## For Notes, Syllabus, Question Papers: www.AllAbtEngg.com

	Reg. No.:		1.			02 000
Dernting at,	p teddor a rob minim	Once incide	posture lips	יענפ, עונפ יש	D Comp	(a 21
ratio 651,28 (7)	Question I	Paper C	ode : 4	0526		
(8) B.I	Aeror AE 650	E EXAMINA Fifth Semes nautical Eng 4 – PROPUI egulations 2	ter ineering SION – II	RIL/MAY	2018	(d
Time : Three Ho	ours .			Maxir	num: 100	) Mark
prior in his st	Ans	swer ALL que	etions			
	The second state of the se	PART - A		(	10×2=20 ]	Monke
1. What is th	e need for supersonic			unut şkmilî	.0.2-20	widi Ks
	problems associated v		100	n?	nn Jaza	
3. Define spe	.0	die balances			wa tariW	Te-51
	the assumptions mad					
	imitations of hybrid					
	eant by choking in flo			tima Juoda		
	ust coefficient.			myles outra	nista writ	
8. Define cha	racteristic velocity.					
9. What do yo	ou mean by temperat	ture sensitivi	ty of solid pr	ropellants '	es gran	
10. What is no	zzleless propulsion ?				4	
r chamber	motor at 20,26 ha	PART - B		estingene	(v19-05)	(a a)
11 1/12 D.D.	assent normandano.		in militarium	Table College	5×13=65	
	ribe the working of a sesses occurring in it			various the	ermodyna	mic (7
ii) Wha	t are the types of scr (OR)	amjet injecto	rs? Explain	0)		(6
b) i) Disco	uss the problems ass	ociated with	supersonic o	combustion	i) Distin	(6
ii) Expl	ain the different type	es of combust	ors in scran	Control of the Control	id who.	(7
	and the second		A STATE OF THE PARTY OF THE PAR			
		1135				S
S					9	

## For Notes, Syllabus, Question Papers: www.AllAbtEngg.com

19	9)	;)	Compute the ideal regret throat coefficient for	
12.	a)	-	Compute the ideal rocket thrust coefficient for a rocket operating at 50 km altitude. It has a nozzle area ratio of 50, specific heat ratio of 1.28 and operates at a chamber pressure of 40 atm.	
		ii)	Derive an expression for thrust of a rocket motor with a convergent-	(7)
			divergent nozzle, having a finite angle of divergence.	(6)
		,	(OR)	
	b)	i)	Briefly discuss the uniqueness of rocket propulsion. How would you classify	
		ii)	chemical rockets? Also compare their performance and application areas. How is the chemical energy of the propellants utilized for propulsive power	(6)
			of a rocket vehicle? How would you define propulsive efficiency, thermal	
N Sec			efficiency and overall efficiency? Briefly discuss.	(7)
13.	a)	i)	What are the important factors that influence the burning rate of a solid	
			propellant? Explain them with appropriate sketches.	(7)
		11)	How do you classify solid propellant rockets? Name any four solid propellant ingredients function with two examples for each function.	(0)
			(OR)	(6)
	(d	E	xplain in detail about the operating principles of strand burner and T burn	
				er.
14.	a)	W	hat are the peculiar problems associated with operation of cryogenic engines?	
		1	(OR)	
-	h)	F		
			xplain about main combustion instabilities in liquid propellant rocket engi	nes.
15.	a)	Eal	xplain with neat diagram the working principle of nuclear propulsion. And so write the advantages and disadvantages.	
		-	(OR)	
	b)	E	xplain with neat diagram electro thermal thrusters.	
			DADE C	
0,			PART - C (1×15=15 Mar	ks)
16.	a)	i)	Liquid propellants are burned in a rocket motor at 20.26 bar chamber	
			pressure. The molecular weight of the combustion gases is 26, and combustion chamber temperature of 2222 K. If $\gamma = 1.25$ and $C_d = 0.95$ , what	- 1 7
		÷	throat diameter is required to give a flow of 2.27 kg/sec?	(8)
		ii)	Explain why burning index of a solid propellant should be less than	(0)
			unity.	(7)
		4	(OR)	
	b)	i)	Distinguish between hypergolic and non-hypergolic bipropellant systems	
	r. 114	(ii)	of a liquid rocket engines. Give three examples.  What are the testing procedures for rocket engines?	(8)
		11)		(7)
				***