

St. Joseph's Degree & PG College

(Autonomous)

Affiliated to Osmania University

Re-Accredited by NAAC with "B++" Grade

King Koti Main Road, Hyderabad – 500029

End Semester Examinations July 2021 (April 2021 Cycle)

BSC (MPCS, MECS, MSCS) -II Year

Semester IV

Subject: Vector Calculus (SEC)

Subject ID : VCL4S06A21

Max.Marks:30

Date :03-08-2021

Time: 2hrs 30minutes

Section- A

Answer any **Four** questions

4X4M = 16M

1. Suppose F and G are differentiable scalar functions of x, y and z . Prove that $\nabla(FG) = F\nabla G + G\nabla F$
2. Suppose $\mathbf{v} = \boldsymbol{\omega} \times \mathbf{r}$. Prove $\boldsymbol{\omega} = \frac{1}{2} \text{curl } \mathbf{v}$ where $\boldsymbol{\omega}$ is a constant vector.
3. Prove $\nabla \cdot (\mathbf{A} + \mathbf{B}) = \nabla \cdot \mathbf{A} + \nabla \cdot \mathbf{B}$
4. Find $\nabla \psi$ where $\psi = (x^2 + y^2 + z^2)e^{-\sqrt{x^2+y^2+z^2}}$
5. Evaluate $\int_0^1 (e^t \mathbf{i} + e^{-2t} \mathbf{j} + t\mathbf{k}) dt$.
6. Suppose $\bar{\mathbf{F}} = -3x^2 \bar{\mathbf{i}} + 5xy \bar{\mathbf{j}}$ then evaluate $\int_C \bar{\mathbf{F}} d\bar{\mathbf{r}}$ where C is the curve: $y = 2x^2$ in the xy -plane from $(0,0)$ to $(1,2)$
7. Show that the area bounded by a simple closed curve C is given by $\frac{1}{2} \oint_C x dy - y dx$.
8. Apply Gauss's divergence theorem to prove that $\int_s \mathbf{r} \cdot \mathbf{N} ds = 3V$.

Section- B

Answer **all** questions

2X7M = 14M

9. a) Suppose $\mathbf{A} = \sin u \mathbf{i} + \cos u \mathbf{j} + u \mathbf{k}$, $\mathbf{B} = \cos u \mathbf{i} - \sin u \mathbf{j} - 3\mathbf{k}$, and $\mathbf{C} = 2\mathbf{i} + 3\mathbf{j} - \mathbf{k}$.

Find $\frac{d}{du}(\mathbf{A} \times (\mathbf{B} \times \mathbf{C}))$.

OR

- b) Find $\nabla \phi$ if a) $\phi = \ln |r|$, b) $\phi = \frac{1}{r}$

10. a) Evaluate $\iint_S A \cdot n \, ds$ where $A = 18zi - 12j + 3yk$ and S is that part of the plane $2x + 3y + 6z = 12$, which is located in the first octant.

OR

b) Verify Green's theorem, in the plane $\int_C (3x^2 - 8y^2)dx + (4y - 6xy)dy$ where C is the region bounded by $y = \sqrt{x}$ and $y = x^2$.

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End Semester Examinations July 2021 (April 2021 Cycle)

B.com (Gen,Comp), B.sc, BA, BBA – II Year

Semester IV

Subject: English - IV

Subject ID : ENG4UGA21

Date :15-07-2021

Max.Marks:60

Time: 2hrs 30minutes

Section I

I. Answer the following :

(6x2=12)

1. Why did the author need to call his colleague to attend to surgical case?
2. What was the conflict in the author's mind before he performed the surgery?
3. What is the central theme of the poem, 'Anger' by Charles Lamb?
4. Do you agree with the argument of Jiddu Krishnamurti that "the purpose of education is to prepare people for life". Why?
5. Elaborate on the following line by Stanley – 'Who has always looked for the best in others and given them the best he had'
6. Why did the two sisters fight with each other in the play the *Dear Departed*?

Section II

II. Answer any Two of the following:

(2x6=12)

1. What are the strategies you want to offer as a student to fight the crisis in education system during the Covid period.?
2. How do you cope with the psychological stress on failing in an exam?
3. Do you believe that "by embracing the nuances of human emotions in the workplace leads to pragmatic benefits"
4. Elaborate on the statement – ' Self-motivation drives people to keep going even in the face of set-backs'
5. When you start a new job, how do you build relationships through your interpersonal skills?

Section III

III. Answer the following :

(6x6=36)

1. How does a cover letter help the most questions asked in an interview?
2. What are some of the most important interview skills?

3. What are the disadvantages of discussion method?
4. How does note making help you in organising ideas?
5. Why are presentation skills important for students?
6. How information transfer is important in writing skills?

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B.Com (Gen)/B.Sc-II Year
Semester IV

Subject: Arabic IV

Subject ID : SLA4UGA21

Date :19-07-2021

Max.Marks:60

Time: 2hrs 30minutes

Section-A

I. Answer the following questions

3x12=36

Q.NO: 1 Write a note on "companions of Prophet Mohammed (saw) اشهر صحابييات محمد صلى الله عليه و سلم

OR

Q.No: 2 A. Translate the following.

ولد رسول الله صلى الله عليه وسلم يوم الاثنين اليوم الثانى عشر من شهر ربيع الاول فكان اسعد يوم طلعت فيه الشمس

1. فى اى يوم و فى اى شهر ولد رسول الله صلى الله عليه و سلم؟ B.

2. من افضل نساء الجنة؟

3. الى اى قبيلة تنسب حليلة السعدية؟

4. من ابناء فاطمة رضى الله عنها؟

Q.NO: 3 write a note on Monuments of Telangana اثار تلنگانه

OR

Q.No: 4 A. Translate the following

مدينة حيدرآباد انجبت كثيرا من الزعماء و الزعيمات الذين شاركوا فى حركة استقلال الهند منها خطيبة و كاتبة و شاعرة شهيرة , وشاركت بنفسها فى حركة استقلال الهند وهى "سروجنى ناايدىو" العظيمة .

B. completes the following sentences with suitable words.

(مهر منير , من يونيو سنة 2014 م , جامعة تلنگانه)

1. ان ولاية تلنگانه انفصلت فى الثانى _____

2. مديرة نظام آباد و تعرف هذه المديرة ب _____

3. كما كتبت اول مسرحيتها باسم _____

حياتى Q.NO: 5 Explain the summary of the poem

OR

Q.No: 6 A. Translate and reference to context:

1. حياتى بالقيم احلى - و غايتى بها عليا

2. سرنى منك الضياء - ببريق و صفاء

B.write the meanings of the following verses in your language.

1 ايها النجم الصغير - انت فى الدنيا منير

2. هند لنا هند لنا - تحى و تحى هندنا تحى لنا

3. بشرى لاهل الهند مهبط آدم - صارت لنا من ربنا ارض السنا

Section-B

II. Answer any TWO of the following

2x12=24

Q.NO: 7 Define “ كان و اخواتها “ with examples.

Q. No: 8 A. Write about ان و اخواتها with examples.

B. writes about vocatives حروف النداء

Q.NO: 9 translate the following passage.

ناصر ماذا حدث يا اخى ؟ جمال : اصيب اخى بحادثة صدم او تبص سيارة

ناصر : او اصيب بجروح ؟ جمال : نعم و يمكن ان تكون هناك كسور

Q.No: 10 A. Translate the following in Arabic

1. It is famous hospital.

2. Where is the prescription?

3. In a chemist shop

B. writes the meaning of the following words in your language.

صبدلية المستشفى , نقالة , طبيب , الادوية , الشراب

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B.Com (Gen)/B.Sc-II Year

Semester IV

Subject: French IV

Subject ID : SLF4UGA21

Date :19-07-2021

Max.Marks:60

Time: 2hrs 30minutes

Part – A Total marks 40 (5 questions of 8 Marks each)

I. Mettez les verbes au temps indiqué (16 au choix - ½ x16) 8 **(Le passé composé, l'imparfait)**

1. Nous ----- de prendre la vaccine. (prendre – mettez au passé composé)
2. Vous ----- le match de cricket. (regarder- mettez à l'imparfait)
3. Le professeur ----- au tableau. (écrire – mettez au passé composé)
4. Nous ----- dans le jardin. (jouer – mettez à l'imparfait)
5. Ils ----- les classes. (finir – mettez au passé composé)
6. Mme. Martin ----- la porte. (ouvert – mettez au passé composé)
7. Tu ----- à 5h du matin. (se lever- mettez à l'imparfait)
8. Nous ----- à toutes les questions. (répondre – mettez au passé composé)
9. Ces étudiants ----- à la cantine. (manger – mettez à l'imparfait)
10. Ils ----- pour Mumbai. (partir – mettez au passé composé)
11. Nous ----- en retard à l'aéroport. (être – mettez à l'imparfait)
12. Elle ---- peur des examens. (avoir – mettez à l'imparfait)
13. Le bébé ----- à parler. (commencer – mettez au passé composé)
14. Mes parents ----- des films d'Amitabh. (voir – mettez à l'imparfait)
15. Notre directeur ----- d'arriver à l'heure. (dire – mettez au passé composé)
16. Ils ----- des romans français. (lire- mettez à l'imparfait)
17. Les Rao ----- juste à 20h. (dîner –mettez à l'imparfait)
18. Mme. Paul me ----- tous les soirs. (téléphoner – mettez au passé composé)
19. Ces touristes ----- de Londres. (venir – mettez à l'imparfait)
20. Il ----- devant le collège. (s'arrêter - mettez à l'imparfait)

II. Mettez les phrases au discours direct ou indirect (8 au choix - 1x 8) 8

1. Le professeur à l'étudiant : « Il faut faire attention aux cours. »
2. Le père lui dit de travailler vite.
3. Lucie dit qu'elle ne peut pas venir aujourd'hui.
4. Jean dit, « Je suis très content ! »

5. Tu dis que tu n'aimes pas nager.
6. Il me dit, « Je reviens demain. »
7. Ils disent : « nous achetons une voiture.
8. Mes enfants disent : nous n'avons pas d'examens. »

III. Remplacez les mots soulignés avec un pronom direct ou indirect (8 au choix -1x 8) 8

1. Nous achetons cet appartement.
2. Vous téléphonez aux parents des élèves.
3. Ils partent avec des amis pour la fête.
4. Nous donnons des cadeaux à nos petits- enfants.
5. Il apporte un bracelet pour sa femme.
6. Les parents sont contre l'ouverture des écoles de 1^{er} Juillet.
7. On envoie les jouets au bébé de Mme. Radha.
8. Regardez cette jolie fille !

IV. Complétez avec un pronom relatif dans les phrases (8 au choix - 1x 8) 8

1. Ce sont les médicaments ----- il a apportés.
2. Prenez ces fruits ----- semblent très frais.
3. Voici la jeune fille ----- la fiancée d'Abhay.
4. Voyez mon portable ----- mon père m'a achetée pour mon anniversaire.
5. Ne prenez pas cette chemise ----- paraît très vieille.
6. N'entre pas dans cette boutique ----- n'a pas de bonne collection.
7. Je ne peux pas ces exercices ----- sont très difficiles.
8. C'est Marie ----- je rencontre chez ma tante.

V. Rédigez un paragraphe ou un dialogue sur un de ces sujets (10 phrases) 8

1. Mon ami(e)
2. Les sports
3. Les vacances

Part B - Total Marks 20 (4 Questions of 5 marks each)

VI. Lisez le texte/ dialogue et répondez aux questions qui le suivent (3+2=5)

Prendre le train (à la gare)

Elle : Le train de Brest est à 9 heures 12.

Lui : Ah ! Oui.

Elle : Il est déjà 9 heures 5.

Lui : Je vais prendre les billets.
(au guichet)

Lui : Les secondes pour Brest, s'il vous plaît.

L'employé : Voilà, Monsieur.

Lui : Est-ce qu'il faut changer ?

L'employé : Non, le train est direct.

Lui : Allons bon ! Je ne trouve pas mon portefeuille. Ah ! Le voilà.

L'employé : Vous avez le temps, monsieur. Il y a un autre train à 9 heures 22.

a. Répondez aux questions : **3**

1. Où sont –ils ?
2. Qui va prendre les billets ?
3. Est-ce ce train est direct ?

b. Donnez le contraire ($\frac{1}{2} \times 4$) **2**

1. déjà 2. Prendre 3. Direct 4. Trouver

VII. Traduisez en anglais **5**

1. Vous habitez en ville.
2. Nous avons un chien.
3. Vous vous levez à 5 h du matin.
4. Cette odeur est insupportable.
5. Merci, de ne plus faire sécher vos vêtements à l'extérieur.
6. Alors, j'ai un départ à 8 h 12.
7. Je crois que je suis perdu.

VIII. Traduisez en français **5**

1. She has a small family.
2. Her name is Julie Correncon.
3. We cannot find the keys.
4. You enjoy yourself.
5. Is he in the office?
6. He is a good swimmer.
7. She is a journalist in 'Actuel'.

IX. Faites / rédigez un micro-dialogue avec (5 au choix -5x1) **5**

1. ? Non, je ne vois pas les films.
2. Prends – tu du poulet ? - Oui,
3. Voyez-vous mes nouveaux habits ? - Oui,
4. ? – Non, elle est directrice de l'école.
5. ? - Ça fait 100/- Rs.
6. Est - il pianiste ? – Non,
7. ? – Oui, il est médecin. *****

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B.Com (Gen)/B.Sc-II Year

Semester IV

Subject: Hindi IV

Subject ID : **SLH4UGA21**

Date :19-07-2021

Max.Marks:60

Time: 2hrs 30minutes

Section-A

3x12=36

1Q)रहीम के पदों का सार लिखिए?

12x 1=12

या

2Q) A)कैसेछोटे नरनुतैं सरत बड़नु के काम।

6x2=12

मढ्यौ दमामौ जातु क्यों कहि चूहे कै चाम॥

B)मीराकेप्रभु सदा सहाई,राखे विघन घटाय।

भजन भाव में मस्त डोलती, गिरधर पे बलि जाय॥

3Q)"वे सुस्कराते फूल नहीं " कविता का सारांश लिखिए?

12x 1 =12

या

4A)दो में से क्या तुम्हे चाहिए, कलम या तलवार ?

6x 2 =12

मन में ऊंचे भाव कि तन में शक्ति अजय अपार।

B) जीवित हैतू आज मरा सा,

पर मेरी यह अभिलाषा

चिता निकटभीपहुंच सकूं अपने पैरों पैरों चलकर '

तू क्यों बैठ गया पथ पर ?

5Q)रीतिकाल को श्रृंगार काल भी क्यों कहा गया है?

12x 1=12

रीतिकाल की परिस्थितियों के बारे में लिखिए?

या

6Q)टिप्पणी लिखिए।

6x 2=12

A .मीराभाई

B . रहीम

Section-B

II. सूचना अनुसार उत्तर लिखिए।

2x12=24

Q7)'आधुनिक काल'की परिस्थितियों के बारे में लिखिए?

12x 1=12

य

Q8)A. महादेवी वर्मा

B. रामधरी सिंह दिनकर

Q9)'भारत में बेरोजगारी की समस्या ' विषय पर निबंध लिखिए?

12x 1=12

या

Q10)'आधुनिक शिक्षा और नारी' विषय पर निबंध लिखिए?

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Semester IV

Subject: Sanskrit IV

Subject ID : SLS4UGA21

Date :19-07-2021

Max.Marks:60

Time: 2hrs 30minutes

Section –A

Answer the following:

3*12 = 36 Marks

1. चित्रपटदर्शनम्इतिपाठ्यांशस्यवैशिष्ट्यंविषदयत |(12M)

Or

2. A) ससंदर्भव्याख्यात। (6M)

- ऋषीणांपुनराद्यानांवाचमर्थोऽनुधावति

- तीर्थोदकंचवह्निश्चनान्यतःशुद्धिमर्हतः ॥

B) आङ्ग्लभाषायांअनुवदत। (6M)

- लौकिकानांहिसाधूनामर्थवागनुवर्तते।

ऋषीणांपुनराद्यानांवाचमर्थोऽनुधावति॥

-स्नेहंदयांचसौख्यंचयदिवाजानकीमपि |

आराधनायलोकस्यमुञ्चतोनास्तिमेव्याथा ॥

- किन्त्वनुष्ठाननित्यत्वंस्वातन्त्र्यमपकर्षति |

संकटाह्यहिताग्नीनांप्रत्यवायैर्गृहस्थथा ॥

3. विवेकानन्दविजयनाटकेअष्टमाङ्केवर्णितान्सन्निवेशान्विशदयत। (12M)

or

4. A) श्रीधरभास्करवर्णेकरमहोदयस्यपरिचयंकुरुत।(6M)

B) ससंदर्भव्याख्यात। (6M)

- सर्वथाअपूर्ववेशोअपिसत्पुरुषोऽयंदृश्यते।

- इहसर्वजनीनेउद्यानेसम्यक्अनुशासनंपालनीयम्, स्वच्छतारक्षणीया।

5. कठोपनिषदिउक्तप्रकारंयमनचिकेतसोःसम्भाषणंलिखत।(12M)

or

6. A) षट्वेदाङ्गानिलघुप्रकारेणविवृणुत। (6M)

B) उपवेदाङ्गाःउद्दिश्यलघुटिप्पणींलिखत। (6M)

Section –B

Answer any Two from the following

2*12=24 Marks

7. उपमा, अर्थान्तरन्यासः, दृष्टान्तः- अलङ्काराःक्लक्षणम्सोदाहरणंलिखत। (12M)

8. A) अधोनिर्दिष्टश्लोकानांगणविभजनंकृत्वावृत्तनामानिलिखत। (6M)

1) विद्येवपुंसोमहिमेवराज्ञः

प्रज्ञेववैद्यस्यदयेवसाधोः।

लज्जेवशूरस्यमुजेवयूनो,

सम्भूषणंतस्यनृपस्यसैव॥

2) त्वमेवमाताचपितात्वमेवः

त्वमेवबन्धुश्चसखात्वमेवः।

त्वमेवविद्याद्रविणंत्वमेवः

त्वमेवसर्वममदेव-देवः॥

3) विजेतव्यालंकाचरणतरणीयोजलनिधिः।

विपक्षःपौलस्त्यःरणभुविसहायाश्चकपयः।

B) अनुष्टुप्, वसंततिलका, भुजङ्गप्रयातम्- वृत्तानालक्षणंउदाहरणंचलिखत। (6M)

9. अस्मद्, इदम् (पुंलिङ्ग), किम् (न. पुं. लिङ्ग), तद् (स्त्रीलिङ्ग), एतद् (पुंलिङ्ग) लिखत। (12M)

10. A) अधोनिर्दिष्टप्रश्नाम्आङ्गलानुवादःकुरुत। (6M)

- 1) गायकःवीणांवादयति।
- 2) स बालकःह्यःपाठं न अपठत् ।
- 3) अहंतक्षत्राणिगणयामि।
- 4) अत्रएकःबालकःएकाबालिकाचतिष्ठतः।
- 5) एकस्मिन्हस्तेपञ्चअङ्गुल्यःसन्ति ।
- 6) श्वःपरश्वोवागमिष्यामि ।

B) अधोनिर्दिष्टप्रश्नामभावम्लिखत।

(6M)

- 1) वसन्तः 2) मधुरः 3) कदा 4) सप्तविंशतिः
- 5) ह्यः 6) तर्जनी 7) विपणिः 8) दक्षिणहस्तः
- 9) दर्शय 10) विविधाः 11) मूल्यं 12) लिखामि

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**B.Com (Gen)/B.Sc-II Year
Semester IV**

Subject: Telugu IV

Subject ID : SLT4UGA21

Date :19-07-2021

Max.Marks:60

Time: 2hrs 30minutes

Section-A

I. Answer the following questions

3x12=36

1. సుభద్ర తన అనన్ బలరామునితో ఏమని మాటలాడిందో తెలపండి.
(12మార్కులు)
(లేదా)
2. A) "నారసింహ శతకం" భక్తి వైరాగ్యాలను పరదర్శిస్తోందని సమర్థించండి. (6 మార్కులు)
B) హాగ్దాన భంగం చేసిన బలరాముడు శ్రీకృష్ణుడుతో ఏమి మాటలాడాడు? (6 మార్కులు)
3. కాళిదాస మనోహర జీవ వర్ణనం గురించి వాల్మీకిని జీవన సత్యాలను వివరించండి. (12 మార్కులు)
(లేదా)
4. A) ఆర్తగీతం లో కవి చూసిన దృశ్యాలను వివరించండి. (6 మార్కులు)
B) ఆర్తగీతం లో బాల గంగాధర తిలక్ వాలిబుచ్చిన ఆర్తానందం తెలపండి. (6 మార్కులు)
5. నామరూప తాత్పర్యం కథ ద్వారా రచయిత రి అందించిన సందేశం తెలపండి. (12 మార్కులు)
(లేదా)
6. A) వ్యక్తిత్వం అంటే ఏమిటి? (6 మార్కులు)
B) తాత్పర్యం వ్యక్తిత్వంతో సంబంధం ఏమిటి? (6 మార్కులు)

Section-B

II. Answer any TWO of the following

2x12=24

7. వాల్మీకిని వ్యక్తిత్వంతో వివరించండి. (12 మార్కులు)
8. A) తాత్పర్యం వ్యక్తిత్వంతో సంబంధం ఏమిటి? (6 మార్కులు)

B) సురక్షే గుణశీలములను గూర్చి రాయండి. (6 మార్కులు)
9. చలించిపోయే అణువుల అందరినీ సందేశాన్ని పంపే రకం కాదు.
(12 మార్కులు)

10. A) జాననానికి గుణగణాలను తెలియజేయండి. (6 మార్కులు)
B) గోవిందయ్య గురించి రాయండి. (6 మార్కులు)

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End Semester Examinations July 2021 (April 2021 Cycle)

B.SC -II Year

Semester IV

Subject: Mathematics IV (Abstract Algebra)

Subject ID : ABA4S01A21

Date :23-07-2021

Max.Marks:60

Time: 2hrs 30minutes

Section-A

Answer all Questions.

(4x12=48M)

1. If H and K are two subgroups of a group G then HK is a subgroup of G if and only if $HK=KH$.
(or)
2. Every subgroup of a cyclic group is cyclic.
3. State and prove First Isomorphism theorem.
(or)
4. Let H be a subgroup of G then H is normal iff $xHx^{-1} \subseteq H \forall x \in G$.
5. Prove that every Field is an Integral Domain.
(or)
6. An ideal $U \neq R$ of a commutative ring is a prime ideal iff $\frac{R}{U}$ is an integral domain.
(or)
7. If f is a homomorphism from a ring R into a ring R^1 then f is an into isomorphism iff $\ker f = \{0\}$.
(or)
8. State and Prove Fundamental theorem of Homomorphism.

Section-B

Answer any Two.

(2x6=12M)

9. Every cyclic group is Abelian.
10. What is the order of the factor group $\frac{Z_{60}}{\langle 15 \rangle}$.
11. Show that the characteristic of a Boolean ring is 2.
12. Show that the polynomial $x^3 + x^2 + x + 1$ is reducible over Q .

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BSC (MPCS) -II Year

Semester IV

Subject: Electronics IV (Linear Integrated Circuits and Basic Communication Electronics)

Subject ID : BLE4S04A21

Date :27-07-2021

Max.Marks:60

Time: 2hrs 30minutes

I. Answer ALL the Questions. Each Question carries 12 marks.

4x12M=48M

1. Draw the diagram of direct emitter coupled amplifier (differential amplifier) and explain along with CMRR.

(OR)

2. What is a Non-Inverting amplifier? Derive closed loop voltage gain of a non-inverting amplifier using Op-Amp.

3. Draw the block diagram of a 555 timer IC and explain each block in detail. Draw the circuit drawing of a monostable multivibrator using 555 timer IC.

(OR)

4. Explain how an Op-Amp is used to generate sine waves and derive its frequency of oscillations and condition for sustained oscillations.

5. What is AM modulator? Explain square law modulation method of generating AM wave with the help of diagram & derivation.

(OR)

6. Define modulation factor in AM. Derive the AM wave equation and analyze its side bands.

7. Derive and analyze the FM wave equation in detail.

OR

8. What is an FM detector? Explain in detail about FM ratio detector with the help of a diagram.

II. Answer any TWO Questions. Each question carries 6 marks.

2x6M = 12M

9. Explain output offset voltage and slew rate parameters of an Op-Amp.
10. Explain how an Op-Amp acts as a voltage follower.
11. What are microwaves? Write its applications.
12. Distinguish between A.M and F.M.

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BSC (MPCS) -II Year

Semester IV

Subject: Physics IV (Optics)

Subject ID : OPT4S03A21

Date :27-07-2021

Max.Marks:60

Time: 2hrs 30minutes

SECTION - A

Answer ALL the Questions. Each question carries 12 marks.

4x12M=48M

1. Explain refractive matrix and system matrix. Derive the system matrix for thick lens.
(OR)
2. What is chromatic aberration? Explain the removal of chromatic aberration of a separated doublet.
3. What is wedge shaped film? Explain the formation of interference fringes and obtain conditions of dark & bright fringes. Determine the wedge angle.
(OR)
4. Describe the arrangement to observe Newton's rings by reflected light monochromatic light and obtain an expression for the wavelength of light.
5. What is diffraction grating? Explain double slit Fraunhofer's diffraction in detail.
(OR)
6. What is a zone plate? Explain the construction and theory of zone plate in detail.
7. Describe the phenomenon of double refraction. Explain the construction and working of a Nicol prism.
(OR)
8. Define specific rotation. Explain the principle and working of Laurent's half shade polarimeter.

Section – B

Answer any two questions of the following. Each question carries 6 marks. 2x6M = 12M

9. Write short notes on Astigmatism.

10. Write the principle and applications of Michelson's Interferometer.
11. Distinguish between interference and diffraction.
12. State and explain Brewster's laws.

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BSC (MSCS) -II Year Semester IV

Subject: Statistics IV (Statistical Inferences)

Subject ID : STI4S02A21

Date :27-07-2021

Max.Marks:60

Time: 2hrs 30minutes

I. Answer the following Questions

4 X 12 = 48 M

- Brief about the Properties of MLE.
(OR)
- Define the terms : Critical Region , Level of Significance and Power of a Test.
- State and Prove Neyman-Pearson Lemma.
(OR)
- In a survey , 800 persons out of 1000 are found coffee drinkers before increase excise duty. After increase excise duty 800 persons coffee drinkers out of 1200. Test whether there is a significant different in the consumption of coffee after increase of excise duty.
- From the following data, Test whether any significant different with regard to their effect in increasing weight.

Drug-A	:	80	120	130	90	30		
Drug-B	:	100	80	120	150	60	80	110

(OR)
- Test the association between the hair colour and eye colour.

		Hair colour		
		Fair	Brown	Black
Eye Colour	Blue	150	200	50
	Gray	200	200	100
	Brown	250	200	150
- Write down the advantages and disadvantages of Non-Parametric Tests.
(OR)
- Apply Mann Whitney U-test and comment.

Scores under drug(X) :	10	13	12	15	16	8	6		
Scores under drug(Y) :	20	14	7	9	17	18	19	25	24

II. Answer any TWO of the following

2 X 6 = 12 M

9. Brief the concept of interval estimation.
10. Central Limit Theorem
11. Properties of t-Distribution
12. Explain about Nominal and Ordinal Scale.

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End Semester Examinations July 2021 (April 2021 Cycle)

**BSC (MPCS, MECS, MSCS) -II Year
Semester IV**

Subject: Computer Science IV (Java programming)

Subject ID : **JAP4S05A21**

Date :30-07-2021

Max.Marks:60

Time: 2hrs 30minutes

Section-A

I. Answer the following questions

4x12=48

1. Explain the features of Java and also Discuss the importance of Java virtual Machine.

OR

2. What are classes and object in JAVA? Explain how do you create a class and access the members of a class with an example.

3. What are packages in JAVA? Explain how to create a user defined package and access it.

OR

4. Define a Thread in JAVA? Explain the Life cycle of a Thread with an example.

5. What is Event Handling in JAVA? Discuss the Types of Event in Java with an example.

OR

6. Discuss any 6 components of AWT with syntax and an example.

7. What is a JSP Page? Explain JSP Action Elements and Implicit Objects with an example.

OR

8. Explain the steps to connect to Database and create a table using java.SQL.* package.

II. Answer any **TWO** of the following

2x6=12

9. write short notes on command line arguments with an example.

10. What are interfaces? Explain with an example.

11.write short notes on JFrame and Jpanel.

12.Discuss Scripting elements in JSP.