engine Theory	29	1	1	-	-	1	-	-	1	-	1	-	-	
4	PROP /AE ACC/1-7	Aero Engine Accessories	70	1	2	1	1	1	-	1	1	-	-	1	-	
5	PROP / FOL RFLR /1-18	FOL &Refueller	114	2	3	2	1	1	1	2	-	1	-	1	1	
6	PROP / ADV CON / 1-9	Advanced Concept in Jet Engines	60	1	2	1	-	1	1	-	1	1	1	-	-	
<b>TOTAL</b>			<b>335</b>	<b>7</b>	<b>9</b>	<b>4</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>1</b>	

## SCHEME OF EXAMINATION (PROP FIT)

## PART-II OF WRITTEN EXAMINATION

**DISTRIBUTION OF MARKS AND SYLLABUS****SECTION –‘C’**Duration: 03 HrsMarks: 100

SL No	Syllabus Index	TOPIC	Total (Theory + Demo) Periods As per syllabus	DISTRIBUTION OF MARKS											
				M C Q			THEORY								
							VSA			SA			LA		
F	C	A	F	C	A	F	C	A	F	C	A				
1	PROP/JET/12-25	Jet Engine Theory	94	2	3	1	1	1	1	1	1	-	-	1	1
2	SSTT/AS-1/1-6	Aerospace Safety	23	-	1	-	-	1	-	1	-	-	-	-	-
3	PROP/ERS/1-13	Engine Repair Shop	45	1	1	1	1	-	-	1	-	-	-	1	-
4	PROP/CORR AC INSP/1	Corrosion And Aircraft Inspection	23	-	-	1	-	-	-	-	-	1	1	-	-
5	PROP/TECH PUB/1-34	Technical Publications	110	2	3	1	1	2	1	1	1	1	1	1	-
6	PROP/IDT/WPN/1	Intra Discipline Training	15	1	-	-	-	-	-	-	1	-	-	-	-
7	PROP/BSD/1-4.2 & 4.3-5.2	Basic Skill Development	26	1	1	-	-	1	-	-	1	-	-	-	-
<b>TOTAL</b>			<b>336</b>	<b>7</b>	<b>9</b>	<b>4</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>1</b>

SCHEME OF EXAMINATION (PROP FIT)  
**PART III (A): TRADE PRACTICAL**  
**DISTRIBUTION OF MARKS AND SYLLABUS**  
**SECTION 'D'**

Duration: As required Marks: 200

GP	Syllabus Index	Topics	Practical Hours		Marks
A	PROP/ FOL REFLR/ 4.1, 4.3, 10.1, 13.4, 15.1, 17.2, 17.3 & 18.1	Visual Exam, Water Sediments and Density check.	16	122	75
		Quality Control of Fuel in Refueller and before refueling in ac.	12		
		Daily, Weekly, Quarterly and Yearly Inspection of ac refueller.	24		
		Trouble shooting of aircraft Refueller.	02		
		Contamination of oil by water, solids and other petroleum products.	12		
		Documents for maintenance of aircraft refueller.	06		
		Procedure for change of pressure coupling/trigger nozzle.	12		
		Change of refueling hose.	12		
		Copper Strip Corrosion Test.	12		
		PROP/NDI/2-3	Dye Penetrant Inspection.		
PROP/ ERS/ 12.1	Use of Torque Wrenches	02			
B	PROP/ BSD/ 1.1, 2.1, 2.2, 3.1, 4.2, 4.3, 4.4, 4.5, 5.1 & 5.2	Screw driving, Uses of different types of spanners. Securing by Locking Wire, Spilt Pins, Tab Washers & Circlip (Internal & External). Identification of Positive, Negative and Neutral Terminals. Care of Batteries.	50	120	75
		Additional Fuel Filter Removal and Fitment, Oil Filter Removal and Fitment. Oil Tank Replenishing. Chip Detector Removal Cleaning and Fitment.	60		
		Marshalling during Day and Night. Aircraft Towing, Care and Maintenance of Aircraft Documents, Disposal of Form IAFF (T) 700, Types of Fire Extinguishers.	10		
C	PROP F/PROJECT/ 1	Project Work.	48	48	50
<b>Total</b>			<b>290</b>	<b>290</b>	<b>200</b>

- Note:-
1. One practical from each Group A & B.
  2. Project Work is compulsory for all candidates.
  3. The Weightage has been given to the important subject where the knowledge is required at unit level.

NSQC Approved

## SCHEME OF EXAMINATION (PROP FIT)

## PART III (B): TRADE VIVA VOCE

## DISTRIBUTION OF MARKS AND SYLLABUS

SECTION 'E'Duration: As requiredMarks: 50

Sl No	Syllabus Index	TOPIC	Theory + Demo Hours	Marks
1	PROP/NDI/1-5	Non Destructive Inspection	21	100
2	COM T/MAINT P/1-9	Maintenance Practices	41	
3	PROP / PET/ 12-15	Piston Engine Theory	29	
4	PROP / AE ACC/1-7	Aero Engine Accessories	70	
5	PROP / FOL / RFLR/1-18	FOL &Refueller	114	
6	PROP /ADV CON/ 1-9	Advance Concepts in Jet Engines	60	
7	PROP /JET/ 12-25	Jet Engine Theory	94	
8	SSTT/ AS -1/1-6	Aerospace Safety	23	
9	PROP/ ERS / 1-13	Engine Repair Shop	45	
10	PROP /CORR AC INSP/1	Corrosion & Aircraft Inspection	23	
11	PROP /TECH PUB/1-34	Technical Publications	110	
12	PROP / IDT / WPN /1	Intra Discipline Training	15	
13	PROP /BSD /1-5.2	Basic Skill Development	26	
<b>Total</b>			<b>671</b>	<b>100</b>