### COMMON P. G. ENTRANCE TEST - 2024 (CPET-2024)

Test Booklet No.:

00003

Subject Code: 25

Hall Ticket No. :

Subject : MARINE SCIENCE - OCEANOGRAPHY

#### TEST BOOKLET

Time Allowed: 60 Minutes

Full Marks: 80

#### : INSTRUCTIONS TO CANDIDATES :

- The Test Booklet contains 15 pages including the cover page and 80 (Question Nos. 1 to 80) multiple choice questions.
- 2. DO NOT break open the seal of the Test Booklet until the invigilator instructs to do so.
- The candidates must check discrepancy, if any (like up-printed or torn or missing pages or missing questions) in the Test Booklet immediately after breaking the seal of the Test Booklet. If detected, the invigilator may be requested to replace the same.
- Candidates are required to fill up and darken the Hall Ticket No., Test Booklet Serial No. and OMR Answer Sheet Serial No. in attendance sheet carefully. Wrongly filled in OMR Answer Sheet is liable for rejection.
- Each question has four choices / answers marked (A), (B), (C), (D). Candidate has to select the
  most appropriate choice / answer to each question and darken the oval completely against the
  question number provided in the OMR Answer Sheet.
- Indicate only one choice / answer from the options provided by darkening the appropriate oval in the OMR Answer Sheet. More than one response to a question shall be treated as a wrong answer.
- Use only Black Ball Point Pen for darkening the oval for answering.
- 8. All the questions are compulsory and they carry equal marks. The total marks scored by a candidate depends on the number of correct choices / answers darkened in the OMR Answer Sheet. There will be no negative marking for wrong answers.
- No candidate shall be allowed to leave the Examination Hall / Room till all OMR Answer Sheets have been collected by the invigilator.
- 10. On completion of the entrance test, the original OMR Answer Sheet be handed over to the invigilator. Candidates are allowed to take the second copy of the OMR Answer Sheet along with the used Test Booklet for reference.
- Candidates are not allowed to carry any personal belongings including electronic devices such as scientific calculator, cell phones, headphones, earbuds, or any other type of devices that allow communication of any kind inside the Examination Room / Hall.
- 12. The candidates are advised not to scribble or make any mark on the OMR Answer Sheet except marking the answers at the appropriate places and filling up the details required. Rough work, if any, may be done in the blank sheet(s) provided at the end of the Test Booklet.
- 13. Any malpractice / use of unfair means will lead to your disqualification from the entrance test / admission process and may also lead to appropriate legal action as deemed fit.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

GO-29/20

(Turn over)



## (COMMON R G ENTRANCE TEST - 2024 (CRET-2024))

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Test Booklet No.

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P. p. 450 KS | 80

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1.	vvna	at is the primary composition of seaw	ater?	C none nonoriginal Partir . 9
	(A)	Hydrogen	(B)	Nitrogen Codesha (4)
	(C)	Salt association in	(D)	Water 16000 hollar 151
2.	Wha	at drives the surface currents in the o	cean?	10 Which of the following is a p
	(A)	Aquatic animals	(B)	Underwater volcanoes
	(C)	Wind Blook (C)	(D)	Sunlight Strategies (1997)
3.	Wha	at is a common method to measure s	alinity?	wansiysa ekdoring nadW Tit
	(A)	Barometer	(B)	Salinometer
	(C)	Anemometer	(D)	Thermometer
4.	Whi	ich gas is most abundant in the Earth	's atmos	sphere?
	(A)	Oxygen	(B)	Nitrogen
	(C)	Carbon dioxide	(D)	Argon
5.	Wha	at phenomenon describes the rise an	d fall of	sea levels?
	(A)	Tides (A)	(B)	Tsunamis
	(C)	Currents	(D)	Storm surges
6.	Whi	ch layer of the Earth is composed mo	ostly of I	iquid nickel and iron?
	(A)	Crust	(B)	Mantle
	(C)	Outer core	(D)	Inner core
7.	Wha	at does GIS stand for ?		Have sand and the
	(A)	Geographic Information System	(B)	Geologic Investigation Study
	(C)	General Internal System	(D)	Geographical Interface Scenario
8.	Whi	ch gas is most important for sustainin	ng life or	n Earth ?
	(A)	Oxygen	(B)	Hydrogen
	(C)	Nitrogen Prophile (1)	(D)	Carbon dioxide
GO-	- 29/2	20 (3)		(Turn over)

9.	The	I Nino phenomenon originates in wh	ich oce	all f
	(A)	Atlantic Ocean	(B)	Pacific Ocean
	(C)	Indian Ocean	(D)	Arctic Ocean
10.	Whic	h of the following is a primary produc	er in the	e ocean?
	(A)	Dolphin Wassersbatte (d)	(B)	Shark The Sharp A. TAN
	(C)	Phytoplankton	(D)	Squid
11.	Whic	h principle explains why colder, saltion	er water	r sinks in the ocean?
	(A)	Conservation of energy	(B)	Thermohaline circulation
	(C)	Bernoulli's principle	(D)	Archimedes' principle
12.	What	t instrument measures atmospheric	oressur	e?
	(A)	Barometer	(B)	Hygrometer
	(C)	Anemometer	(D)	Thermometer
13.	Whic	ch satellite is primarily used for ocean	nograpi	nic studies?
	(A)	Hubble Space Telescope	(B)	International Space Station
	(C)	Jason1	(D)	Sputnik
14.	Wha	t term describes the Earth's water c	ycle inv	olving evaporation, condensation,
		precipitation?		CHECK THE WAS TRUE TO
	(A)	Hydrological cycle	(B)	Carbon cycle
	(C)	Nitrogen cycle	(D)	Oxygen cycle
15.	Wha	at does the Beaufort scale measure	?	Sind basis Sici dead talivi
	(A)	Earthquake intensity	(B)	Wind strength
(A 18 ()	(C)	Ocean depth	(D)	Solar radiation
16.	Wha	at type of current flows horizontally in	the up	per part of the ocean's surface?
	(A)	Thermocline current	(B)	Rip current
	(C)	Density current	(D)	Surface current
GC	) - 29/	20 (4	)	(Continued)

17.	Whic	ch of the following nutrients is most com	imoni	ly limiting marine productivity.
	(A)	Nitrogen	(B)	Phosphorus
	(C)	Potassium	(D)	Magnesium
18.	Wha	t is the primary cause of tides on Earth	?	ACTUO A ABBRERIA SA SON A
	(A)	Wind	(B)	Earth's rotation
	(C)	Gravitational pull of the moon	(D)	Solar flares
19.	The	term 'bathymetry' refers to the study of	what	26. In the about what is the poin?
	(A)	Underwater depth of lake or ocean flo	ors	mioq ba3 (A)
	(B)	Atmospheric pressure		med substitution (C) . Storotopic transfer
	(C)	Earth's crustal movements		
	(D)	Surface wind patterns		26. According to Buyle's law w
20.	Wha	at technology is primarily used for detail	led se	ea floor mappings ?
	(A)	Radar (file)	(B)	SONAR and the Market Alexander
	(C)	LIDAR	(D)	SODAR miemen (O)
21.	Whi	ch of the following is a primary standar	d sub	stance in titration?
	(A)	Sodium hydroxide	(B)	Potassium permanganate
	(C)	Oxalic acid	(D)	Hydrochloric acid
22.	Wha	at is the principle of Chromatography?		(H) . It is inversely properties
	(A)	Separation based on size and shape	otla	
	(B)	Separation based on solubility		(D) His inversely proportio
	(C)	Separation based on adsorption and	parti	tion
	(D)	Separation based on charge		
23.	Whi	ch type of spectroscopy uses the absorp	otion	of light to measure the concentration
	ofa	substance?		(C) DaRon's law
	(A)	Infrared spectroscopy		29 What is the value of the upp
	(B)	UV-Visible spectroscopy		h+1 9 1/2)
	(C)	Nuclear Magnetic Resonance spectr	osco	oy
	(D)	Mass spectroscopy		768 (J)
GO	-29/	20 (5)		(Turn over

(5)

(Turn over)

·GO	-29/	20	(6)	(Continued)
	(C)	1.987	(D)	6.022 Spage Bank (G)
	(A)	8.314 ygoodolio	(B)	0.0821
29.	Wha	at is the value of the universal ga	as constant (F	R) in J/mol·K?
	(C)	Dalton's law	(D)	Graham's law
1011831	(A)	Ideal gas law	(B)	Combined gas law
28.	Whi	ch gas law combines Boyle's la	w, Charles's	law and Avogadro's law?
	(Ď)	It is inversely proportional to its	s absolute ter	nperature at constant pressure
	(C)	It is directly proportional to its	absolute temp	perature at constant pressure
	(B)	It is inversely proportional to its	s pressure at	constant temperature
	(A)	It is directly proportional to its	pressure at co	onstant temperature
27.	Wha	at does Charles's law state abou	ut the volume	of a gas?
	(C)	It remains the same	(D)	It becomes zero
	(A)	It doubles	(B)	It halves
	doub	oled while the temperature rema	ains constant	?anng al quoidmicionagna/ 02 •
26.	Acco	ording to Boyle's law, what hap	opens to the	volume of a gas if the pressure is
	(C)	Stoichiometric point	(D)	Reaction point
	(A)	End point	(B)	Equivalence point
25.	In tit	ration, what is the point at which	n the indicato	r changes color called ?
	(D)	To precipitate impurities	agontai V	off to flug renoratives 2 (C)
	(C)	To act as a reactant		miW (A)
	(B)	To maintain a constant pH		i striken vindum namen reditiv san
	(A)	To change the color of the solu	ution	newspied (b)
		at is the role of a buller in all all	alytical proce	dule !

30.	Ina	n ideal gas, which two variables	are direc	tly pr	oportional to each other at constant
	pre	ssure?			
	(A)	Volume and temperature		(B)	Volume and pressure
	(C)	Pressure and temperature	• . ed bris Hi	(D)	Pressure and volume
31.	Her	nry's law states that at constant	temperat	ture,	the solubility of a gas in a liquid is:
	(A)	Directly proportional to the pre	essure of	fthe	gas above the liquid
	(B)	Inversely proportional to the p	ressure o	of the	gas above the liquid
	(C)	Directly proportional to the vol	ume of th	ne liq	uid bigs oitss A. Alach
	(D)	Inversely proportional to the vo	olume of	the lie	quid Touris seine (C)
32.	Whi	ich of the following correctly exp	resses H	lenry'	's law?
	(A)	P = kC		(B)	C = kP
	(C)	V = kP		(D)	P = kV
33.	Wha	at happens to the solubility of a	gas in a li	quid	when the temperature increases?
	(A)	It increases and process (B)		(B)	It decreases
	(C)	It remains the same	¥ .	(D)	It becomes zero
34.	Wha	at is the effect of increasing pres	sure on th	he so	lubility of carbon dioxide in water?
	(A)	Increases		(B)	Decreases - Milania - A
	(C)	Remains the same		(D)	Becomes zero
35.	Whi	ch gas is most likely to obey Her	nry's law	at hig	h pressure and low temperature?
	(A)	Oxygen	(	(B)	Nitrogen
	(C)	Hydrogen	(	(D)	
36.	Wha	at is the pH of a neutral solution	at 25°C ?		destrojalidado (J)
	(A)		(	(B)	
	(C)	14 Stute tag maT (1)	(	(D)	10 <sup>0</sup> Variable O
GO-	- 29/2		(7)		(Turn over)

37.	. Which of the following solutions is the most acidic?			
	(A)	pH = 3	(B)	pH = 5
	(C)	pH=7 <sup>ista</sup> bris amulo\ (8)	(D)	pH = 9
38.	Wha	t is the relationship between pH a	and hydroge	en ion concentration?
	(A)	$pH = -log[H^{+}]$	(B)	pH = log[H+]
	(C)	pH = -log[OH-]	(D)	pH = log[OH-]
39.	Whic	ch of the following acids is a stror	ng acid?	(B) Inversely proportional to
	(A)	Acetic acid	(B)	Hydrochloric acid
	(C)	Formic acid	(D)	Citric acid
40.	If the	pH of a solution decreases from	5 to 3, the h	nydrogen ion concentration:
	(A)	Increases by a factor of 2	(B)	Increases by a factor of 10
	(C)	Increases by a factor of 100	(D)	Decreases by a factor of 100
41.	Wha	at type of oceanographic data do	es an 'XBT'	provide? of an angle dan large state
	(A)	Temperature profile	(B)	Salinity profile
	(C)	Current direction	(D)	Marine biodiversity
42.	Whi	ch term describes the boundary b	etween two	o different seawater masses?
	(A)	Halocline .	(B)	Thermocline
	(C)	Pycnocline	(D)	Chemocline
43.	The	principle that explains the conser	vation of an	ngular momentum in fluid dynamics
	is ca	alled:		VA) Osygen
	(A)	Pascal's law	(B)	Archimedes' principle
	(C)	Coriolis effect	(D)	Bernoulli's theorem
44.	Oce	ean acidification affects the ocean	n's chemist	ry by decreasing :
	(A)	Oxygen levels	(B)	pH levels
	(C)	Salinity	(D)	Temperature
GO	-29/	20	(8)	(Continued)

70.		otto zone in the ocean releis to.				
	(A)	The upper layer where sunlight p	enetrates	GOULDHAND OF		
	(B)	The deep ocean floor		(8) ton (A) nici	9 10	
	(C)	Regions near hydrothermal vents	box nee	o to treate, vicini a	and V	
	(D)	The middle layer of the ocean		alavat negyge besserne		
46.	Wh	at is the major driver of deep ocear	currents	cice bleaching ?	1 (0)	
	(A)	Wind developed	(B)	Density differences	itori V. Ta	
	(C)	Solar heating	(D)	Coriolis force		
47.	Whi	ch technology is primarily used to t	rack sea l	evel changes globally?		
	(A)	Sonar	(B)	Satellite altimetry		
	(C)	Radar	(D)	LiDAR	d GAV k	
48.	Whi	ch is considered a 'blue carbon' ed	cosystem '	?		
	(A)	Open oceans	(B)	Rivers	1 (2)	
· 1981	(C)	Mangroves	(D)	Thermal vents		
49.	Wha	at does the 'Albedo effect' refer to it	n the cont	ext of climate science?	tg bns	
	(A)	Reflectivity of the Earth's surface		Ayrine sediment cores	(A)	
	(B)	Absorption of infrared radiation by	y the atmo	osphere		
	(C)	Diffusion of solar radiation in the	ocean	anzeomenon signilicati sually warm occan tem:	DERIVE CO	
	(D)	Thermal inertia of the Earth's crus	st	Sulf Stream		
50.	Which computational model is used for simulating the ocean and atmosphere					
	inter	actions?		is a gignificant indicator	tsrIAV A	
	(A)	Linear regression model		Decreased fish migrafic		
	(B)	Coupled Ocean Atmosphere Mod	lel disco			
	(C)	Single variable statistical model		Decrease in palticoncer		
•	(D)	Purely deterministic model	20	Reduction in varie helg!		
GO-	- 29/2	0 (9	)	(1	Turn over)	

51. What term describes the accumulation of substances, such as pesticides o			ances, such as pesticides or other	
	chen	nicals, in an organism?		· Anna Anna Anna Anna Anna Anna Anna Ann
	(A)	Bioaccumulation	(B)	Biomagnification
	(C)	Both (A) and (B)	(D)	None of these
52.	Whic	ch is a primary effect of ocean ac	dification o	on marine life?
	(A)	Increased oxygen levels	(B)	Decreased salinity
	(C)	Coral bleaching	(D)	Increased nutrient levels
53.	Wha	at is the main cause of the increas	se in sea lev	vels?
	(A)	Decreased salinity		performance (Q)
	(B)	Underwater volcanism	on artista	Winds testingles and wards
	(C)	Melting of polar ice caps and gla	aciers	
	(D)	Increased marine life biomass		
54.	Whi	ch gas is most responsible for warr	ning the Ea	rth's atmosphere by trapping heat?
	(A)	Oxygen	(B)	Carbon dioxide
	(C)	Nitrogen	(D)	Argon amendo nerolo (A)
55.	Wha	at method is commonly used to stud	ly the histor	y of ocean temperatures, ice volume,
	and	productivity?	randina Li	Asia object ones ine Albedo entera
	(A)	Marine sediment cores	(B)	Satellite imagery
	(C)	Direct temperature measureme	nt (D)	Sonar mapping
56.	Wha	at phenomenon significantly affect	ts marine b	iodiversity in the Pacific Ocean due
	to u	nusually warm ocean temperature	es?	s Authac adjanite/(benT (C)
	(A)	Gulf Stream	(B)	El Niño
·ene	(C)	North Atlantic Drift	(D)	Indian Ocean Dipole
57.	Wh	at is a significant indicator of clim	ate change	e observed in marine settings?
	(A)	Decreased fish migration		leb maniaeure regussionam del
	(B)	Increasing frequency of coral bl	eaching	ineum/Ancert Delegion Amuseri
	(C)	Decrease in salt concentrations	Simpon	solution aleanovelprii? (3)
	(D)	Reduction in wave heights		
GO	-29/	/20	(10)	(Continued)

58.	Wh	Vhich instrument is used to measure the absorp	otion of light in water and thus in	fe
		ne amount of organic material or chlorophyll?	Schange (A)	
	(A)	A) CTD (Conductivity, Temperature, Depth)	(C) Interquarelle range	
	(B)	B) Spectrophotometer	ia. In a normal distribution whi	
/-	(C)		of the mean?	
	(D)	D) ADCP (Acoustic Doppler Current Profiler)		
59.	Hov	ow does marine debris primarily affect marine a	animals?	
	(A)	By increasing water temperatures	of the assemblemes of the	
	(B)	By decreasing nutrient availability	wa kantarindo da alaman .	
	(C)	By causing entanglement and ingestion	(A) -2 - (A)	
	(D)	) By increasing salinity levels	(a) (b) (b)	
60.	Whi	hich of the following is a method is used to mitigat	te the effects of ocean acidification	n
	*	marine ecosystems?		
	(A)	) Increasing use of fossil fuels	t- (3)	
	(B)	Artificial reef creation	G7. The equation of all near gl	
	(C)	) Reduction in global planting of mangroves	ε(λ (Å)	
	(D)	) Enhanced coastal development	6 (0)	
61.	Whi	hich measure of central tendency is most affecte	ed by extreme values?	
	(A)	) Mean (B)	Median Armay (A)	
	(C)	) Mode (D) F	Range = 3 + 4(d + xa(0)	
62.	Wha	nat-does a p-value indicate in hypothesis testing	sy if two lines are perpense,	
	(A)	The probability of the null hypothesis being tru	ue 0 (A)	
	(B)	The probability of observing the sample data	a given that the null hypothesis is	s
	(C)		70. The equation y - 2 = 3(x	
	(D)	the and anomalive hypothesis b		
		equi	ual to the population mean	
GO -	-29/2	(11)	(Turn over)	)

63.	Whic	th of the following is not a measur	e of dispers	sion?
	(A)	Variance	(B)	Standard deviation
	(C)	Interquartile range	(D)	Skewness
64.	Inar	normal distribution, what percenta	age of data	falls within one standard deviation
		e mean ?		(O) Sescritorisk
	(A)	50%	(B)	68%
+	(C)	95% element or month	(D)	99%
65.	Ifas	sample mean is 10, the population	on mean is	12, and the standard error of the
				(B) *8) dad assugnough
	(A)	-2 nones	(B)	2 graine prisuso Wi (0)
	(C)	-1	(D)	Anick galas noni y8 (0)
66.	Wha	at is the slope of the line represen	ted by the	equation y = 3x + 4?
	(A)	3	(B)	4 Americano ennem no
	(C)	-3	(D)	a.e.4 o sau prestanciti (A)
67.	The	equation of a line is given by 2y-	-6x = 12. V	Vhat is the slope of this line?
	(A)	1/3	(B)	-1/3 ig ni nottouber (3)
	(C)	3	(D)	ve-3 tecon beorismi 3 (0)
68.	Wh	ich of the following represents the	e slope-inte	rcept form of a straight line?
	(A)	y = mx + c	(B)	$y = ax^2 + bx + c$
	(C)	ax + by + c = 0	(D)	y = kx + b
69.	If tv	vo lines are perpendicular, what is	s the produ	ct of their slopes?
	(A)	0 eus prins d'au	(B)	rafuto vilidadore prili (A)
	(C)	ample data over marine but no		
70.		e equation $y-2=3(x-4)$ is in wh		
	(A)			
	(C			
G	0-29		(12)	(Continued)
0	0 - 2			

11.	vvni	ch mode of heat transfer does not requ	ire a i	medium ?
	(A)	Conduction	(B)	Convection
	(C)	Radiation	(D)	All of these
72.	Wha	at is the primary mechanism of heat trai	nsferi	n fluids?
	(A)	Conduction	(B)	Convection
	(C)	Radiation	(D)	All of these
73.	Whi	ch law states that the rate of heat transfe	er thro	ugh a material is proportional to the
	nega	ative gradient of the temperature and to	the a	rea through which the heat flows?
	(A)	Fourier's Law	(B)	Newton's Law of Cooling
	(C)	Stefan-Boltzmann Law	(D)	Wien's Displacement Law
74.	Wha	at is the unit of thermal conductivity?		M 64 (0)
	(A)	W/mK	(B)	J/kgK
	(C)	W/m²K	(D)	J/s
75. 1	he er	missivity of a perfect black body is:		
	(A)	0	(B)	0.5
	(C)	1	(D)	Infinite
76.	Acco	ording to Archimedes' principle, the be	uoyar	nt force on a submerged object is
	equa	al to:		
	(A)	The weight of the object		
	(B)	The volume of the object		
	(C)	The weight of the fluid displaced by the	e obje	ect
	(D)	The density of the fluid		
77.	Ano	bject will float in a fluid if:		
	(A)	Its density is greater than the density of	of the	fluid
	(B)	Its density is equal to the density of the	e fluid	
	(C)	Its density is less than the density of the	e fluid	d
	(D)	None of these		

70	VA/IL -	the annual to the busyant force if an ob	iect is	fully immersed in a liquid and then		
78.	What happens to the buoyant force if an object is fully immersed in a liquid and then					
		n deeper into the same liquid?	(D)	Decrees		
	(A)	Increases	(B)	Decreases Application of the Control		
	(C)	Remains the same	(D)	Varies depending on the liquid		
79.	Whi	ch of the following is an application of	Archin	nedes' principle ?		
	(A)	Hydrometer 1991 1997 1997	(B)	Barometer		
0010	(C)	Hygrometer	(D)	Manometer		
80.	Ifan	object displaces 500 cm³ of water, what	is the	buoyant force acting on it? (Assume		
	g = 9	9.8 m/s <sup>2</sup> )		No. value (A)		
	(A)	0.49 N	(B)	4.9 N		
	(C)	49 N	(D)	490 N		
		Mg(ki (ki) i		A CONTRACT OF THE		
		2.5 (0)		Contact Co		
		The state of the s		d Cahaga le William on F.		
		20 %				
		Alaska) (C).				
		le, un sous viscos on a subre qui	gonin	y de description (C. Ar. munes on a		

# SPACE FOR ROUGH WORK