Operative level			
01– Navigation			
Questions			**Correct answer**
Ite	B/D		
1.	O	The observer's horizon is: a) a circle on the Earth with a radius depending on the height of eye of the observer b) a circle on the geoid surface with a radius depending on refraction conditions c) an unlimited plane perpendicular to the plumb line located at the height of eye of the observer	C
2.	O	The minus present at the latitude difference value means that: a) absolute value $\varphi_A > \varphi_B$ b) target location parallel lies south from the parallel of the starting point c) target location lies in the nortern hemisphere	B
3.	O	If the result of calculation has a longitude difference >180°, we have to: a) start counting the calculated amount from 360° and change the sign to an opposite one b) start counting the calculated amount from 180° and change the sign to an opposite one c) start counting the calculated amount from 360° and leave the sign as it is	A
4.	O	Navigational departure is: a) a distance between two meridians expressed in NM b) a distance between two meridians expressed in NM, measured along the parallel c) a distance between two meridians expressed in minutes of arc, measured along the equator	B
5.	O	Navigational departure changes in the following manner: a) decreases as the value of cos φ increases b) increases as the value of sec φ increases c) increases as the value of cos φ increases	C
6.	D	The starting point φ = 23° 40.6' N; λ = 142° 11.6' E. For a given Δφ = 17° 48.8' S and Δλ = 106° 27.6'E indicate the destination location: a) φ = 05° 51.8' S; λ = 111° 20.8' E b) φ = 41° 29.4' S; λ = 248° 39.2' E c) φ = 05° 51.8' N; λ = 111° 20.8' W	C

7.	O	The plumb line is the line that: a) connects the geographic north pole with the south one and passes through the centre of the Earth b) connects the centre of the Earth with the observer's position and is perpendicular to the visible horizon c) connects the centre of the Earth with the observer's position and is perpendicular to the observer's horizon	C
8.	O	The term *parallel sailing* should be understood as: a) sailing along a parallel b) sailing along a meridian c) sailing at parallel courses	A
9.	O	The actual N-S line is: a) a line on the surface of the Earth that shows a direction to geographic poles b) a projection of a geographical meridian of the observer on the visible horizon c) a line on the surface of the observer's horizon that indicates a direction to geographic poles	C
10.	D	A ship left from point A: φ = 49˚07.5´ S λ = 150˚07.8´ E and sailed: 200 NM on a southwards course, then 200 NM towards E, then 200 NM towards N and 200 NM towards W. Where is the ship now? a) at the starting point A b) east from the starting point A c) west from the starting point A	B
11.	O	Geographic longitude of the starting point is 169° 22.6' W, geographic longitude of the destination point is 128° 51.8' E. The difference of geographic longitude equals: a) 40° 30.8' E b) 61° 45.6 W c) 298° 24.4' E	B
12.	O	The difference of geographic longitude between points A and B at parallel φ = 60˚00.0´ S equals 5˚20'.Distance in nautical miles between these points equals: a) 160 NM b) 320 NM c) 640 NM	A
13.	D	The ship is located at: φ=05°17.8´S λ=136°14.8´E and moved 480 NM southwards. Its position will equal: a) φ=13°17.8´S λ=136°14.8´E b) φ=03°17.8´S λ=136°14.8´E c) φ=02°42.2´N λ=136°14.8´E	C
14.	O	Before noon, wind blew from the WNW direction, then it changed direction to NNE, turning towards N. By how many degrees did the wind direction change? a) 67.5º b) 22.5º c) 90º	C

15.	D	Ship A was located at φ =39°15'S λ= 173°12'W and sailed COG = True Course (TC) = 180° with speed over the ground V_d= 15 knots. Ship A was located at position φ =42°00'S λ= 177°55'E and sailed COG = True Course (TC) = 000° with speed over the ground V_d= 18 knots. After how many hours of sailing will the ships reach the closest possible distance between them? a) 4.6 hours b) 5 hours c) 7.2 hours	B
16.	D	Ship A was located at φ =39°15'S λ= 173°12'W and sailed COG = True Course (TC) = 180° with speed over the ground V_d= 15 knots. Ship A was located at φ =42°00'S λ= 177°55'E and sailed COG = True Course (TC) = 000° with speed over the ground V_d= 18 knots. What will be the minimum distance between the ships: a) 405 NM b) 615 NM c) 165 NM	A
17.	O	If a ship sails at AC = N$_b$W, left beam wind has the following direction: a) W$_b$S b) SW$_b$W c) E$_b$N	A
18.	O	If the wind direction equals 157°, using 32-point system it will be written as: a) SSE b) SEbS c) NNW	A
19.	O	Convert 348˚ to a reduced bearing system. Select the <u>incorrect</u> answer: a) N 012˚ W b) N 012˚ E c) S 168˚ W	B
20.	O	Indicate the correct notation of the relative bearing: a) P 98°Dz b) P 098° c) N 098° E	B
21.	O	Convert NNW to a quadrantal bearing system: a) N 022.5˚ E b) S 157.5˚ W c) N 22.5˚ W	C

22.	D	Ship A, sailing on a true course TC = 305° observed ship B directly right ahead. Ship B observed ship A off its right beam. What was the true course of ship B? a) 035˚ b) 022˚ c) 125˚	A
23.	D	True bearing from a radar station to ship A = 074º, true bearing from a radar station to ship B = 282º. Ship A observed the station at a relative bearing off its right beam. Ship B observed the station at a relative bearing of L 63º Rf. What was the TC of ships A and B? a) ship A TC = 344˚, ship B TC = 039˚ b) ship A TC = 164˚, ship B TC = 219˚ c) ship A TC = 164˚, ship B TC = 345˚	B
24.	D	Ship A from a position φ_a=23º 43'Sλ_a= 015º 48'W sails with a COG = TC = 090º. Ship B from a position: φ_b =43º 13'Sλ_b = 003º 51'E sails with a COG = TC = 000º. Both ships have not changed their speed and course and met after 3 days 6 hours. Calculate the speeds of ships A and B in knots. a) ship A speed 12.6 kn ship B speed 16.8 kn b) ship A speed 12.5 kn ship B speed 13.8 kn	C
25.	O	A Dutchman's log is: a) a tool for the measurement of ship's speed through water b) a method used to determine ship's speed over ground c) a method used to determine ship's speed through water	C
26.	O	The purpose of trials on a so-called "*measured mile*" is: a) determination of ship speed over ground and setting out a log correction index b) determination of ship speed through water and setting out a log correction index c) determination of ship speed through water and setting out current parameters (its direction and speed)	B
27.	D	During speed trials a ship went the distance of 2290 m on water and its log shown 12 cable lengths of route on water. What was the log correction index and the percentage log correction? a) correction index ci = 1.03, percentage correction – 3% b) correction index ci = 0.97, percentage correction + 3% c) correction index ci = 1.03, percentage correction + 3%	C
28.	O	Value of log correction index 1.07 indicates that: a) the log indication is too low and its percentage correction equals + 7% b) the log indication is too high and its percentage correction equals + 7 c) the log indication is too high and its percentage correction equals □□7%	A

29.	O	Log correction index (ci) determined at a measured mile is used: a) when calculating travel route over the ground, by multiplying the difference of log indications by ci b) when calculating travel route through water, by multiplying the travel route above the ground by ci c) when calculating travel route through the water, by multiplying the difference of log indications by ci	C
30.	O	If the ship speed through water and over the ground differ, it is caused: a) only by the impact of wind blowing from the forward b) only by the impact of the current with a direction opposite to COG c) by the fact that the water mass on which the ship moves is not immobile	C
31.	O	For which sailing conditions $COG \neq CTW = TC$ a) there is no leeway and the ship is subject to current drift b) there is no wind and the current direction is opposite or the same as the ship axis of symmetry c) there is a beam wind and the ship is subject to current drift	A
32.	D	A floating item moves along the side for a distance of 50 m for 8.1 seconds. What is the ship speed through water and over the ground if the ship sails up the current with a speed of 2 knots? a) speed through water equals 10 knots, and speed over the ground equals 12 knots b) speed through water equals 12 knots, and speed over the ground equals 10 knots c) speed through water equals 14 knots, and speed over the ground equals 12 knots	B
33.	D	According to the chart, the distance between buoys A and B equals 5.5 NM. A ship passed buoy A at 10:20, log state 12.6 and was sailing towards buoy B, maintaining COG = TC = 300°, reaching it at 10:42, log state 17.4. Log correction index ci= 0.91. What was the ship's speed over the ground, speed through water and the direction and speed of the current? a) Vd =15 kn, Vw = 11.9 kn, Kp = 300°, Vp = 3.1 kn b) Vd = 12 kn, Vw = 14 kn, Kp = 120°, Vp = 2 kn c) Vd =15.3 kn, Vw = 12.2 kn, Kp = 300°,Vp= 3.1 kn	A
34.	O	A magnetic equator is a place on Earth where: a) the value of magnetic declination is equal to zero b) intensity of the Earth magnetic field equals zero c) magnetic inclination equals zero	C
35.	O	A line connecting points with zero declination is: a) an isogonic line b) an agonic line c) an isoclinic line	B
36.	O	If declination and deviation are equal in value and opposite in sign then: a) The N-S line from compass and the magnetic one are the same b) The true N-S line and the magnetic one are the same c) The true N-S line and the one from the compass are the same	C

37.	O	Select the term which is <u>not related</u> with Earth magnetism a) an isobaric line b) an isoclinic line c) an isogonic line	A
38.	D	*Mag.Var2° 15'W (1995) decreasing 5' annually.* In which year will the declination reach the value *Mag Var 0° 35' E* a) in 2029 b) never, because a negative (W) declination will increase c) in 2019	A
39.	O	The input argument to the deviation table is: a) CB (Compass Bearing) or MB (Magnetic Bearing) b) TC (True Course) or MC (Magnetic Course) c) CC (Compass Course) or MC (Magnetic Course)	C
40.	O	Controlling deviation by comparison of indications of a magnetic compass with a gyro compass involves: a) comparison of CC (Compass Course) with GC (Gyro compass Course) and taking into account gyro compass correction and the updated declination value b) comparison of TB (True Bearing) with GB (Gyro compass Bearing) and taking into account gyro compass correction and the updated declination value	A
41.	O	A specialist that carries out compensation of a magnetic compass and determines the deviation table is: a) a deviant b) an adjuster c) a deviator	B
42.	D	A ship crossing the range line setting the direction 210° observed the line at CB = 206° at relative bearing of P 33° Rf. What was the value of deviation, total correction, TC, MC, CC and GC if declination in the given region was equal to 13° W, and gyro compass correction = -1° a) deviation = -11°, TC = 063°, MC = 076°, CC = 087°, GC = 062°, total correction = +4° b) deviation = + 4°, TC = 357°, MC = 010°, CC = 006°, GC = 358°,total correction = -9° <u>c) deviation = +17°, TC = 063°, MC =076°, CC = 059°, GC = 064°, total correction = +4°</u>	C
43.	D	When determining the *Geographical Range* we take into account the following factors: a) earth curvature, height of light source, observer's height of eye, refraction conditions b) height of light source, visibility, observer's height of eye, earth curvature and refraction conditions c) light intensity (brightness), earth curvature, elevation of the light source, observer's height of eye	A
44.	O	When setting the *Luminous Range,* the following factors are taken into account: a) height of the light source, visibility, light intensity (brightness) b) visibility, light intensity (brightness), earth curvature c) visibility, light intensity (brightness)	C

45.	D	Lighthouse light height equals 144 m and its height - 41 feet 1. How many metres above sea level is the elevation of the coast on which the lighthouse is placed, provided its light is placed 2.5 m below its top 2. What is the geographic range of this lighthouse for the observer whose height of eye equals 16 m a) elevation of the coast 124 m, geographic range 24 NM b) elevation of the coast 134 m, geographic range 33.6 NM c) elevation of the coast 134 m, geographic range 18.5 NM	B
46.	O	Which of the characteristics below definitely means the sector light? a) Fl (2 + 1) R W 14 s b) Al. Oc (R W G) 16s c) IVQ Y 12s	A
47.	D	Which of the below characteristics determines isophase light? a) *lt 3, ec 1, lt 1, ec 1, lt 3, ec 13* white colour b) *lt 3 , ec 4, lt 3, ec 10* blue colour c) *fl 1.5, ec 1.5* green colour	C
48.	O	Which abbreviation describes light that shines in the following manner: *W fl 0.5, ec 3.5, G fl 0.5, ec 3.5* a) AlOc WR 8s b) AlFl WG 8s c) Oc WR 8s	B
Item	B/D	Module 2 – Deviation	
1.	O	Deviation of a magnetic compass is caused: a) only by hard steel in the ship b) only by soft steel in the ship c) both by hard and soft steel	C
2.	O	Deviation of a magnetic compass caused due to impact of hard steel is a: a) quadrantal deviation b) semicircular deviation c) constant deviation	B
3.	O	Deviation of a magnetic compass caused due to impact of soft steel is a: a) quadrantal deviation b) semicircular deviation c) total deviation	A
4.	O	Deviation of a magnetic compass depends on: a) the ship course b) geographic longitude c) both the course and the geographic longitude	A

5.	O	Deviation of a magnetic compass depends on: a) the ship course b) the ship speed c) both the course and the ship speed	A
6.	O	Deviation of a magnetic compass can be determined using: a) measurements at a range line b) a magnetic rose from a map c) reading it from ECDIS	A
7.	O	Archibald Smith formula makes it possible to: a) determine deviation coefficients b) compensate for deviation of inclination c) determine magnetic course	A
8.	O	Semicircular deviation is changed in the following function: a) tangent of the ship inclination angle b) sine or cosine of the ship course c) sine or cosine of the doubled ship course	B
9.	O	Longitudinal elements of the ship containing soft steel cause: a) semicircular deviation b) quadrantal deviation c) speed deviation	B
10.	O	Constant magnetic deviation is caused: a) by an error of the lubber line setting b) only by the impact of soft steel c) both by setting of the lubber line and the impact of soft steel	C
Item	B/D	Module 3 – Surveying and cartographic bases for navigation	
1.	O	Type of projection used for a nautical chart a) has no impact on graphical works on the chart as all distances and angles reproduced on it are always maintained without distortions b) indicates whether distances are free from distortion in each nautical chart c) limits graphical works on the map to recommendations depending on the map projection	C
2.	O	A nautical chart in the Mercator projection is characterised by the following properties: a) a square cartographic grid with a straight line course of an orthodrome b) a square cartographic grid with a linear length of the latitude minute increasing as the geographic latitude increases c) both orthodrome and loxodrome have a straight line course	B

3.	O	A map in a gnomonic projection is characterised by the following properties: a) loxodrome and meridians are straight lines b) great circles and meridians are straight lines c) an orthodrome is a straight line, angles are maintained	B
4.	O	Meridional part, on a chart in the Mercator projection is: a) a distance between a parallel and the equator expressed in longitudinal minutes b) a distance between a parallel and the equator expressed in latitudinal minutes c) linear length of 1 minute of geographic latitude	A
5.	O	Nautical charts are published by: a) Hydrographic Offices (HO) of countries b) the International Hydrographic Organization (IHO) c) the International Maritime Organization (IMO)	A
6.	O	*New Edition of Chart* is a new edition of a chart that takes into account: a) all corrections (permanent & T & P) to the map as well as change of surveying system b) all permanent corrections to the map c) all corrections (permanent & T & P) to the map	B
7.	O	In a non-tidal basin, *Mean Sea Level* is a reference level for: a) *depths & elevations* b) *only depths* c) *depths & drying heights*	A
8.	O	If there is a *"See Note"* information in a map, it means that: a) the contents of the note is present in the bottom margin of the map b) the contents of the note is present in the map legend c) the contents of the note is present in the Sailing Directions of a given basin	B
9.	O	In order to detect the zone where traffic takes place near the shore, we use the term: a) *Traffic Separation Scheme* b) *Precautionary Area* c) *Inshore Traffic Zone*	C
10.	O	*Drying heights* always mean: a) value of heights above LAT b) value of heights above MHWS c) value of height emerged from the water above the *Chart Datum*	C
11.	O	A marking below a buoy, e.g. "R" means: a) red colour of its light b) name of the buoy "R" c) red colour of the buoy	C

12.	O	IALA Maritime Buoyage System - division into regions A and B concerns the following markings: a) all from the IALA system b) *Lateral marks* c) *Cardinal marks*	B
13.	O	A new marking of the IALA-*Emergency Wreck Marking Buoy* system: a) is painted in vertical blue and yellow stripes b) has a blue flashing light c) has a topmark - two black spheres placed vertically	A
14.	O	A mark of the system IALA *Preferred Channel to starboard:* a) informs – that the main fairway turns right b) orders – a change of course to the left c) orders – a change of course to the right	A
15.	O	IALA system marking with a light characteristics Mo(A)W is: a) *an Isolated dangermark* b) *a Port handmark* c) *a Safe water mark*	C
16.	O	*Isolated Danger Mark* is characterised by the following properties: a) marking colour - RBR, light Fl(2)R b) marking colour - BRB, light Fl(2)W c) marking colour - BRB, anchoring prohibited	B
17.	O	The left side of a fairway marking in Region A has the following: a) Colour - *red*, shape - *conical*, topmark - red cone b) Colour - *red*, shape - *can*, topmark - a single red cylinder c) Colour - *green*, shape - *can*, topmark - a single red cylinder	B
18.	O	Corrections to Tide Tables issued by the British Admiralty are included in: *a) Cumulative List of Admiralty Notices to Mariners* *b) Annual Summary of Admiralty Notices to Mariners* c) *Admiralty Notices to Mariners, Weekly Edition*	B
19.	O	Map correction - expression "*Charts Permanently Withdrawn*" means: a) that maps are prepared for order b) that maps are prepared for travel c) that maps are entirely removed	C
20.	O	The *Routeing Chart* includes the following group of information: a) recommended routes, predominant winds, dew point temperature b) permanent sea currents, predominant winds, wave motion height, tide height c) tidal streams, predominant winds, wave motion height	A

Item	B/D	Module 4 – Basics of spherical trigonometry	
1.	O	What is the main property of a plane that creates a great circle on the Earth's surface: a) it passes through the centre of the Earth b) it is perpendicular to the Earth's axis c) it is parallel to the Earth's axis	A
2.	D	How many great circles can be led through two points on the Earth surface (sphere) which are not the ends of the same diameter: a) at least two b) exactly two c) exactly one	C
3.	O	What is called a spherical triangle: a) a figure whose sides are sections of great circles and which has three vertices b) a figure whose sides are meridians and parallels c) a figure which is a section of a sphere and has three vertices	A
Item	B/D	Module 5 – Rhumb line and great circle sailing	
1.	O	A navigational triangle is: a) a flat triangle with the same elements as a loxodromic triangle b) a Mercator map triangle corresponding to a loxodromic triangle on a sphere c) a spherical triangle used to calculate a route on a loxodrome	A
2.	O	A loxodrome is a: a) theoretical line on the Earth globe that cuts through all parallels at the same angle b) a theoretical, shortest line that connects two points on the surface on the Earth globe c) theoretical line on the Earth globe that cuts through all meridians at the same angle	C
3.	O	If rhumb line sailing does not take place along a meridian in a parallel, the loxodrome on a sphere assumes the following shape: it cuts through a meridian at angle different from 000° or 090°, then it has the following shape on a sphere: a) a curve towards the visible pole b) a spiral line gradually getting closer to the pole c) a diagonal line cutting the equator at two points	B
4.	O	A shape of a loxodrome on a Mercator map is: a) a straight line b) a curve towards the visible pole c) a curve towards the equator	A
5.	O	Elements of a loxodromic triangle are: a) difference of latitude, difference of longitude, route along a loxodrome and course over the ground b) difference of latitude, navigational departure, route along a loxodrome and course over the ground c) meridional part, navigational departure, route along a loxodrome and course over the ground	B

6.	O	Elements of a navigational triangle are: a) difference of latitude, navigational departure, route along a loxodrome and course over the ground b) difference of latitude, difference of longitude, route along a loxodrome and course over the ground c) meridional part, navigational departure, route along a loxodrome and course over the ground	A
7.	D	If the coordinates of the starting point equal: A – φ_A = 60° 00' N λ_A = 010° 00' E, and coordinates of the destination point equal: B – φ_B = 60° 00' N λ_B = 012° 00' E, the length of the route between them equals: a) 60 NM b) 120 NM c) 30 NM	A
8.	O	A loxodromic triangle on a sphere is represented by a Mercator triangle on a nautical chart, which has the following elements: a) difference of meridional part, navigational departure and course over the ground b) difference of latitude, difference of longitude and course over the ground c) difference of meridional part, difference of longitude and course over the ground	C
9.	O	Select the true property of an orthodrome: a) it cuts through all meridians at equal angles b) it cuts through all meridians at different angles c) it cuts through all parallels at equal angles	B
10.	O	A turn point on an orthodrome is a point where: a) the value of the route angle has the highest value b) the route angle is equal to the destination course of the route along an orthodrome c) there is a change of a route angle	C
11.	O	We deal with composite sailing along an orthodrome when: a) the vertex latitude crosses orthodromes and lies outside the orthodrome b) an orthodrome vertex is located in areas which are it safe for navigation c) an orthodrome vertex lies on the other hemisphere	B
12.	D	If the coordinates of the departed point equal: A – φ_A = 30° N λ_A = 020° 22,2' E, and coordinates of the destination point equal: B – φ_B = 30° N λ_B = 024° 37,8' W, the length of the route between them equals approximately: a) 1197.8 NM b) 117.4 NM c) 2338.3 NM	C
13.	D	If the coordinates of the departed point equal: A – φ_A = 50° S λ_A = 020° E, and the ship was sailing E for a route of 1200 NM, the coordinates of the destination point equal approximately: a) φ_B = 50° S, λ_B = 051° 06.9' E b) φ_B = 50° N, λ_B = 011° 06.9' W c) φ_B = 50° N, λ_B = 050° 00.0' E	A

14.	D	If the coordinates of the departed point equal: A - φ = 38°45' N λ = 043°45'E, and of the destination point: B - φ = 40°10' N λ = 145°28'E, the calculated initial angle of the route along an orthodrome has the following value: a) S 51°16.1' E b) N 51°16.1' W c) N 51°16.1' E	C
15.	O	One of properties of a gnomonic projection is that: a) an orthodrome is a straight line that cuts through all meridians at the same angle b) all great circles are projected in the form of straight lines c) a loxodrome is a straight line	B
16.	O	An angle between the northern part of the destination point meridian and the orthodrome is called: a) an initial angle of route along an orthodrome b) a destination course of route along an orthodrome c) a return point to waypoint	B
17.	O	Meridional part is: a) a distance between a given parallel and the equator, expressed in longitude minutes on the Mercator map b) a distance between a given parallel and the equator, expressed in latitude minutes on the Mercator map c) a distance between a given parallel and the equator, expressed on the Mercator map and increased by navigational	A
Item	B/D	Module 6 – Determination of the ship position	
1.	O	Graphical calculation of the ship route involves: a) reading the passed distance through water from the map, at individual route sections b) reading the passed distance above ground from the map at individual route sections c) drawing an angle of route through water on the map and the planned route above the ground	B
2.	O	Reading distances from the Mercator map involves: a) measuring the given section with a calliper and reading its amount on a latitude scale b) measuring the given section with a calliper and reading its amount on a geographical longitude scale c) measuring the given section with a calliper and reading its amount on any scale in the map	A
3.	O	True course equals course through water when: a) wind does not cause the ship to be subject to leeway b) current does not cause the ship to drift c) total drift = 0°	A
4.	O	The amount of leeway is: a) provided in meteorological warnings b) in navigation publications c) determined by the navigator	C
5.	O	Leeway is an angle between: a) the nose part of the ship centre line and the wind action line b) the stern part of the ship centre line and the ship wake c) the stern part of the ship centre line and the wind action line	B

6.	O	The beam position is set by a perpendicular line starting from the object towards: a) course above ground of the ship b) ship centre line c) course through water (CTW)	B
7.	O	If TC = 100°, wind ENE, CTW = 110°, the: a) leeway angle = +10° b) leeway angle = -10° c) leeway angle = -32.5°	A
8.	O	3rd problem of sailing on a current makes it possible to check the actual value of the current that acted during the previous section of sailing (e.g. in the last hour). The officer of the watch should compare: a) COG of the ship and its route over the ground for the time of sailing with the CTW for the time of sailing b) COG of the ship and its route over the ground for the time of sailing on TC and route through the water c) CTW with TC of the ship	A
9.	O	In order to take into account the current drift in calculating the ship route above the ground, the officer of the watch: a) determines the value of the current (its direction and drift in NM for the time of sailing) as the last section of the ship route b) determines the value of the current (its direction and drift in NM for the time of sailing) from the departed point	A
10	O	Correction for current is the angle between: a) COG and CTW, in the case of countering the current b) TC and CTW in the case of countering the wind c) CTW and COG in the case of passive accounting for the current action	A
11	O	Correction for wind or for leeway: a) has a “-” sign if the wind acts on the left side b) has a “+” sign if the wind acts on the right side c) has a “-” sign if the wind acts on the right side	C
12	O	The minimum actual distance from which we miss an object will take place at the position of intersection: a) of COG with a perpendicular starting in the object position b) of CTW with a perpendicular starting in the object position c) of TC with a perpendicular starting in the object position	A
13	O	In order to determine the position from two simultaneous position lines: a) move one position line by the value of the route passed above the ground b) two simultaneous position lines are too little to determine OP (observed position) c) determine position lines and find the OP at the place where they intersect	C
14	O	When the horizontal angle at which two objects are seen equals 90˚: a) the position line may not be drawn b) the position line is section joining two objects c) the position line is a circle, the diameter of which is a line connecting these two objects	C

15	O	In practice, measurement of a vertical or horizontal angle may be made using: a) a radar b) a sextant c) a protractor	B
16	O	Measurement of distances to two objects will make it possible to determine: a) calculated position b) observed position c) does not give us any position	B
17	O	When sailing a ship in a restricted area basin you identify a floating navigational aid, you should make the following assumption: a) a buoy may not be currently be at the position indicated on a map b) buoys are always well anchored and, unless there were strong storms present in the area, their position may be considered certain c) if a buoy has a light and its characteristics was identified, it can be assumed that its position is correct	A
18	O	Which property of a position line (understood as an isoline) is true: a) position line is a set of all possible points on the surface of the Earth for which the navigational parameter defining the given line has a set and unchanging value b) a position line is always a straight line, a circle or a hyperbole; the shape of a position line depends on the type of measured parameter c) position line is a line which, when crossing a line of possible movement of the ship in relation to the ground, determines the possible position	A
19	O	The substance of determining the position from two non-simultaneous position lines involves: a) moving a previous position line in the direction of the TC by the difference of the log indication between two subsequent observations, multiplied by the correction index b) moving the earlier position line in the direction of CTW (Course Through Water) by the distance passed by the ship through water in the time between two subsequent observations c) moving the earlier position line in the direction of COG by the distance passed by the ship over the ground in the time between two subsequent observations	C
20	O	The observed position makes it possible to control the deviation value, provided that: a) a position was obtained from 2 vertical angles measured using a sextant b) when the ship crosses a range line, only the distance to the lower range line beacon was measured c) observed position independent from the “tc” (total correction) error was obtained and compared with the compass bearing	C
21	O	If a horizontal angle measured between 2 objects α is smaller than 90°, in order to determine the position line, the auxiliary angle γ is reproduced from the baseline: a) in the direction towards the observer b) the direction of movement is of no consequence c) in the direction away from the observer	A

22	O	If a horizontal angle measured between 2 objects α is greater than 90°, in order to determine the position line, the auxiliary angle γ is reproduced from the baseline: a) in the direction towards the observer b) the direction of movement is of no consequence c) in the direction away from the observer	C
23	O	Bearings for a navigational aid changes more quickly as: a) the object is getting further and as the relative bearing for this object decreases b) the object is getting closer and the relative bearing is getting nearer to the beam c) the object is getting nearer and as the relative bearing for this object decreases	B
24	O	The probability of finding actual ship position inside an area of a calculated circle error is: a) constant and equal to 0.66 b) variable and depends on the relation between the semi-major and semi-minor axes of the error ellipse c) constant and equal to 0.95	C
Item	B/D	Module 7 – Tides and tidal streams	
1.	O	Height of tide means water elevation above: a) mean sea level b) the level at which the chart datum was assumed c) height of low water	B
2.	O	Impact of tide generating forces causes tides, understood as: a) vertical rising and lowering of water b) movement of water between basins with different levels c) horizontal water movement	A
3.	O	Tidal range is understood as: a) a distance tidal water moves away from the coast b) a period between low and high water c) a difference between heights of low and high water	C
4.	O	Water depth written on a map is understood as: a) vertical distance from the chart datum plane to the seabed, plus the tide height b) vertical distance from the chart datum plane to the seabed c) mean basin depth in the given location, in a time frame indicated for surveys	B
5.	O	Tidal waters. A depth of an approach fairway equals 12.6 m, ship draft equals 13.6 m, the required under-keel allowance for ship approach to the shore is 2 m. Is it possible for the ship to enter the port? a) no, because ship draft is larger than the depth of the fairway b) yes, but the height of tide must be 3 m c) yes, but the tidal range must be 3 m	B

6.	O	Tidal waters. A vertical clearance of a bridge indicated in the map equals 27 m above MHWS. Ship with a draft of 13 m approaches the port. What will be the time at which the ship will be able to pass under the bridge, if the side height of the ship equals 42 m. a) the ship will pass under the bridge if the tide drops at least 2 m below MHWS b) the ship will pass under the bridge if the tide drops at least 2 m below chart datum c) the ship will not pass under the bridge because the part of its hull above the water level is higher than the clearance	A
7.	O	When during a tidal day two consecutive high waters or two subsequent low waters have negligible differences, the tide that occurs is named: a) diurnal b) mixed c) semidiurnal	C
8.	O	When during a tidal day two consecutive high waters or two subsequent low waters have significant differences, the tide that occurs is named: a) diurnal b) mixed c) semidiurnal	B
9.	O	Ship speed through water = 10 knots, speed over the ground = 10 knots Determine the value of tidal stream: a) current from stern, speed 10 knots b) slack water c) current from nose, speed 10 knots	B
10.	O	Publication of the British Admiralty that presents daily tide forecasts for standard ports is: a) *Admiralty Tide Tables* b) *Pilot chart* c) *Cotidal Chart and Atlases*	A
11.	O	In nautical charts of certain basins, values of tidal streams are presented in tidal stream value tables. In order to calculate a forecast for currents for the position where the watch is started and for the next hours of navigational watch, the following should be checked: a) the moment of the presence of HW in a port located closest to our position b) the moment of presence of HW in any port in the basin c) the moment of the presence of HW in a port indicated in the table	C
12.	O	In order to provide tide and tide stream forecast in the summer period on the basis of tide tables: a) add one hour to the forecast time b) detract one hour from the forecast time c) we do not correct it, as the provided forecast includes correction for summer daylight saving time	A
13.	O	*Slackwater* is a characteristic feature of: a) all tidal streams b) rotary tidal streams c) reversing tidal streams	C

14.	O	In European basins the most predominant type of tides is: a) mixed b) semidiurnal c) diurnal	B
15.	O	Neap tide occurs when: a) the Moon is in the new moon phase b) the Moon is in the first or third quarter phase c) the Moon is in the full moon phase	B
16.	O	Spring tide occurs when: a) the Moon is in the first quarter phase b) the Moon is in the third quarter phase c) the Moon is in the new moon or full moon phase	C
17.	O	Spring tides are characterised by: a) large tidal range b) small tidal range c) low levels of high waters	A
18.	O	For tidal waters, in nautical charts the shoreline generally indicates: a) the line of mean high water level b) the line of mean low water level c) the line of mean sea level	A
19.	O	Neap tides are characterised by: a) small tidal range b) low levels of low waters c) small duration of tide	A
20.	O	A chart datum is: a) a reference level for surveys determined for a given map and for a given basin b) the smallest depth determined for a given map and for a given basin c) a precise levelling level determined for a given map and basin	A
21.	O	*Pilot charts (routeing charts)* do not include information on: a) borders of ice ranges b) winds predominant in the basin c) tidal streams	C
22.	O	An interval between successive high waters or between successive low waters is called: a) tide fall time b) tidal period c) tide rise time	B

23.	O	Tidal range is understood as: a) a value of tide height above the chart datum b) height difference between low water and high water or the other way around c) value of tide height above the mean sea level	B
24.	O	Tidal stream direction is understood as: a) the direction from which the stream flows b) the direction from which the wind blows c) the direction towards which the stream flows	C
25.	O	Chart datum in tidal basins is determined: a) at the low water level b) at the high water level c) at mean sea level	A
26.	O	Water depth indicated in a map is understood as: a) vertical distance measured from the determined reference level to the basin seabed b) vertical distance measured from the seabed to the water surface c) vertical distance measured from the water surface to the basin seabed	A
27.	O	If there is one high water and one low water present during a single lunar day, we call the tide: a) semidiurnal b) diurnal c) mixed	B
28.	O	In maps of tidal waters, the reference level of the heights of land structures, clearances, height of light sources etc. is: a) the mean sea level b) the mean high spring tide water or mean higher water c) the chart datum	B
29.	O	Negative tide value means that depth in the basin is: a) the same as indicated in the map b) lower than indicated in the nautical chart c) higher than indicated in the nautical chart	B
30.	O	When there is summer daylight savings time in the port, in order to calculate the time of occurrence of tides and tidal streams: a) detract one hour from the forecast time b) add one hour to the forecast time c) do not correct anything because the written forecast already takes into account daylight savings time	B
31.	O	Spring tide occurs when: a) the Moon is in the new moon or full moon phase b) when the Sun and the Moon have the same declination sign c) when the Moon is above the equator	A

32.	O	A tide is called diurnal if: a) one high water and one low water occur during a lunar day b) two high waters occur in a single lunar day c) when the tide rise time from low to high water takes exactly 6 hours	A
33.	O	Duration of rising or falling tide is: a) *the duration of tide* b) *the range of tide* c) *the period of tide*	A
34.	O	Distance between the water surface and the level of reference for tides (*tidal datum*) means: a) depth from the map b) height of tide c) current depth of the basin	B
35.	O	In the Tide Table of the British Admiralty, the tide forecast for secondary ports is provided in a form of: a) difference of time and height in relation to the related standard port b) tide curve chart for a secondary port c) times and heights of HW and LW for each day of the year	A
36.	O	In the Tide tables of the British Admiralty, a group of secondary ports is assigned to a main (standard) port which: a) is the nearest port from the geographic point of view b) is selected from ports of the same country c) has a similar tidal characteristics	C
37.	O	*Storm surges* are waves generated by the impact of: a) wind blowing along the shore b) a rapid change of atmospheric pressure c) a distant storm	A
38.	O	*Negative surges* are local drops in sea level caused by: a) meteorological changes b) topographic changes c) tectonic changes	A
Item	B/D	Module 8 – Astronavigation	
1.	O	A celestial meridian is: a) a great circle passing through cardinal points N, E, S, W. b) a great circle passing through points Zn, Nd, E, W c) a projection of a local geographic meridian on the celestial concave	C
2.	O	Celestial body azimuth in a semi circular system is calculated from: a) the visible part of a celestial meridian b) the top part of a celestial meridian c) the northern part of a celestial meridian	A

3.	O	Polar altitude is: a) a co-declination of a celestial body to 90° b) a co-altitude of a celestial body to 90° c) an angle value is equal to the geographic latitude of the observer	C
4.	O	At which moment the vertices of a spherical parallactic triangle are located in the same great circle: a) the passage of a celestial body through the first vertical b) culmination of a celestial body c) astronomical rise of a celestial body	B
5.	O	Universal time is calculated from the moment: a) lower meridian passage of true sun b) lower meridian passage of mean sun at zero meridian c) upper meridian passage of mean sun at zero meridian	B
6.	O	Chronometer status is: a) a time difference between UT and the chronometer indication b) a time difference between the chronometer indication and UT c) the time value by which the chronometer speeds up or slows down during a day	A
7.	O	Apparent height of a celestial body is a: a) height measured and corrected by a total sextant error and by a correction for dip of the visible horizon b) height measured and corrected by a total sextant error and by a correction for astronomic refraction c) height measured and corrected by a total sextant error and by a general correction	A
8.	O	Radius of an astronomical position circle equals: a) the zenith distance of a celestial body expressed in NM b) the true altitude of a celestial body expressed in NM c) the polar distance of a celestial body expressed in NM	A
9.	O	In order to identify the name of a celestial body, it is necessary to know its: a) horizontal coordinates b) equatorial coordinates II c) equatorial coordinates I	B
10.	O	When the observer, while measuring the altitude of a celestial body simultaneously receives the coordinates of one's own observed position: a) the observed celestial body is a circumpolar one b) the observed celestial body is in the prime vertical c) the observed celestial body is in its zenith	C
11.	O	A celestial body culminates in a zenith provided: a) its declination equals its height b) its height is greater than the geographical height of the observer c) its declination is identical to the geographic latitude of the observer	C

12.	D	Location of a celestial body projection to the surface of the earth equals: a) $\varphi=h_{cn}$ and $\lambda=SHA_{cn}$ b) $\varphi=\delta_{cn}$ and $\lambda=GHA_{cn}$ c) $\varphi=\delta_{cn}$ and $\lambda=LHA_{cn}$	B
13.	O	Radius of an astronomical position circle equals: a) the zenith distance of a celestial body b) the polar distance of a celestial body c) the altitude of a celestial body	A
14.	O	The latitude method can be used when the observed celestial body is: a) at the zero meridian b) in the prime vertical c) at the observer's meridian	C
15.	O	The longitude method can be used when the observed celestial body is: a) in the northern azimuth b) at the celestial meridian c) in the prime vertical	C
16.	O	In order to calculate total correction of a magnetic compass, we use celestial bodies the altitude of which is: a) greater than 30° b) lower than 30° c) equal to 30°	B
17.	D	For a celestial body to be a circumpolar one, the following conditions need to be fulfilled: a) $\delta \uparrow\uparrow \varphi$ and $\delta > 90 - \varphi$ b) $\delta \uparrow\downarrow \varphi$ and $\delta = \varphi$ c) $\delta \uparrow\uparrow \varphi$ and $\delta \geq 90 - \varphi$	A
18.	O	Observer's position <u>has no impact</u> on the following astronomic coordinates: a) h_{cn} and δ_{cn} b) LHA_{cn} and $_{d\ Acn}$ c) α_{cn} and SHA_{cn}	C
19.	O	Full course of the Moon around its orbit in relation to the sun is called: a) draconic month b) sidereal month c) synodic month	C
20.	O	Time between total observations when determining OP from two non-simultaneous observations of celestial bodies is: a) equal to the change of azimuth to this celestial body by a minimum of 90 b) equal to the change of azimuth to this celestial body by a minimum of 30 c) greater than 15 minutes of time	B

Item	B/D	Module 9 – Planning the journey	
1.	O	A sailing plan should be prepared and approved: a) during the course of a journey/passage b) before it is realised c) before dropping off the pilot from the port of departure	B
2.	O	A person responsible for drafting the sailing plan is: a) a designated officer b) a shipowner or charterer, depending on the type of sailing c) a ship captain	A
3.	O	*Parallel Indexing* technique should be used to: a) mark the need to change ship speed on the map b) monitor the planned passage c) determine the starting point and the end of a sea journey	B
4.	O	Movement of a sailing plan from a map or a navigational system to another navigational system may take place if: a) both systems operate within the same frame of reference (e.g. WGS 84) b) both systems are recognised by the flag state administration c) both systems are recognised by a classification institution	A
5.	O	A mandatory part of the sailing plan <u>is not</u>: a) the number of the crew and passengers on the ship b) marking dangerous places as "*no go area*s" c) identification of the "*point of no return*"	A
6.	O	"Information Exchange Form" is: a) a form that includes captain's commands for navigational officers b) a form that includes information about a ship passed to the pilot c) an information exchange form with the weather guidance unit for the ship	B
7.	O	In case there are any doubts as to the position or the manner of sailing, the watch officer: a) should immediately call the captain and take appropriate measures that ensure ship safety b) may continue to sail the ship independently provided it is within an allowed limit of transverse deviation off-course c) should change to a backup manner of setting position and act in accordance with the provisions from the "Captain's night order book"	A
8.	O	The main purpose of a *Vessel Traffic System* (VTS) is: a) increasing the safety of all ships included in the system b) increasing the safety of ships participating in the system c) providing navigation information	A

9.	O	If autopilot is used, manual control should be checked: a) daily b) daily by each officer c) at least once per watch	C
10.	O	Planning the journey consists of the following 4 stages: a) route calculation, drawing on maps, creating tables, realisation b) getting acquainted with the journey instruction, drawing on maps, moving waypoints (WP) to the table, approval by the captain c) preparation, planning, performance of plan, monitoring and correction	C
11.	O	The sailing plan must be drafted for the relation: a) departure port pilot drop-off point – destination port pilot embarkment point b) departure port pilot drop-off point – destination port shore, if pilotage services are not used there c) shore - shore regardless of pilotage services	C
12.	O	In accordance with the requirements of the SOLAS convention, a ship should have the following for a planned trip: a) a complete chart folio and navigation publications for the planned waters b) a set of charts and navigation publications for the planned journey c) maps of determined scale, depending on the ship size as well as navigation publications	B
13.	O	In the planning process, the following should be marked on maps: a) objects with distinctive visual or radar features b) tide levels in the period of the planned passage of the given section c) all range lines	A
14.	O	The "*Routeing chart*" publication does not include: a) information on surface currents (oceanic) b) information on the course of the recommended season routes c) information on ship reporting systems	C
Item	B/D	Module 10– ECDIS	
1.	O	ECDIS systems may work in the following modes: a) only vector b) only raster c) both raster and vector	C
2.	O	Which from the information groups below do not have to be presented in ECDIS: a) underwater cables and pipelines b) ferry routes c) hydrodynamic properties of a ship	C

3.	O	A database orginating from an ENC map, layers of map corrections and additional information added by the operator is called: a) System Electronic Navigation Chart (SENC) b) Standard display c) Display Base	A
4.	O	The ECDIS system should register a set of data in its memory necessary to restore the navigation course in one minute intervals and check the official database used in the course of the previous 12 hours. Additionally, it should record all route of the current journey passed so far along with time markers in time intervals not exceeding: a) 4 hours b) 8 hours c) 12 hours	A
5.	O	If the operator did not choose a safe isobath, as a default the ECDIS system should assume it at the level of: a) 30 m. b) 20 m. c) 25 m.	A
6.	O	The ECDIS system should log the passed route in one minute intervals (time, location, course and speed) as well as data used (source, editon, date, ENC unit and update history) in order to restore the course of navigation and check the official database used within the last: a) 12 hours b) 8 hours c) 4 hours	A
7.	O	SENC display category launched with a single action of the operator acc. to MSC.232(82) resolution is: a) *the Display Base* b) *the Standard Display* *c) the Custom Display*	B
8.	O	Display shown in the ECDIS screen from which no element may be removed is: a) the Display Base b) the Standard Display c) the Preliminary Display	A
9.	O	When there is no isobath declared by the operator as a safe isobath in the SENC database, the system chooses: a) a smaller isobath b) a default 30 m isobath c) the nearest isobath found in the database with a value higher than the one declared by the operator	C
10.	O	ECDIS must present the following information: a) water temperature b) tidal streams c) the selected safe isobath	C