

(Re-accredited with 'A' Grade by NAAC)
SASTHAMCOTTA, KOLLAM District, KERALA

# **CRITERION 2**

2.6.2. Evaluation of PO, PSO, CO attainment



## Continuous evaluation measures used for CO, PO, PSO attainment are:

- a) Internal examination: As part of continuous evaluation, internal examination is conducted in a centralised manner and valued answer scripts are handed over to the students within a period of one week.
- b) Assignments: Assignments are given to the students with a view to develop their problem solving skills and project implementation skills and the date of assignment submission are published in the department academic calendar. The topics are chosen with the course objectives in mind.
- c) Seminars: The presentation skills of the students are tested through this component and the students are encouraged to use ICT in preparing and presenting seminars. The learners are graded on the basis of their performance and involvement. The topics for the seminars are selected from a wide spectrum under the purview of the curriculum and are designed to guide the students towards attaining the programme objectives.
- d) Projects and Viva: Projects, field visits, viva and practical skill evaluations are also the value indicators for the programme and course outcome attainment evaluation.



## **CONTINUOUS EVALUATION MARK SHEET**

7	MARK LIST : Cor First Degree Programme (center) D.B. College, Sasthamcott	CBCSS		dmissio	on onwa	Center (college	) code : 104	
Programme B Course code HN				is awarde	th & year		Hindi har	ignage
Candidate code	Name of the candidate	Attend		Test Paper	Total	Remarks	Signature of Candidate	8
12518104003	Akhila B	5	5	9	19			
1) 4005	Amala-s	5	5	9	19			
1) 4006	Ananthii s. Krishman	4	5	6	15			
21 4007	Ananthairishman. U	5	5	6	16			
11 4008	Anukrishna.s	5	5	8	18			1
11 4009	Aralhy u.s.	5	5	10	18			
1) 4010	Ashiba Salim	5	5	5	15			
1) 4011	Alhulya A	4	5	C	15			
11 4012	Bibin Babu	4	5	6	15	1		
11 4013	Deepthi. S		5	9	19			
1) 4014	19hanya Prasad 19ivya umi. s Keerihi k. Soman	5	5	8	18			
7) 4013	too all it . Somen	5	5	9	19			
7 4017	Midhum. MJ	4	5	6	15			
1) 4018	Muhsina Rs	4	5	8	18			
11 21019	Musammil salim	4	-	3	7			_
11 4021	Nandhilha - KB	4	-	-	-			_
1) 4023	Neelima-T	5	5	9	19			_
1) 4024		5	5	8	18			
	Nishama.s	5	5	8	18			
1) 4026	Nilhil. J	4	5	4	13		371	_
1) 4027	Rahul . R	4	5	4	13			
	Raveena.p	5	5	19	10	1		
	Reshma R.	\$	_	-				
1.5	Chandrasekhar	A	5	8	18			
	Santhiksichna B	5	5	9	10	7		
	Sarain .s	4	5	4	13	3	Sun,	
	Sayujilk.s	4	-	4	. 8	5	1	
partment:	Hory Assistant Prof			ure of t		Ass Den K.S Sas in charge :	of Hind	18



	Name of co Programme ourse code		MARK LIST: Co First Degree Programme center) D.B. College, Sasthamcot Core course: Hindi Name of course	CBCSS ta	- 201 <b>7</b> ;	admissio	th & year	of examination	1- February	2021 mage
	Candidat	e	Name of the candidate	Attend	Assign- ment/	Test		Remarks	Signature of Candidate	
	1 400	35	Szecktutez . s Szulhi Subhash	5	Seminar 5	Paper 8	18			1
	1) 40.	36	BrulhiSubhash	5	5	6	16			
	1) 40	137	Suryakrishna.s	5	5	8	18			
	11 40	38	Vincecha. s	5	5	8	18			
	1) 40	39	Vishak. V	4	5	5	14			4
_	1) 40	40	Yamıma. s	5	5	10				4
	7 40	41	adilhyan v	4 5	5	8	15			-
	11 40	142	Gayathivevis Harshalal B	4	5	8	18			
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						D	- 3	YAS		
	artment	,	Hop Dr. DHANY Assistant Professor K.S.M.D.B. Co Sastham	A. L	di		K.S.I	istant I artmer M.D.I	di,	Jan.



## MARK LIST : Continuous Evaluation (CE)

First Degree Programme CBCSS - 2020 admission onwards

Center (college) code: 104

Name of college (center) : K.S.M.D.B. College, Sasthamcotta

Core course: Malayalam

Programme: B Course code:

Semester: 2 Month & year of examination: 2021 Name of course (for which mark is awarded): Novel:

1	48,0114		М	arks awa	arded	_	Signature of
Class No:	Candidate code	Name of the candidate	Assign- ment/ Seminar	Test Paper	Total	Remarks	Candidate
1	11520104001	АВНІЛІТН M	4	4	8		MAR -
2	11520104002	авнілітн. М	4	4	8		Abbi
3	11520104003	АВНІЛІТН.Р	4	4.	8		AMP
4	11520104004	ADITHYA. A	10	9	19		Alithya.
5	11520104005	ADITYA A	10	7	17		house
6	11520104006	AKHIL MOHAN M	10	6	16		Stahil-M
7	11520104007	AKHILA L	10	8	18		Akhila-L
8	11520104008	AMRUTHA L	10	10	20		Aller.
9	11520104009	ANANDAKRISHNAN. B	-	5	5		
10	11520104010	ANANDHU V	10	6	16		Dad
11	11520104011	ANANDHU.L.S	8	2	10		A.
12	11520104012	ANUKRISHNAN.S.S	10	4	14		Mure
13	11520104013	APARNA. M	10	8	18		
14	11520104014	ARCHA . G	10	9	19		Andr.
15	11520104015	ARCHANA . V	10	7	17		edadrans
16	11520104016	ARCHANA.A.S	10	7	17		Aschane
17	11520104017	ARUNIMA.A	10	7	17		SAL
18	11520104018	ASHINA. S	10	6	16		ASOCIA!
19	11520104019	ATHIRA B	10	8	18		Atrin
20	11520104020	ATHUL S. ANAND	.10	1	11		Aran
21	11520104021	ATHULRAJ C R	7	2	9		Adjol.
22	11520104022	ATHULYA RAJ R	10	2	12		
23	11520104023	DEEPA. P	10	6	16		Dap
24	11520104024	DIVYA UNNI L	10	8	18		Rightin .
25	11520104025	FATHIMA RAHIM	10	7	17		- STATES
26	11520104026	GAUTHAM CHANDRA. J. B	10	8	18		
27	11520104027	GAYATHRI. T	10	5	15		Charothici
28	11520104028	GOURISREE . G	10	9	19		Growswith
29	11520104029	IBNU ARIF	3.	5	8		(COX)





			Assignme	"Test	Total	Remarks	Sign
30	11520104030	JITHU JOHNSON	10	7	17		U
31	11520104031	JOBIN PAPPACHAN	10	6	16		2621
32	11520104032	KAILASNADH P. KURUP	6	5	11		Kall
33	11520104033	KRISHNA PRIYA	10	8	18		Kaishnapais
34	11520104034	KRISHNA PRIYA.P	10	10	20	,	Raish
35	11520104035	KRISHNAJA. S	10	10	20		Krighage
36	11520104036	M S GAUTHAM KRISHNAN	10	フ	17		
37	11520104037	MAHINCHAND C G	10	6	16		THE STATE OF THE S
38	11520104038	MARIYA JAMES	10	6	16		Marys
39	11520104039	MEENAKSHI V	10	5	15		le de
40	11520104040	NITHA. N	10	9	19		Milla
41	11520104041	PANCHAMI S	10	6	16		Ruchaini 5
42	11520104042	PRINCY. F	10	4	14		Reft '
43	11520104043	RESHMA PRAKASH	10	8	18		Reshor
44	11520104044	RESHMI R	10	7	17		Reshor. R
45	11520104045	REVATHY. R	10	5	15		Revally R
46	11520104046	RUDRARAJU	10	9	19		Vidan-
47	11520104047	SANDRA. S	10	7	17		Sande
48	11520104048	SARANYA . S	10	8	18		Squarary
49	11520104049	SATHEESHKUMAR S	10	7	17		totheraff
50	11520104050	SHAMNAD. R	10	5	15		R.
51	11520104051	SHEHNA MOL . S	10	8	/8		Shetric
52	11520104052	SNEHA BINOY	10	6	16		and.
53	11520104053	SOORAJ. S	10	4	14		0
54	11520104054	SREENATH S	10	4	14		SEENDI!
55	11520104055	SUDHIRAJ S	10	5	15		Sudhi
56	11520104056	SURABHI M	10	5	15		Booker
57	11520104057	SYAM KRISHNAN . S	10	7	17	d	Sycim
58	11520104058	VAISAKHI P	10	8	18	I	laisakhi
59	11520104059	VAISHAKH V	10	フ	17		so-
60	11520104060	VARSHA S	10	6	16	1	angla
61	11520104061	VARUN V S	10	ソ	17		MASSO
62	11520104062	VASUDEV KRISHNAN K	10	5	15		Insude
63	11520104063	VEENA V.K	10	10	20		Deena_
64	11520104064	VINAYAK A	10	8	/8		apel
65	11520104065	VRINDHA PANKAJ. S	10	8	18		Vinds





Name of college (center) D B. College, Sasthai Programme. B. Core course: Hindi Course code樹 341. Name of c	Sem	201 <b>9</b>	admissi	on onwa	Center (college	) code 104 n 2021 Hindi Literalus Modern Persod
Candidate Name of the		1	awarded	1		Signature of
candidate	Attend	ment/ Seminar	Test Paper	Total	Remarks	Candidate
12519104001 Adheesh kumar.	AA	1				
" 4002 Adilhya krishma		5	4	17		
11 4004 Akhil. A	5	5	8	18		
"> 4006 Amal Krishnan	.R 5	5	10	20		
1) 4004 Amrilha. y	5	5	4	17		
"> 4008 Anand . Ms	4	-	-	-		
") 4009 Annia .I	5	-	10	-		
1) 4010 Anson Raj	5	5	7	17		
" 4011 Anulekshimi.	B 5	-	7	-		
11 4012 Archama- 65	5	5	8	18		
1) 4013 Aunima U	5	5	10	20		
1) 404 Arungith. A	5	5	6	16		
1) 4015 Aryamol. TS	5	5	10	20		
1) 4016 Aswally u	5	5	10	20		
) ADIT ASWIN-PR	4	-	-	-		
1 4018 Aswin Rames		5	6	16		
1) 4019 Almia Aravir	19 5	5	10	20		
1) 4020 Avani.5	5	5	9	19		
1) 4021 Ayryappom-s	5	5	6	16		
1) 4022 Darsoma das	5	5	8	18		
1) 4023 Devika Bs	5	5	10	20		
) 4025 Spopika krishma	n 5	5	10	20		
2 4026 krishnendu	A 5	5	7.	17		
1 AO27 Lakehmi. Rs	4	5	7	16		
		5	10	20		
	5	5	10	20		
4029 Mekha.s				-		
4030 Mohammed Sh		5	6	16	-	1000
4031 Nayema Bradup	5	5	8	18		O.E. S.T



Name of college Programme: B Course code: 投入	MARK LIST: Co First Degree Programme (center): D.B. College, Sasthamcot Core course: Hindi Name of cours	CBCSS ta	- 2013 ester:	admissi Mor is awarde	on onwa	Center (college	1) code: 104 n:2021 Hindi Liter Modern Pe	aline
Candidate code	Name of the candidate	Attend	Assign- ment/ Seminar	Test Paper	Total	Remarks	Signature of Candidate	
1) 4032	Nibin Bosher	5	5	8	18			
)) 40.33	Prasameti. P	5	5	10	20			
1) 4034	Reniu Prasad	5	5	10	20			
1) 4035	Revally Raju	5	5	8	18			1
4036	Sajad A	5	5	9	19			1
11 4037	Samsidhy Krichan	- 5	5	9	19			1
) 4038	Sangetha-Ri	5	5	10	20			-
2 4039	8 amana-s	5	5	10	20			-
1) 40:40	Sarath kumar.s	5	5	10	20			-
DADAL	Sharika-19	5	5	9	19			-
1 4042	Soonya-s	5	5	9	19			-
, 4043	Souparnika.M	5	5	9	19			-
ADAA	N 200104 - C	5	5	10	20			4
4046	Swalny Ms	5	5	10	20			
4047	vaishnewily	5	5	10	20	-		
1018	Vaishnewi-SJ	5	5	90	19			
4049	Viian Baby.	4	-	-	-			
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E 4			1		Dr. J	4361		
trnent:	Dr. DHANYA. ASSISTANT Professor of K.S.M.D.B. Naha	L Hindi	ignatu		As Der K.S Sast	sista partn .M.	or indi ge, im	7

SAMPLE INTERNAL EXAM Q

LESTICS PAPERS

Beind

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K.S.M. D. B. College Sasthamcotta

Third semester B. Sc Degree Model Examination, October 2019

Chemistry [Complementary Physics]

Optics, Magnetism and Electricity TOTAL MARKS: 80

TIME: 3 hrs

PY1331.2 SECTION A

Answer ALL questions in one or two sentences. Each question carries ONE mark.

- 1. What is magnetic intensity of the field?
- 2. What are coherent sources?
- 3. Define numerical aperture.
- 4. Define rms value of a.c
- 5. What are half period zones
- 6. Define quality factor
- 7. What is population inversion?
- 8. Explain susceptibility and permeability.
- 9. Define Wattless current?

10 What are the fringes of equal thickness?

[10x1=10 Marks]

Answer any EIGHT questions, each question carries TWO marks.

- 11. Explain sharpness of Resonance in a series LCR circuit.
- 12. State Curie's law. What is Curie's point?
- 13. Why Newton's rings are circular?
- 14. Mention the advances in fibre optic communication system.
- 15. Explain the principle of LASER. .
- 16. What is a choke coil? What is the advantage of using a choke coil instead of a resister?
- 17. Explain the colour of thin film.
- 18. Derive the relation between three magnetic vectors
- 19. Explain power factor in an ac circuit
- 20. Distinguish between Fraunhofer and Fresnel Diffraction
- 21. Write a note on transformers
- 22. Explain spontaneous and stimulated emission

[8x2=16 Marks]

SECTION C

Answer any SIX questions. Each question carries FOUR marks.

23. Discuss briefly different types of Magnetic materials

- 24. Light of wavelength 6000AU and 4200 AU are made to incident normally on a grating of 6000 lines per cm. A lens of focal
- 24. Light of wavelength 6000/AO and 4200 AO are made to include normally on a grating of 6000 lines per cm. A lens of focal length 200 cm. is used to observe the diffraction pattern. What is the separation in the two lines in the first order spectrum?
  25. In Newton's ring experiment the diameter of the 6° dark ring is 0.44cm using alight of wavelength 589.3 nm. Calculate the radius of curvature of the convex lens?
  26. A global of 0.5 H. a considerate of 30 in the convex lens?
- A choke of 0.5 H, a capacitance of 20 μF and a resistance of 100 ohm are connected in series across 200volt 50Hz main. Find

   (a) current in the circuit.
   (b) Power factor of the circuit.
- 27. Find the capacitive reactance of a15µF capacitor at 2 kHz. Calculate the inductance required to produce series resonance with
- the capacitor at this frequency.

  28. The current passing through a solenoid is 1.5A. What is the magnetizing field if it is 2 m long and carries 500 turns.
- 29.A resister of 200 ohm and a capacitor of 15 µF are connected in series to a 220 V 50Hz ac source. Calculate (a) the current in the circuit(b) the RMS voltage across the resistor and the capacitor
- 30. Two straight and narrow parallel slits I mm apart are illuminated by monochromatic light. Fringes formed on the screen held at a distance of 100 cm from the slits are 0.50 mm apart. What is the wavelength of light?
- 31. In a step up transformer the ratio of the number of turns in primary and secondary coils is 1:10.What will be the voltage across the secondary if the primary is connected to 220V mains. If the current drawn from the secondary coil is 2A, calculate the current flowing through the primary

[6x4=24 Marks]

SECTION D

Answer any TWO questions. Each question carries FIFTEEN marks

- 32. Describe with necessary theory to determine the wavelength of monochromatic light using Newton's ring experiment.
  33. An inductor, capacitor and a resistor connected in series. Derive an expression for the current passing through the circuit. What is the condition for resonance and obtain an expression for resonant frequency
  34. Define spontaneous emission and stimulated emission. Explain the principle, construction and working of Ruby laser.
  35. Explain the working of a step index fibre and explain the terms acceptance angle and numerical aperture

[15x2=30 Marks]

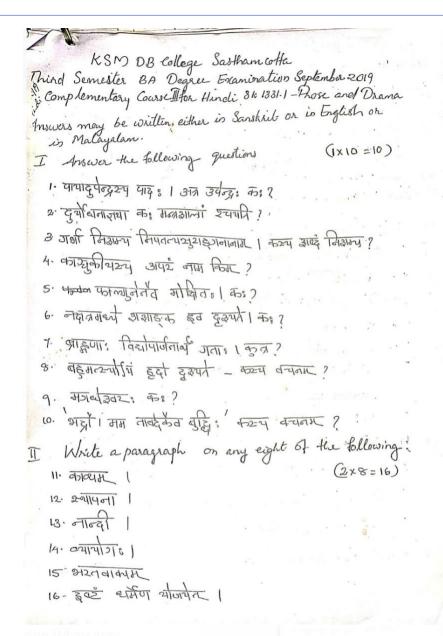


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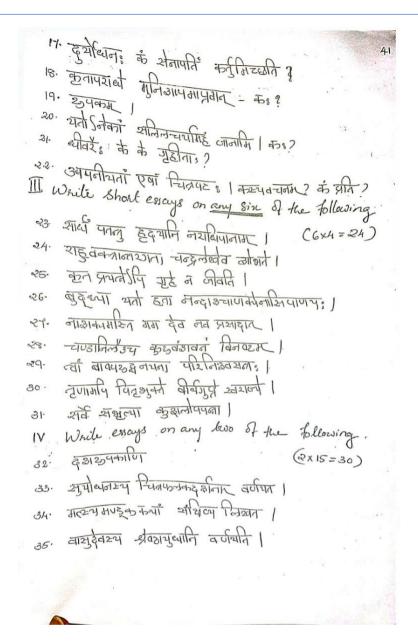
ഒദ്യവുത്തി ഭഖ്യാമുത്തു വാംപുമാം ട്രകാട്ട ളുന്നാര തെപ്പാത്യൂറ്റ് എ. എ. എ. പിരിഷ് , 2019 തെപ് അവർ . വിവെക്ക്കിരുടെ പുറത്തായാണ് : രിവ്യാരിപ് 21982-80 BOILS'N BOILD : ML 1331 m 2000 - 3200 / 2010 I ഒപ്പാതിലോ ഒട്ടുന്നാ രട്ടുവാച്ചത്തിലോ ഇത്തരമാധ്യമുള്ള 1. Gens सीम क स्था के की किंदि के कार्य ? 2. 'പ്പതിതസാഹിപ്പ് ദർശനാ' അന്തരാ മുതി? 3. 'Ecology [പ്രതസ്ഥിക്ക്] എന്നവാണ് (പ്രക്ഷേധ ന്തിൽ മ്മാന്ത്യിൻ എന്നിൽ 10. ദ്രൂരൻ ടൂറാണ്തുപോടാ പ്രത്യവാശം ചോടുപ്പോവസ് വാണ് നട്ടു. (10x1=10) II പ്രോട്ടെ പുറ്റിന്ത്രി ക് കാരോ വിണ്ഡി ഉതിൽ ഉത്തര വെധ്യമ്പ്ര . 16. വുവയിലെ പ്രത്യായ പ്രത്യായില് പ്രത്യായില് പ്രത്യായ പ്രത്യായ പ്രത്യായില് പ്രത്യായ പ്രത്യായില് പ്രത് III രൂട്ട് ചേദ്രിക്കാന് മൗച്ചാർ എഴുതുന്ന നവരിക്ക് ' സ്വിത്തി വിത് മാച്ചി വിത്തിൽ വിത്തിൽ പാത്തിൽ മഹിച്ചിത്തെ ഇന്ത്രത്തിഴുത്തു 21. അതം ഇത്ത്യത്താളൽ എന്നുത്തിത്ത്യ ഒരു സ്വാദ്ധ 22. വാത്യര് പേയുവെ ത്വാൻ ക്കി ഉച്ചത്താത്തെല്ലാം ? 23. പ്രത്യവര് പേൻ ക്കി ഉച്ചത്ത്താതാത്തെല്ലാം ? 23. പ്രത്യവര്യാൻ തോൻ താച്ചത്തിൽ വിഷ്ട്രയൻ ആണ്യായി പരിത്തിലിൽ 24. പ്രത്യാൻ തെയാൽ തയാൻ വിട്ടി ിൽരവി പ്രവ്യോദ് — സ്വിവന്റിൽ പ്രാക്കുത്താല് പഴ്ചസായിയും 25. "രെച്ചാൻ കാളുടെ സ്വാഹ്യത്ത് ഉ ഉട്ട് "രെച്ചാൻ കാളുടെ സ്വാര്യ പ്രവാര്യ പ്രത്യ പ്രത ത്രിമുന്നതെപ്പെന്നെ? (6×4=24)



Beends





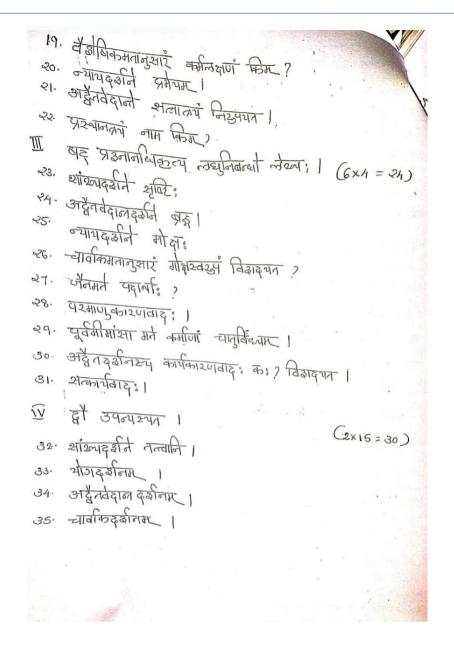




Third Semester BA Degree Examination September 2019
Sanskrit Aspecial Vedanta Core Course SV-1331 Time-3 hrs Bharathiga Darsana Paricaya Marks: 80. श्रूटाना : उत्तराणि अंक्कृतभाषया देवनाठरीका लेकनीयानि I दाक्रीनी हाअपों वा उल्लंशी कियत । (1×10=10) 1. स्था भाग सम र 2. भारतीयद्शनं कति विधम ? उ-चार्विकामते तत्वानि कति ? कार्नि ? 4. भेनद्वीन प्रचारकाः के? 5. प्रधानं नाम किस ? c. योगलयणं किस? प. अक्रुशतां जनिना इति केमं मिहालः ? ९ पूर्वमीर्माञ्चापाः प्रणेता कः ? १. अब्बः करणादिस्ख्वं चैतन्यं कीर ? 10. मिर्वाइकार्य प्रमातः कः? I एकेकापा श्वीण्डकापा अवरो उवारयत । (8x2=16) 10- श्रांक्रपद्कान जुणत्रपार ।
12- योजाइकानि कति ? कानि ?
13- वुज्याणि कात ? कानि ? 15. भोगभारते ईंडवरस्य लक्षणम् किस्, ) 16 जाविया लेपां किस ) 18. ज्याज्यादेशम् समाणानि काप्यं नगान )

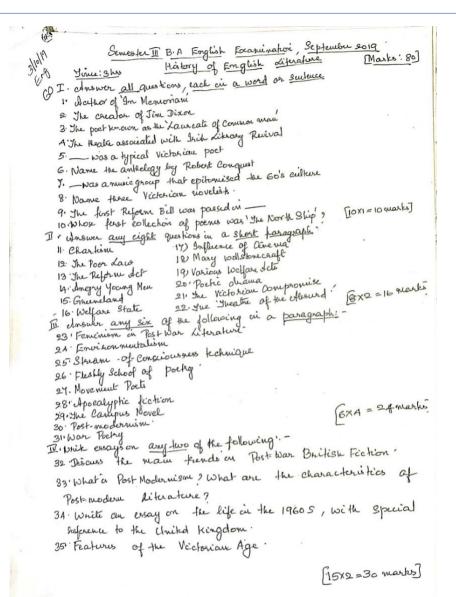


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## KSM &B College, Sashamusha

November 2020 Sr Malhematics

Abstrail Algebra - Group Theory Internal Exam

Max Maxhs: 40

Time: 1.30 has

Section I (5 x1 = 5)

1. kthy like vet of odd åntegers under addelien ås net a group

2. Find all generalists of Up

3 Define automorphism of a group G

4. Find the oxen of (12+)(3567)

5. Define center of a group.

Seclien II (4×2=8)

6. Stali and prove Souts-Shoes property

7. Let G be a group and a f G. Drove shall  $\langle \bar{a}' \rangle = \langle a \rangle$ 

8. Find this oxeles of 7 in U(15)

9. Prove that in a group G, this is only one identity element.

10. List the elements of the outgroups (3) and (7) in U(20)

II. Find the inverse of  $\begin{pmatrix} 2 & 6 \\ 3 & 5 \end{pmatrix}$  in  $G(L(2, \chi_{II}))$ .

Scalin 1. II (3×4=12) 12. Whate the Cayley table for D4.

13. Let G be Abdian and H, K & G. Then powers that HK = {hk/heH, keki is a subgroup of G1.

14. Prove that U(10) \$ U(12)

15. Draw the Lattice diagram for 1/30

16. How many elements of order 5 and show in Af Sulin  $\overline{IV}$   $(1 \times 15 = 15)$ 

17 Stali and Dxore Cayley's theorem

and prove Fundamental thiseem of cyclic groups Sl'ali



#### KSMDB COLLEGE, SASTHAMCOTTA

# Internal Examination November 2021 MM 1231.1 CALCULUS WITH APPLICATIONS IN PHYSICS - II Time: 1.00 hrs Max. marks: 40

#### Section -I (5x1=5 Marks)

- 1. Find  $\int_0^1 \int_0^1 \int_0^1 dx \, dy \, dz$
- 2. Evaluate  $\int_0^1 \int_x^2 x dx dy$ .
- 3. Show that  $\overline{F} = yzi + zxj + xyk$  is solenoidal.
- 4. Define gradient of a scalar field Ø.
- 5. Find  $\overline{r}'(t)$  where  $\overline{r(t)} = (4+5t)i + (t-t^2)j$

## Section -II (4x2=8 Marks)

- 6. Evaluate  $\int_0^a \int_0^x \sqrt{x^2 + y^2} \, dy \, dx$ .
- 7. Evaluate the double integral  $\iint_R x^2 y \, dx \, dy$ , where R is the triangular area bounded by the lines x=0, y=0 and x+y=1.
- 8. Show that curlgrad  $\emptyset = 0$
- 9. Find the Laplacian of the scalar field  $\emptyset = xy^2z^3$
- 10. If  $\overline{f(t)} = (t t^2)i + 2t^3j 3k$  find (i)  $\int \overline{f(t)} dt$  (ii)  $\int_1^2 \overline{f(t)} dt$

## Section -III (3x4=12 Marks)

- 11. Find the area bounded between the curve  $y = x^2$  above the x- axis and below the line y = 2.
- 12. Find the volume enclosed by the co-ordinate planes and the portion of the plane x + y + z = 1 in first octant by using double integral.
- 13. Use a triple integral to find the volume of the solid within the cylinder  $x^2 + y^2 = 9$  and between the planes z = 1 and x + z = 5.
- 14. The position vector of a particle is  $\overline{r(t)} = 2t^2 i + (3t 2)j + (3t^2 1)k$ . Find unit tangent vector and acceleration  $\overline{a}$  at t = 1.
- 15. Find curl and divergence if  $\overline{F} = x^2y^2 i + y^2z^2 j + x^2z^2 k$  at (1, 1, 1)

## Section -IV (1x15=15 Marks)

- 16. Evaluate  $\int_{-\infty}^{\infty} e^{-x^2} dx$
- 17. If  $r = |\vec{r}| = \sqrt{x^2 + y^2 + z^2}$  prove that  $\nabla^2 \left(\frac{1}{r}\right) = 0$ .
- 18. Derive the Frenet- Serret formulae for space curves



#### DEPARTMENT OF MATHEMATICS KUMBALATHU SANKUPPILLAI MEMORIAL DEVASWOM BOARD COLLEGE, SASTHAMCOTTA

Fourth Semester B.Sc.Degree Internal Examinations - June 2017 First Degree Programme under CBCSS

#### COMPLEMENTARY COURSE FOR STATISTICS MM | 431.4 : Mathematics-IV : LINEAR ALGEBRA

Time: 3 Hours

Maximum Marks: 80

#### SECTION I

All the first 10 questions are compulsory. They carry 1 mark each

- 1. Define Vectorspace with an example.
- 2. Define Linear transformation with an example.
- 3. Write down the standard matrix corresponding to the transformation of reflection in the line  $x_2 = -x_1$ .
- 4. If a vectorspace V has a basis of n vectors then every basis of V must consists of exactly ...... vectors.
- 5. Write the matrix associated with the quadratic form  $Q(x) = 5x_1^2 + 3x_2^2 + 2x_3^2 x_1x_2 + 8x_2x_3$ .
- 6. What are the types of quadratic forms.
- 7. Write Cauchy- Schwartz inequality in  $\mathbb{R}^n$ .
- 8. State Diagonalization theorem.
- 9. Let A be a  $4 \times 3$  matrix. What must m and n be in order to define  $T: \mathbb{R}^m \to \mathbb{R}^n$  by T(x) = Ax
- 10. Define Rank of a martrix and find the rank of the matrix :  $\begin{bmatrix} 1 & 3 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

#### SECTION II

Answer any 8 questions from among the questions 11 to 22 these questions carry 2 marks each

11. If 
$$A = \begin{bmatrix} cos\alpha & -sin\alpha \\ sin\alpha & cos\alpha \end{bmatrix}$$
 , Find  $A^n$ .

12. Let 
$$T: R^2 \to R^2$$
 by  $T(x) = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} -x_2 \\ x_1 \end{bmatrix}$ . Find images under  $T$  of  $u = \begin{bmatrix} 4 \\ 1 \end{bmatrix}$ ,  $v = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$  and  $u + v = \begin{bmatrix} 6 \\ 4 \end{bmatrix}$ .



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13 Lind the matrix associated with the Linear transformation

(a) 
$$\Gamma(x_1, x_2) = (2x_2 - 3x_1, x_1 - 4x_2, 0, x_2)$$

(b) 
$$T(x_1, x_2, x_3) = (x_1 - 5x_2 + 4x_3, x_2 - 6x_3)$$

- 14. For x in  $R^3$ , let  $Q(x) = 5x_1^2 + 3x_2^2 + 2x_3^2 x_1x_2 + 8x_2x_3$ . Write this quadratic form as  $X^T A X$ .
- 15. State Existence and Uniqueness theorem on system of linear equations.
- 16. Is 5 an eigenvalue of  $A = \begin{bmatrix} 6 & -3 & 1 \\ 3 & 0 & 5 \\ 2 & 2 & 6 \end{bmatrix}$ , explain.
- 17. Find the characteristic equation of the matrix  $A = \begin{bmatrix} 5 & -2 & 6 & -1 \\ 0 & 3 & -8 & 0 \\ 0 & 0 & 5 & 4 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
- 18. Compute  $u \cdot v$  and  $v \cdot u$  when  $u = \begin{bmatrix} 2 \\ -5 \\ -1 \end{bmatrix}$  and  $v = \begin{bmatrix} 3 \\ 2 \\ -3. \end{bmatrix}$
- 19. Compute the distance between the vectors u = [7, 1] and v = [3, 2].
- 20. What is the condition for orthogonality between two vectors u and v. Check the orthogonality between the two vectors  $u = \begin{bmatrix} 8 \\ -5 \end{bmatrix}$  and  $v = \begin{bmatrix} -2 \\ -3 \end{bmatrix}$ .
- 21. If  $A = \begin{bmatrix} 2 & 1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$  show that  $A^3 6A^2 + 11A 6I = 0$ .
- 22. Find the index of the nilpotent matrix  $\begin{bmatrix} 0 & 0 & 0 \\ 2 & 0 & 0 \\ 0 & -2 & 0 \end{bmatrix}$

#### SECTION III

Answer any 6 questions from among the questions 23 to 31 these questions carry 4 marks each

23. Let  $H = \{(a-3b, b-a, a, b); a \text{ and } b \text{ in } R\}$ . Show that H is a subspace of  $R^4$ .



- : 24. Diagonalise the matrix  $\begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$
- 25. Solve the system of linear equations  $x_1 2x_2 + x_3 = 0$ ;  $2x_2 8x_3 = 8$ ;  $-4x_1 + 5x_2 + 9x_3 = -9$
- $26. \ \ \text{Show that} \ \{v_1,v_2,v_3\} \ \text{is an orthonormal basis of} \ R^3, \ \text{where} \ v_1=[3,1,1], \ v_2=[-1,2,1] \ \text{and} \ v_3=[-1,-4,7].$
- 27. Check whether  $\{(-1,1,2),(2,-3,1),(10,-14,0)\}$  is a basis for  $R^3$  over R or not.
- 28. Determine the eigen vectors of  $A = \begin{bmatrix} 3 & 2 & 0 \\ 2 & 2 & 2 \\ 0 & 2 & 1 \end{bmatrix}$
- 29. Define linear independency of set of p vectors  $v_1, v_2, \ldots, v_p$ . Let  $v_1 = (1, 2, 3), \ v_2 = (4, 5, 6), \ v_3 = (2, 1, 0)$ . determine if the set  $\{v_1, v_2, v_3\}$  is linearly independent or not.
- 30. Find the dimension of the subspace  $H = \{(a-3b+6c,5a+4d,b-2c-d,5d);\ a,b,c,d \ \text{in} \ R\}$
- 31. Let y=(7.6) and u=(4.2). Find the orthogonal projection of y onto u. Then write y as the sum of two orthogonal vectors, one in span $\{u\}$  and one orthogonal to u.

#### SECTION IV

Answer any 2 questions from among the questions 32 to 35 these questions carry 15 marks each

- 32. Prove that  $\begin{bmatrix} -9 & 4 & 4 \\ -8 & 3 & 4 \\ -16 & 8 & 7 \end{bmatrix}$  is diagonalisable and find the diagonal form.
- 33. State principal Axes theorem. Make a change of variable that transforms the quadratic form  $Q(x)=x_1^2-8x_1x_2-5x_2^2$  into a quadratic form with no cross product term.
- 34. a) Let  $T: R^m \to R^n$  be a linear transformation and let  $\{v_1, v_2, v_3\}$  be a linearly independent set in  $R^n$ . Show that the set  $\{T(v_1), T(v_2), T(v_3)\}$  is also linearly independent
  - b) Find four basis for  $\mathbb{R}^3$  over  $\mathbb{R}$ , no two of which have a vector in common.
- 35. Let  $A = \begin{bmatrix} 1 & -3 \\ 3 & 5 \\ -1 & 7 \end{bmatrix}$ ,  $u = \begin{bmatrix} 2 \\ -1 \end{bmatrix}$ ,  $b = \begin{bmatrix} 3 \\ 2 \\ -5 \end{bmatrix}$ ,  $c = \begin{bmatrix} 3 \\ 2 \\ 5 \end{bmatrix}$  and define a transformation  $T: \mathbb{R}^2 \to \mathbb{R}^3$  by T(X) = AX. (a) Find  $T(\mathbf{u})$ .
  - (b) Find an  $\mathbf{x}$  in  $\mathbb{R}^2$ , whose image under T is  $\mathbf{b}$ .
  - (c) Is there more than one x whose image under T is b.
  - (d) Determine if e is in the range of the transformation T.

Sample Answer sheets of the linternal exam conducted by CLMC and DLMC

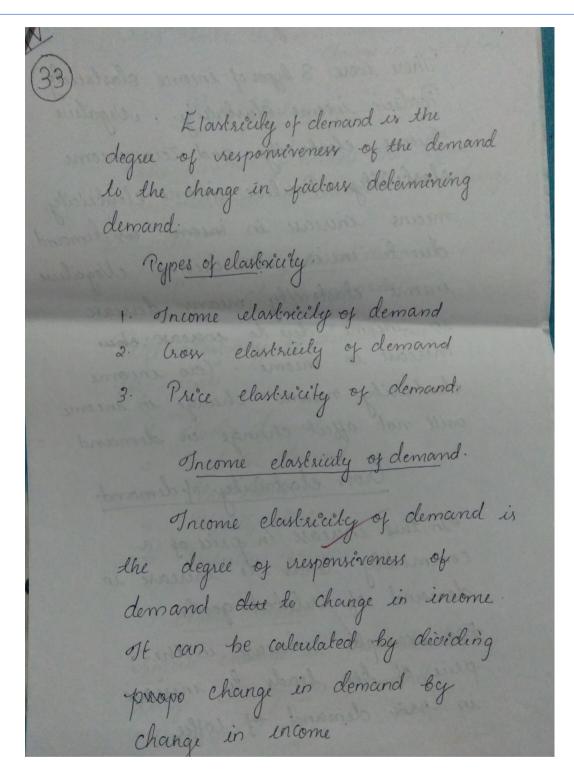
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K S.M.D.B COLLEGE

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SASTHAMCOTTAhange in price of tea. Price elastricity. Price clastricity means the degree of responsiveness of demand de a change in price : Change in prédemand : change in prêce. Price elastricity of demand one of 1. elastic demand 2. in elastic demand. 3. Unit elastic 4. Perfectly clastic. 5. Perfectly inelastic. elastic demand Small change in price leads to longe change in clemand. Here ep>1



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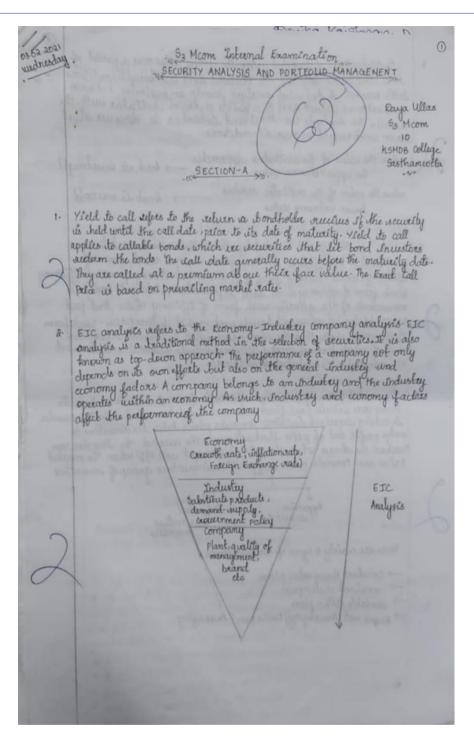




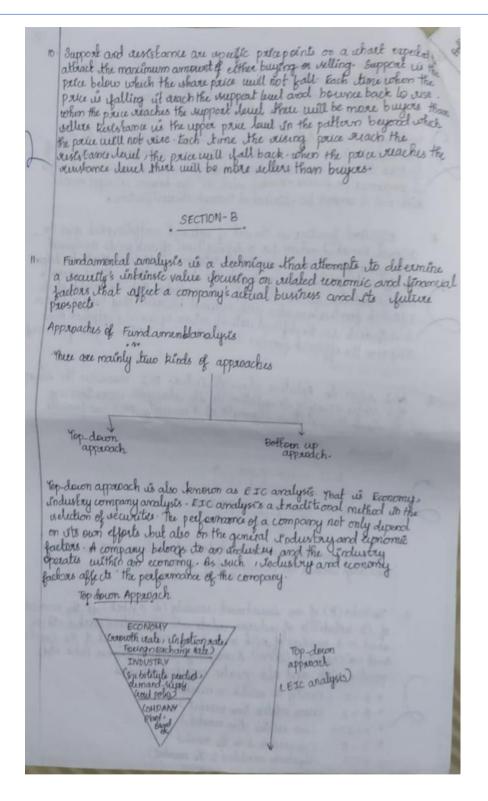
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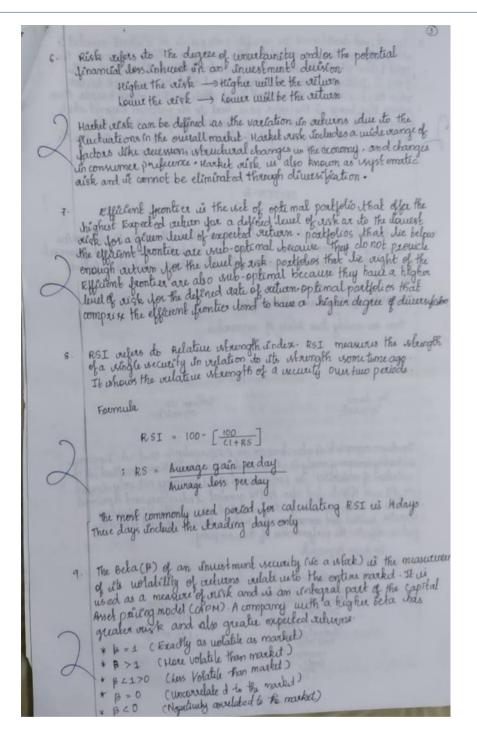




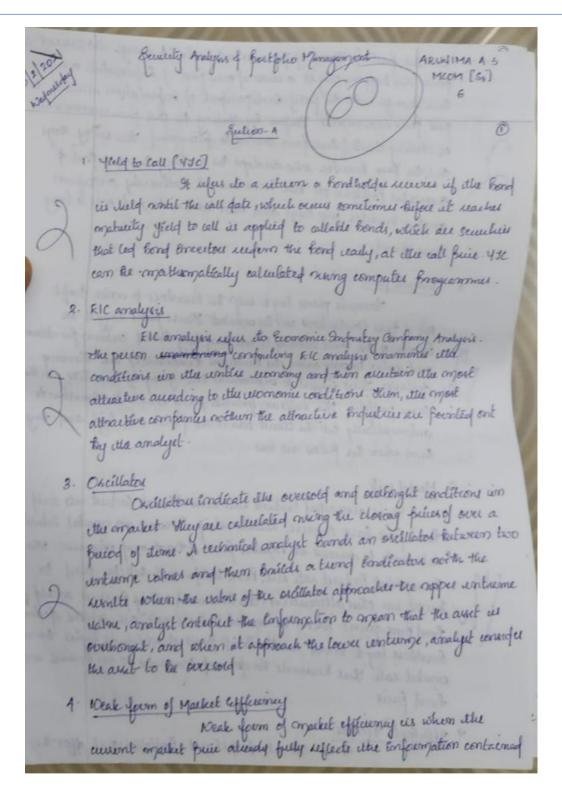




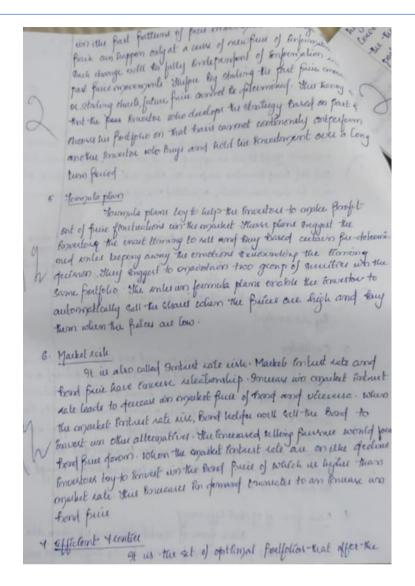














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## **SAMPLE ASSIGNMENTS**

Z'OOL'OGG' Ssignment

Bubmitting To,

Da. Mini Chandran Miss

Dapti of Zoology

KSMDB College.

Submitted By,

BincyRaj.V.K

3 Botany: 26

KGMDB College,

Sacthamcotta



Outline Classification
of Food Components





Food is essential to sustain growth and to maintain the health of all individuals at an optimum level. Deficiency of any one constituent may lead to abnormal developments in the body. A definite amount of each conditudent is required by the body and this amount is provided in the diet to maintain health. The important Components of food asse. Carbohydrades, fats, proteins, vitamins, minerals, water and fibre. These constituents fullfill ealouic requirements, trovide builing material of the lissue and control metabolic activity of the body and sales balance. Every Constituent is important in its own say:

7 Outline Classification of Loodsluffs

Basically, foods can be divided into those major groups - energy providing foods, growth premoting foods and protective foods. The energy providing foods furnish the necessary calonies for body



funtions. All the three major clauses of food-contains drades, lepids and protesions provide energy Granth promoting foods are pools sich in Proteins Contain winerals such as calcium and phosphorous also lave as quoth promoting factors and are required on ha relatively large arounds. Productive foods are also called es Regulators. These are foods, which furnish Minerals and vitamins. These provides immunity, help to protect from diseases, and regulate several of the body process Vitamins are organic components that are critically Reportant as nutritional requirements but are requihed in small amounts only. Water and roughage also from emportant languages of the body An optimum supply of all nutrients required for nound healthy the of all artimals. The Major mobilents required for supering life while oder, carbohydrates, boids, proteins, minerals and vitamins.



Starches are the cheapest and nost abundant matural Carbohydrades whe obtain starches from cereals, stoot hibeas and shew bluess. There is the part of feed that is not broken down by the body and which is required for smooth passage of food through the colon. High-blue bods induce whole gatins, such as whole wheat and brown rice as well as shole-gatin break, creats and brown rice as well as shole-gatin break, creats also bulk to your shoets and soluble fibre that help loves choledral in our body.

Lipids:

Super choledral in our body.

Lipids:

Super lipids (Isiacylogycesols), compand to pids (Phosphelipids, glycolipids, etc...) and derived lipids (such as should, lat soluble vitamins, alsoholipeds...) the main dislary.

Bounces of lipid for our body are wilk and wilk-pro-

ducts, fish, meat, land, cooking oils, oilseeds, nuts, et



## PROJECT AND INTERNSHIP

Students actively undergo internship and conduct projects and field works for gaining practical experience from the industry.

## LIST OF PROJECTS AND INTERNSHIP

## **ALUMINIUM INDUSTRIES LIMITED**

ALIND

DCE/0334

08th Mar. 2021

The Head Of Department,
Department of Commerce,
Kumbalathu Sankupillai Memorial Devaswom Board College,
Sasthamcotta, Kollam-690 521

Sir.

Sub: Permission for Internship - reg

Ref: Your Letter dt: 08/03/2021

This has reference to your letter dated: 08/03/2021 regarding permission for the following, M.Com students during academic year 2019 - 21 to undertake an internship in our company. You are hereby informed that permission is hereby granted for the same from 09<sup>th</sup> Mar. 2021 to 22<sup>nd</sup> Mar. 2021.

SI. No.	Name
1	PARVATHY. P
2.	ARYA. J
3.	NISHA T SAJI
4.	DHANYA. U
5.	DEVIKA KRISHNAN. D
6.	NIMISHA. B

Kindly inform the students accordingly.

FOR ALUMINUM INDUSTRIES LIMITED,

Divisional Chief Executive

A

Registered Office: No. 1, Ceramic Factory Road, Kundara, Kollam, Kerala - 691 501. Ph: 0474-2580828, 2520820, E-mail: kundaraalind@gmail.com
Corporate Office: 147, Jolly Maker Chamber II. 225, Narman Point, Mumbal - 400021, Tel: 31-22-2202 6263, Fax: 91-22-2202 9293
CIN: U27203KL194

PRINCIPAL

K.S.M.D.B COLLEGE SASTHAMCOTFE



### DISTRICT TOURISM PROMOTION COUNCIL

Near KSRTC Bus Stand, Kollam, Kerala - 691 001, India Phone : 0474-2750170, 2745625, Fax : ++91 - 474 - 2750170 E-mail : contact@dtpckollam.com Website : www.dtpckollam.com

DTPC - K/47/B/2021

20/03/2021

### CERTIFICATE

This is to certify that **Kumary Daya Ullas** M.COM student of Kumabalathu Sankupillai Memorial Devaswom Board College, Sastahmcotta, Kollam, Kerala -690521 has successfully completed her internship from 8<sup>th</sup> March 2021 to 19<sup>th</sup> March 2021 under District Tourism Promotion Council, Kollam. During this internship period she got experience at Various Units of District Tourism Promotion Council, Kollam.

She is efficient in carrying out the works entrusted and the character and conduct during the period found good.



Executive Administration







HLL/HMA/STUD-PROJ/MAR-2021/

26/03/2021

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Arunima A.S, M.Com student of Kumbalathu Sankupillai Memorial Devaswom Board College, Sasthamcotta, Kollam - 690521 has successfully completed the internship in the area of HR & Finance under the guidance of Shri.Rajeev Nair, Manager (HR), at Corporate Head Office, HLL Lifecare Ltd, Poojapura, Thiruvananthapuram facilitated by HLL Management Academy. The period of internship was from 12/03/2021 to 26/03/2021. A copy of the report has been submitted

We wish Ms. Arunima A.S all success in her future endeavors.

NAGEMENTACA/ HMA TC.4/1507, Keston Road, Kowdia Ph: 0471 2724330 / 2312101 uvananthapuram-69

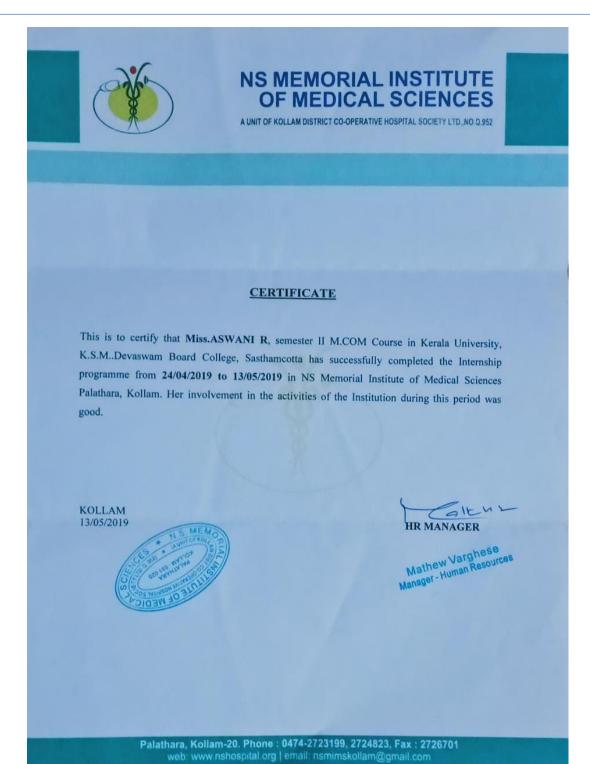
Ashish Nair

Senior Manager (HMA)

K.S.M.D.B COLLEGE

SASTHAMCOTTA

HMA, TC 4/1607, Keston Road, Kowdiar P.O., Thirty aparths Ph: 0471 - 2724330 / 2312101, email: hma@lifecare.com,











HLL/HMA/STUD-PROJ/MAR-2021/

26/03/2021

## TO WHOMSOEVER IT MAY CONCERN

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We wish Ms. Arunima A.S all success in her future endeavors.

NAGEMENTACA

Ph: 0471 2724330 / 2312101

Ashish Nair

ananthapuram - 69 Senior Manager (HMA)

HMA, TC 4/1607, Keston Road, Kowdiar P.O., Thiruvananthapuram, Kerala - 695003 INDIA Ph. 0471 - 2724330 / 2312101, email : hma@lifecare.com, Website : www.hlacademy.in Ph. 0471 - 2724330 / 2312101, email : hma@lifecare.com



K.S.M.D.B COLLEGE SASTHAMCOTTA