COMBINE ANNUAL TRAINNING CAMP-2

TEST-1

SUBJECT-SOP

Marks-150 **Time: - 02:30 Hrs**

FILL IN THE BLANKS **(1×50=50M)**

1. Wing span of Virus SW-80 aircraft is_____.
2. Height of Virus SW-80 aircraft is _____.
3. Maximum landing weight of Virus SW-80 aircraft is _____.
4. Maximum Take-off weight of Virus SW-80 aircraft is _____.
5. Total fuel capacity of Virus SW-80 aircraft is _____.
6. Total oil capacity of Virus SW-80 aircraft is _____.
7. Propeller diameter of Virus SW-80 aircraft is _____.
8. Maximum permitted RPM of Virus SW-80 aircraft is _____.
9. Caution range (Yellow) coolant temperature _____
10. ASI indicates speed in _____.
11. Totalizer starts counting engine hours when RPM exceeds _____.
12. Correct downwind displacement is _____ from the runways.
13. Maximum permitted coolant temperature _____.
14. Maximum wind speed for parking outdoors without tie down is _____.
15. Maximum wind speed for parking outdoors with tie down is _____.
16. RPM display turns red when engine RPM is above _____.
17. Flight time starts registering when speed exceeds ____ Knots for more than 05 seconds
18. If oil pressure rises above _____PSI, displayed value becomes red with 'HIGH" warning
19. If oil temperature rises above _____deg Celsius, displayed value becomes red with 'HIGH' warning
20. If coolant temperature rises above _____deg Celsius, displayed value becomes red with 'HIGH' warning
21. If battery voltage drops below ___volts, displayed Bus bar voltage value becomes red with 'LOW' warning
22. If battery voltage value rises above _____Volts, displayed value becomes red with 'HIGH' warning
23. If fuel pressure value drops below ____PSI, displayed value becomes red with 'LOW' warning
24. If fuel pressure rises above _____PSI, displayed value becomes red with 'HIGH' warning
25. If EGT rises above _____deg Celsius, displayed value becomes red with 'HIGH' warning
26. If fuel quantity drops below ___ litres, displayed value becomes red with 'LOW' warning
27. Main Ole leg tyre pressure ___ PSI.
28. It is prohibited for flying when OAT above ___deg Celsius
29. Standard empty weight of Virus SW-80 aircraft is _____
30. Final approach speed of Virus SW-80 aircraft is _____
31. The activation handle for parachute is located at _____between both pilots.
32. Among the primary control _____ and _____are individually provided for both pilot while there is a common _____
33. Fuel Quantity in avionics in _____.
34. Distance between Main wheel _____
35. Fluid used for hydraulic _____.
36. Flaperon is installed at _____ of each wing.
37. Flap movement in position-1 is _____.
38. Minimum height to commence a one turn spin is _____.
39. Totalizer starts counting engine hrs when rpm exceed ____pm.
40. Instrument panel consists analogue _____indicators.
41. Communication & Navigation System includes a modern light weight radio unit _____ and Garmin Aera 500 GPS _____ system.
42. Pitot tube is attached to bottom side of _____ wing.
43. The engine is equipped with _____Lubrication.
44. The gear box provides a reduction ratio of _____.
45. After pulling the activation handle, the main canopy opens in _____.
46. _____ is electro-mechanical, driving a spring mechanism, with a common cockpit switch available to both pilots.
47. *Open full throttle and check engine RPM between _____and not more than 5800 on ground.*
48. Check brake serviceability every _____.
49. _____ Perpendicular (90°) to the direction of take off, moving away from the runway.
50. _____ Roll out 90° to the runway heading, flying towards the runway.

51. **Check and procedure** **(5×9=45M)**

(i) Startup checks
(ii) Vital action before takeoff
(iii) Vital action Downwind
(iv) Checks on entering cockpit
(v) 10 aircraft limitations
(vi) Cockpit preflight inspection
(vii) Magneto drop check procedure with limitation
(viii) Line up procedure
(ix) Internal and external checks before entering stall

52. **Emergencies** **(5×7=35M)**

(viii) Engine fire on ground
(ix) Engine failure on take-off
(x) Total electrical failure
(xi) Landing in case engine failure out of airfield
(xii) Icing and pneumatic instrument failure
(xiii) Stall recovery procedure
(xiv) Spin recovery procedure

53. Draw a circuit diagram as applicable for virus and label the diagram **(1×10=10M)**
54. Takeoff procedure up to rolling out on downwind **(1×10=10M)**

COMBINE ANNUAL TRAINNING CAMP-2

TEST SET-1

SUBJECT-SPECIAL SUBJECTS

Marks-150 **Time: - 02:30 Hrs**

FILL IN THE BLANKS **(1×41=41M.)**

1. SU-30mki aircraft is a _____ of aircraft.
2. Jaguar aircraft is a_____(role) ac of _____origin
5. The Navy is divided into _____ commands
6. The Air Force is organized into ____ commands which are commanded by a _____ of the rank of _____and the post is
9. The latest _____ (role) ac inducted into the IAF is _____ which is manufactured by _____ which is a French company
12. Present Chief of Air Staff is _____.
13. The only officer honored with the rank of Msl of the IAF is _____.
14. The only Helicopter used in Offensive Role in Op Safed Sagar is _____.
15. Vert comp of TR resolved perpendicular to the RAF is _____
16. _____is the horizontal comp of TR the acting in the same direction at the RAF
17. _____ is mass per unit volume
18. _____is the rate of change of velocity.
19. _____ is the line joining the centre of _____and _____edge of an aerofoil.
22. A _____ accelerates a large mass of air _____thereby propelling the Aircraft _____.
25. The control surface responsible for pitching movement of an aircraft is called_____.
26. Speed in particular directions is called _____.
27. Slats are generally on the _____ of the wing unlike flaps which are on the _____ of the wings towards the _____ of the aircraft.
30. A body designed to produce more lift than drag is called _____.
31. The glide range _____ in downwind and _____ in head wind.
33. The highest rank in the IAF is _____ is the rank given only to _____ for their invaluable service.
35. India has recently inducted_____ helicopter manufactured in the US which has _____ and is a _____ _____ helicopter.
38. _____ rate is the reduction of_____ ____ with _____ in altitude, which is ____ deg/ _____ft as per ISA condition.

Define/Enumerate the following: **(2×17=34) M)**

1. Lift
2. Drag
3. Power
4. Rumble Line
5. Meridian
6. Great Circle
7. Small Circle
8. Newton's First Law of motion
9. Newton's Second Law motion
10. Newton's Third Law of motion
11. Bryton's cycle
12. Air field
13. Flight Strip
14. ATS service
15. Angle of attack
16. Composition of atmosphere
17. Effect of using flaps

Explain the following **(15×5=75) M)**

1. What are the conditions of the basic design of fuselage should satisfy?
2. In fact the unconditional surrender by the enemy's one lakh armed forces is unprecedented. This statement belongs to which war, write the short note?
3. What are the Aerodrome ground markings, explain taxiway markings?
4. Draw a labelled diagram of a CCT pattern?
5. ISA Conditions
6. VMC Conditions
7. Working principle of ASI
8. Working principle of Compass
9. Draw a block diagram of a jet engine.
10. Explain the function of the various parts of a jet engine.
11. Draw a labelled diagram of a piston engine.
12. Draw an aerofoil and show the forces acting on an aerofoil.
13. List the types of clouds
14. Explain hypoxia, including causes and immediate actions to overcome the same.
15. Explain hyperventilation including causes and immediate actions to overcome the same

COMBINE ANNUAL TRAINNING CAMP-2

TEST-1

Marks-100 **SUBJECT-HEALTH AND HYGIENE (ANSWER KEY)** **Time: - 01:30 Hrs**

1. Responsibility for the maintenance of personal health therefore lies with the _____.
2. The average requirement of sleep is about _____ a day.
3. Brushing minimizes the accumulation of _____ in mouth which can cause tooth decay and _____.
4. _____ Habits such as washing hands and brushing teeth will keep bacteria, viruses and illness at bay.
5. Lack of adequate food hygiene can lead to _____ and _____.
6. _____ is the condition and measures necessary to ensure the safety of food from production to consumption.
7. Pasteurization is the _____ to such _____and for such _____, as are required to _____ without destruction of_____.
8. Fruits and vegetables are a source for the spread of _____, _____ **and** _____.
9. Sanitation means keeping the _____ and its _____ neat and clean.
10. A sample of food provided to cadets will be preserved for _____ after the meal is served.
11. All preliminaries, such as, cutting, peeling and washing of food items will be done in a _____.
12. Each cook house will have soakage pit, _____ wide. These pits will be _____, filled with _____ and covered with a top layer _____ (mud).
13. Water used in the Camp must be from authorised source and must be checked by the _____, _____ and certified as potable.
14. A DTL is a pit three _____, _____deep and of a length suitable to the requirement is constructed and wooden seats placed over it with proper partitions and curtains.
15. _____ are filled up after 24 hours and new trenches are dug up
16. The most common urinal used for camps is the _____ which are constructed over a simple soakage pit.
17. In case of dog bite both the Dog and the patient should be kept under observation for at least _____.
18. Shortness of breathing or increase in breathing rate is a symptom of _____.
19. When a person is experiencing restlessness of body & mind, he may be suffering from _____.
20. Cover the patient's mouth with clean gauze and blow directly and slowly into it. 10 – 12 times per minutes in _____.
21. Fracture may be classified into _____ and _____.
22. _____ are caused by blunt instrument
23. _____ are Injuries in which a body structure is forcibly detached from its normal point of insertion.
24. UNO has declared _____ as the International Day of yoga.
25. The _____ and _____ pressure may be mentioned as special characteristics of the yoga system of health.
26. The nature of Yogic practices is _____.
27. Gyan Mudra is most suitable for _____ **and** _____.
28. _____ is a combined sequence of _____ positions.
29. Shavasana provides relief in disease like _____, _____ and other ailments.
30. Vajrasana asana can be done immediately after _____ and should be done for about _____.
31. _____helps in making the spine supple.
32. Halasana stimulates blood circulation and makes the _____.
33. While practicing _____ recite the different names of Sun god at each position.
34. Short Answers
    - (a) List the five keys to ensure food hygiene?
    - (b) What is personal hygiene & what are its main components?
    - (c) Explain injury to internal organs, and the first aid for it?
    - (d) What are scalds and burns and what is the first aid for it?
    - (e) What are the sign and symptoms of Asphyxia?
    - (f) What are stages of unconsciousness?
    - (g) Definition and purpose of Yoga?
    - (h) Write a short note on Surya namaskara?
    - (i) List the various components of food hygiene and each sub component under milk hygine and hygine of eating places. (10)

COMBINE ANNUAL TRAINNING CAMP-2

TEST

SUBJECT-SOP

Marks- 220mm - 280mm backwards **Time: -**

1.	Centre of Gravity limits- 20% - 38% of MAC of datum	2.	'G' Load Factors Max -ve 'G'
3.	Tested min safety factor- 1.5 - 1.5	4.	Max difference in magneto Drop-
5.	T/O Ground roll- 410 metres	6.	T/O Ground roll at MTOW-
7.	Best Climb rate at 100 Kts 800 feet per minute (+/- 100 FPM)	8.	Fuel Recommended-
9.	Minimum Sink Rate Flaps 15- 58 knots	10.	Best L/D ratio speed-
11.	Final Approach Speed with Flaps 25- 50 knots	12.	Tachometer Normal Operating (Green) -
13.	Caution Range (Yellow) in CT 110°C	14.	Normal Opeorating Speed VNO-
15.	The aircraft manufactured by - Pipestral Slovenia	16.	All composite parts are made of
17.	Composite parts are made in kevlar, fabric, fibre, carbon foam	18.	Fuel tank capacity-
19.	Firewall is reinforced by heat and noise insulation using glass frame reladant sandwich	20.	Cabin ventilation is achieved
21.	Provision for cabin heating and windshield defrost / demist is provided for, by utilizing hot air from the engine.	22.	All engine & flight control operating levers are located in the_____.
23.	A parachute activation handle is located overhead on the backwall between both pilots	24.	The nose wheel, connected by cables, is steered through _____
25.	For Magneto check throttle to set engine RPM - 1000	26.	Once cleared by ground crew and chocks removed, select Parking Brakes
27.	Check brake serviceability every 200 metres	28.	Taxy at slow walking speed when in
29.	In take-off Procedure Check engine RPM 2800 - 5500	30.	During Taxy after a turn, Roll straight for a short distance to ensure nose wheel is _____
31.	Gently pull back on stick to get airborne when Speed approaching-	32.	After takeoff at height 150 ft, speed -
33.	In case of cross country flight or cruise flight, climb at - 100 knots speed	34.	Descent Procedure, select throttle to idle.
35.	Checks after Landing, Select Flaps to position 0.	36.	Before switch off, allow engine to cool down for -
37.	Recommended lateral displacement from runway for downwind leg is - 0.7 NM	38.	Roll out 90° to the runway heading, flying towards the runway-
39.	Final approach speed below 55 knots, select flaps to position 2	40.	Allow nose wheel to touch down only after speed has been reduced to below -
41.	Rough engine operation or engine failure in flight, to ensure reduce air speed -------	42.	Fuel pressure low warning-------
43.	Carburettor Icing may occur even at temperatures as high as ------ +10°C	44.	Defined as oscillation of control surfaces-------
45.	If forced to land on water body, use same emergency procedure as ---------- Ditching	46.	Icing / Pneumatic Instrument Failure, maintain flight- -------
47.	In case of pneumatic instruments failure, use information for reference- ------GPS	48	For normal flight operation, ---------- provides adequate fuel pressure.
49.	For spin recovery, keep control stick centered along ------- with	50.	Low fuel pressure warning- --------

51.	Wing Span- -----	52.	Length-------
53.	Height----	54.	Vertical Fin----
55.	Aspect Ratio-----	56.	Max T/O Weight---
57.	Standard Empty Weight---	58.	Max Baggage Weight--
59.	Max Load per Seat- -	60.	Min Combined Crew Weight- -
61.	Fuel Capacity Total- -	62.	Fuel Capacity Useable- -
63.	Oil Capacity- -	64.	Take off speed--
65.	Propeller- -	66.	Propeller Diameter--
67.	Absolute Ceiling at MTOW- -	68.	Torque--
69.	Max Permitted Rpm- -)	70.	Compression Ratio- -
71.	Cooling System-	72.	Ignition System- -
73.	Max Coolant Temp- -	74.	EGT Normal- -
75.	Max EGT- -	76.	Oil Temp Max- -
77.	Oil Pressure Max- -	78.	Oil Pressure- -
79.	Magneto Drop Check RPM-	80.	Single Magneto Drop Max--
81.	T/O Ground at MTOW- -	82.	Best Climb Speed --
83.	Best Climb Rate at MTOW-	84.	Min Sink Rate Speed-
85.	Best Landing Ration Speed-	86.	Max Speed VNE-
87.	Normal Operating Speed-	88.	ASI Marking White Band-
89.	ASI Marking Red Band-	90.	Techo-meter Max Line-
91.	Oil Temp Yellow Line-	92.	Oil Temp Green Line-
93.	Electrical System (Battery) -	94.	Alternator-
95.	Fuel Quantity Low Warning-	96.	Garmin Aera 500 GPS screen size
97.	Min Battery Voltage-	98.	Range of Techo-meter-
99.	Variometer Start Working at when Speed exceed-	100.	Nose Wheel Tyre Pressure-

Write down the Checks following

101. Before Engine Startup
102. Engine Start
103. Vital action before takeoff
104. Vital action Down wing
105. Limitations

Write down the following Emergencies

106. Engine rough running failure in flight
107. Smoke in cockpit
108. Engine failure on take off
109. Engine fire on ground
110. Electrical system failure