

**MARKING SCHEME**  
**NATIONAL CADET CORPS (076)**  
**CLASS XII – 2022-23**

Q. No	EXPECTED ANSWERS	Mk/U/Pg
1	Answers of part I to xiii are as under	
	i) d- nation State	1 MK
	ii) c- The President OR a- Short trail	1 MK
	iii) a- Both A and R are true and R is the correct explanation of A.	1 MK
	iv) c- Group	1 MK
	v) b- Mean point of Impact	1 MK
	vi) c- 5.1 kg	1 MK
	vii) b- Foam Type or Dry Chemical Powder Extinguishers	1 MK
	viii) a- Children between 16-25 years of age	1 MK
	ix) b- Both A and R are true and R is not the correct explanation of A.	1 MK
	x) b- Internal injuries OR d- Unconsciousness	1 MK
	xi) c- Sterilization	1 MK
	xii) a-1 & 2- Parascending, Parakiting	1 MK
	xiii) b- Variometer	1 MK
2	I) a ii) b iii) d iv) b OR i) c ii) c iii) d iv) a	1 Mk for each correct answer
3.	i) c ii) d iii) b iv) a	1Mk for each right answer
4.	A human being is a complex creature, a mixture of good and evil. The evil tendencies in him are of negative nature which ultimately leads to destruction. On the other hand, goodness is manifested in fellowship, unity and co-operation. This goodness can only overcome negative tendencies, if a person either has certain values inherent in him or he inculcates them.	1mk for goodness and 1 mk for evil tendency
5.	(a) Fire extinguishers. (b) Stirrup pumps. (c) Buckets. (d) Fire beaters and hooks OR (a) Conduction (b) Convection	1/2 mk for each equipment



10	<p>a) 6lbs 2 oz b) 25 yards c) 43" d) 05 rds pm</p> <p style="text-align: center;">OR</p> <p>a) 4.4 kg. b) 300 yards c) 1397.00 mm d) 20 rds</p>	1MK for each point
11	<p>1. A glider, which in its inflated firm offers resistance to the wind and the air. 2. A harness which is attached to the paraglide and the pilot for safety purpose. 3. A helmet and an extra parachute provided for the safety and emergency landing of the pilot, 4. A Variometer is the main instrument for gauging the ascent and the descent of the pilot.</p>	4 MK
12	<p>a) Aggressive: In this type of communication, people believe that everyone should like them. Aggressive communicators have a close mind and are poor listeners. They have difficulty in seeing other person's point of view; they interrupt and monopolize. They tend to dominate and put down others. They are bossy. While communicating they frown, stare, and talk loudly. Most often, they tend to think „I am never wrong“ or „I've got rights, but you don't.“</p> <p>b) Passive: In such a communication, people do not express their true feelings; they do not disagree and think that others have more rights than they do. Their communication style is indirect, they always agree and do not speak out and are very hesitant. While communicating they often lack facial expression and stand with down cast eyes.</p> <p>c) Assertive: In such a communication, the person believes that the views expressed by him/her and others are valuable. He/she knows that, if he/she has the rights to express, then others too have the rights. Here the individuals are active listeners and check on other's feelings. They are action-oriented, attentive, vocal, expressive, good listeners, aware, supportive, persuasive, fair, open and consistent in behavior. Their expectations are realistic. They have open and natural gestures. They maintain an eye contact while communicating.</p>	2 marks for each 2x3=6
<b>(ARMY SPECIAL)</b>		
13.	<p>i) d-Paramveer chakra</p> <p style="text-align: center;">OR</p> <p>i) b –Bharat ratna ii) b-45 iii) a-305 gm iv) c -Magazine Catch v) a- Both A and R are true and R is the correct explanation of A.</p>	1 MK for each right answer
14.	<p>i) c-Indira Gandhi ii) b-offered resignation iii) c-Monsoon iv) a-13</p>	1 MK for each right answer

15.	<p>Age- 16 &amp; 1/2 to 19 &amp; 1/2 years as on first day of the month in which course is due to commence Educational Qualification-12th Class of 10+2 System of Education /Equivalent with a minimum aggregate of 70% in Physics, Chemistry &amp; Maths (PCM)</p> <p style="text-align: center;">OR</p> <p>Age-19 to 25 years Qualification-Graduation with 50% NCC –C certificate with A or B grading Unmarried</p>	<p>1 mk for each correct answer</p> <p>½ mk for each</p>
16.	<p>(a) Light in weight. (b) Portable (c) Easy operation. (d) Can select required zone. ( or any other relevant point )any two</p>	1 mk for each
17.	<p>Resection with Compass Method. (a) Recognise three prominent features (A, B, C) on map and on the ground as well. These three prominent features must not be more than 180 or less than 30 apart. They should be as far as possible and clearly visible. The bearing of these points be taken and converted into Grid bearings. (b) Then, on the map the back bearings from these points must be plotted, and the point of intersection will be the required position. (c) In order to do an accurate resection, three or more objects are necessary. But in that case if the three rays do not intersect at the same point, a triangle of error is obtained. The centre of triangle is the point of your own position.</p>	4Mk
18.	<p>Methods of Judging Distance. There are six methods of Judging Distance. These are as under:- (a) Unit of measure. (b) Appearance method. (c) Section average. (d) Key range. (e) Halving. (f) Bracketing.</p> <p style="text-align: center;">OR</p> <p>Section Formation A Section is the smallest sub unit of an Infantry Battalion and is capable of undertaking independent task. It consists of ten persons who are organized in Rifle group and Support Group. There are 6 type of section formations in Army. Diamond. Advantage: (i) Good for all round observation.2. Good for command and control. Disadvantage: 1.Presents an easy target to frontal fire.2. Vulnerable Terrain conditions: 1. While negotiating open areas.2. When enemy threat is imminent but the direction is not clear</p>	<p>2 marks for names of methods and 1 mk for each explanation</p> <p>1mk for definition +1 mk for types + 2 mk for diamond section formation</p>

**ANSWER KEY OF SAMPLE PAPER**

**Specialized Subject (Navy)**

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Q.No.	Answers	Marks Brake-up
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13.	i) C ii) A iii) D iv) A v) B OR v) C	1 MK each
14.	i) Indo-Pakistani war of 1965 & Bangladesh-Pakistani war of 1971 (ii): 16th July 1948 (iii): cyclones, floods, drought, epidemics, and strikes by government employees, for maintaining law and order, etc (iv): 1917	1X4=4Marks
15.	Solid Model, Working Model or a Sailing Model	2 Mk
16.	: (a) Wooden shores (b) Wooden plugs (c) Wooden wedges (d) Splinter Box (e) Stopper plates (f) Pad pieces (g) Quick hardening cement (h) Oakum (i) 3 leg stopper plate (j) Metallic (Telescopic) adjustable shores (k) Grid shores (l) Dog nails (m) Blank flanges (n) Multipurpose band (o) Jubilee clips (p) Fixed shores (beam shoring)  <b>OR</b>  Primary Zone, Secondary Zone, Remote Zone	2 MK
17.	Instructions/ precautions while pulling (a) Ensure the boat is clear of the water (b) Adequate number of oars & crutches along with spare (c) Life jacket for all the crew (d) Check the boat plug (e) First aid kit (f) Availability of loud hailer, drinking water, sufficient ropes, bailer, anchor, life buoy, and boathook. (g) Only swimmers and physically fit should participate. (h) Knowledge of local weather and tidal conditions. (i) Rudder, tiller & towing bollard should be properly secured	1 X4=4 MK

	<p><b>OR</b></p> <p>Ans.9: Pulling Orders.</p> <p><b>(a) Ship your Oars.</b> This is the order to place the oars in the crutches and ready for pulling.</p> <p><b>(b) Shove Off.</b> This is the order to shove the boat off with looms of the oars from the ship or landing place alongside which she is lying or from bottom of the boat if grounded.</p> <p><b>(c) Give Way Together.</b> This is the order to start pulling and it is obeyed together by the whole crew.</p> <p><b>(d) Oars.</b> This is an order to cease pulling.</p> <p><b>(e) Hold Water.</b> This is the order to reduce or stop the way of the boat by holding the oars at right angles to the boat and with their blades in water.</p> <p><b>(f) Stroke Together.</b> This is the order for all to give one stroke together.</p> <p><b>(g) Back Together.</b> This is the order to back water together by pushing on the looms of the oars instead of pulling.</p> <p><b>(h) Easy All.</b> This is the order to pull less vigorously so that the speed of the boat will be reduced. If the boat is being turned the order easy port or easy starboard may be given.</p> <p><b>(i) Mind Your Oars.</b> This is the warning to the crew to keep the blades of their oar clear from obstructions.</p> <p><b>(j) Eyes in the Boat.</b> This is an order to the crew to keep their gaze from wondering aboard and to pay attention to their duties.</p> <p><b>(k) Bow.</b> This is an order to the bow man to boat his oar and be ready to fend off the bows of boat with his boat hook.</p> <p><b>(l) Boat Your Oars.</b> This is the order to unship the oars from crutches and lay them fore and aft in the boat on their respective sides.</p>	
18.	<p>Instrument and equipment used in navigation</p> <p><b>(a) Radar.</b> Radio-aided Direction and ranging i.e. with the help of radio waves, the direction, and range of objects are obtained.</p> <p><b>(b) Sextant.</b> It is an instrument by which a ship's position can be determined by taking the sight of heavenly bodies such as the sun, stars, etc.</p> <p><b>(c) Compass.</b> It is used to find the direction of the ship at sea. There are mainly two types of compasses magnetic and gyro. The navigational compass is an instrument that gives the necessary datum line from which courses and bearings can be measured. Compass helps us to find the direction of the ship at sea.</p> <p><b>(d) Echo Sounder.</b> It is an instrument by which the depth of the water can be measured below the keel of the ship. This helps us to prevent the ship from grounding.</p> <p><b>e) Log.</b> Used for finding the speed and distance travelled through the water</p> <p><b>f) Plotting Table.</b> Used for plotting position and track of the ship</p> <p><b>g) Charts.</b> Used for plotting the ship's position, course, etc.</p>	1X4=4 MK

**ANSWER KEY OF SAMPLE PAPER**

**Special Subject: Air Force**

Q. No	Answer	Marks Break up
13	<p>i) c) IAF's airstrike during "Operation Vijay." ii) a) India iii) (i) a) MiG-27</p> <p style="text-align: center;">OR</p> <p>(ii) (a) Identify the aircraft as friend or foe iv) b) Both A and R are true, but R is not the correct explanation of A v) c) A is true, but R is false</p>	1x5=5mk
14	<p>i. Dr. Thomas Young ii. John String iii. Because he invented models fitted with tail surfaces and wings with dihedral angles. iv. After the petrol-driven model called 'Aerodrome No.5' was introduced.</p>	1x4=4 mk
15	<p>The air traffic control centre was established mainly for the purpose of getting information. The organization provides Air traffic control in the area of control. The organization is established to provide flight information service in a flight information region. The organization will provide an Altering service which is helpful for search and rescue within the region of flight information.</p>	1+1=2 MK
16	<p>Radar is a machine that uses radio waves to find other objects such as aircraft, ships, and rain</p> <p>The basic parts of radar are: -</p> <p>The transmitter creates the radio waves.</p> <p>The antenna directs the radio waves.</p> <p>The receiver measures the waves which are bounced back by the object that the radar is trying to find.</p> <p>By doing this, the radar can find what place the object is at.</p> <p style="text-align: center;">OR</p> <p>Types of Radar are: - (Any One)</p> <p>a. Primary Radar b. Secondary Radar c. Continuous Wave Radar</p> <p>Primary Radar: This radar uses the principle of pulse technique to determine range and bearing of an object. Working on echo and search light principle, a transmitter transmits pulses. All objects in the path of the pulses will reflect and scatter this energy. Some of</p>	1/2x4=2 MK

the reflected energy reaches the receiver. The reflected energy is processed to give the required information. In this radar, the object's cooperation is not required in the entire process.

**Secondary Radar:** In this system, a transmitter transmits a group of pulses. An aerial in the path of the pulses receives the signals and passes it to receiver. If the pulses are identified, then the transmitter gives out a reply. In this radar active cooperation of the other object is also required.

**Continuous Wave Radar:** In this type of radar, both the transmission and the reception take place continuously. This requires set of two aerials, one for transmission and one for reception.

17

1) The four forces acting on an aircraft in straight-and-level, unaccelerated flight are thrust, drag, lift, and weight. They are defined as follows:

**Thrust**—the forward force produced by the power plant/ propeller or rotor. It opposes or overcomes the force of drag. As a general rule, it acts parallel to the longitudinal axis. However, this is not always the case, as explained later.

**Drag**—a rearward, retarding force caused by disruption of airflow by the wing, rotor, fuselage, and other protruding objects. As a general rule, drag opposes thrust and acts rearward parallel to the relative wind.

**Lift**—is a force that is produced by the dynamic effect of the air acting on the aerofoil, and acts perpendicular to the flight path through the centre of lift (CL) and perpendicular to the lateral axis. In level flight, lift opposes the downward force of weight.

**Weight**—the combined load of the aircraft itself, the crew, the fuel, and the cargo or baggage. Weight is a force that pulls the aircraft downward because of the force of gravity. It opposes lift and acts vertically downward through the aircraft's centre of gravity (CG).



OR

Ans: (ii) Mass: Unit - Kilogram (kg) - 'The quantity of matter in a body.' The mass of a body is a measure of how difficult it is to start or stop, ("a body", in this context, means a substance. Any substance a gas, a liquid or a solid).

4mk



	<p>Acceleration: It is the rate of change of velocity. The change may be in magnitude or direction or in both. Thus, a body moving along a circular path at constant speed has acceleration.</p> <p>Momentum: Unit - Mass x Velocity (kg-m/s) - 'The quantity of motion possessed by a body'. The tendency of a body to continue in motion after being placed in motion.</p> <p>Centre of Gravity (CG): The point through which the weight of an aircraft acts. (a) An aircraft in flight is said to rotate around its CG. (b) The CG of an aircraft must remain within certain forward and aft limits, for reasons of both stability and control</p>	
<p><b>18</b></p>	<p>1) Air navigation differs from the navigation of surface craft in several ways; Aircraft travel at relatively high speeds, leaving less time to calculate their position en route. Aircraft normally cannot stop in mid-air to ascertain their position at leisure. Aircraft are safety-limited by the amount of fuel they can carry; a surface vehicle can usually get lost, run out of fuel, then simply await rescue. There is no in-flight rescue for most aircraft. Additionally, collisions with obstructions are usually fatal. Therefore, constant awareness of position is critical for aircraft pilots.</p> <p>(ii) <b>Ans:</b> Following are the different Branches in the IAF (a) Flying Branch (b) Navigation Branch (c) Education Branch (d) Medical Branch (e) Administration Branch (f) Logistic Branch (g) Meteorology Branch (h) Engineering Branch</p>	<p><b>4mk</b></p>