

Faculty of Commerce, Sciences and Business Management**B.Com/B.Sc/BBA II-Year, CBCS–IV Semester Examinations, June 2024****PAPER: ENGLISH****Time: 3 Hours****Max Marks: 70****Section-A****I. Answer any Five from the following****(5x4=20 Marks)**

1. Fill in the blanks to get words that are often used in the field of cinema and Television.

- i) bu_ge_ ii) dr_ma_ic iii) s_ree_pla_ iv) sil_er sc_een
v) an_ma_ion vi) mu_ti me_ia vii) b_eaki_g N_ws viii) s_und tra_k

2. Add stress marks appropriately for the following words.

- i) volunteer ii) gazette iii) examination iv) historical
v) education vi) committee vii) balloon viii) shampoo

3. Write down the contracted forms of the following words.

- i) cannot ii) do not iii) we are iv) she will v) he is
vi) need not vii) I have viii) are not

4. Fill in the blanks with the proper degree of the adjectives in the given brackets.

- i) Suresh is my friend. (old)
ii) Geeta is the friend I have. (good)
iii) Varun is than Tarun. (Tall)
iv) My horse runs than yours. (Fast)

5) Write short note on Mentor and Paparazzi

6) What is Reduplication? Write examples?

7) Punctuate the following

Rosemary fell was not exactly beautiful no you couldn't have called her beautiful pretty

8) Expand the proverb "There is No Time Like the present"

Section-B**II. Answer all the questions.****(5x10=50 Marks)**

9. a) i) What is the significance of the title Refund? (5M)

ii) Read the passage and answer the following questions. (5M)

The word "Telangana" is derived from the word Trilinga Desam refers to the regions of Draksharamam, Srisailam and Sri Kaleshwaram. "Trilinga" later evolved into "Teliga" of "Telunga" and further into "Telangana", "Telugu" is an apt term to represent the people of this region. The language of Telangana is influenced by Marathi speaking people of the Marathwada region (Aurangabad Division of present day Maharashtra). The language reflects the everyday lives of the people of the region and their diverse cultural and linguistic Influences. The language is simple, convenient and straight forward. The people's agitation

for a separate Telangana state moulded this language as a vehicle for promoting the uniqueness and identity of the region.

1. Trace the Etymological roots of the word "Telangana ".
2. What does Trilinga Desam stand for?
3. Name the language that has influenced the language of Telangana.
4. How did language figure in the agitation for a separate Telangana state?
5. What is meant by Apt?

(OR)

b) i) Annotate the following: (5M)

He will make a capital work man, one of these days ,she would probably say."

No fear Isaac will do well in the world, and be a rich man before he dies".

ii) Rewrite the following sentences in indirect speech. (5M)

1. The teacher said, "I am reading a novel now."
2. "Do come in, John," Gautam said.
3. "May you be happy," I said to him.
4. We said, "Long live the king!"
5. He said to us, 'you can borrow my pen.'

10. a) i) What is Newton's contribution to the world of science? (5M)

ii) Read the passage and answer the following questions (5M)

Yendala Soundarya became the first woman from Telangana to be selected to the Indian hockey team and was part of the team for the Rio Olympics in 2016. 'I was pleasantly surprised when my name was announced she said after her selection. Soundarya attributes her success to her hard work and perseverance, and the help of her coaches. 'I am inducted to Maqbool sir, who gave coaching during my school days she said.

1. Who does Yendala Soundarya attributes her success to?
2. Write Antonym for Success?
3. Who is 'I' in the passage?
4. What part of speech is the word Pleasantly?
5. Write Synonym for announce?

(OR)

b) i) Annotate the following (5M)

He is a forty -year -old man. He goes back to school in which he had studied and demands for refund.

ii) Fill in the blanks with suitable answer choosing from the brackets. (5M)

1. He gave me a piece of (advice/advise)
2. Do not (throw/through) stones at the tree.
3. Let us the auditorium (proceed /precede)

4. Do not apply the (Brake/break) unnecessarily.

5. He was busyover the cost.(Pouring /poring)

11. a) i) Comment on the ending of the story. Bring in ideas of morality and war, motherhood, heroism, etc. (5M)

ii) Read the passage and answer the following questions (5M)

Telangana is well on its way to becoming an IT hub and will soon replace Bangalore as the IT capital of India. This will surely pave the way to a global presence. Telangana is on the path of and is effectively using technology to transform its economy. corporate jeans such as Amazon, Facebook Microsoft, Qualcomm, Google, and Apple have chosen the state as the second home. Huge investments have already been made by Apple, Amazon, Google and Uber who will set up their second largest centres in the state. The Minister for IT, K.T.Rama Rao Sums it up : Hyderabad is the biggest bang for the buck for all those investing here. Some of the remarkable announcement that have already been made include: IKEA, the world's largest furniture retailer, announced that it will be setting up its first store in India in Hyderabad, which is likely to open in early 2017.

1. What will soon replace Bangalore as India's IT capital?

2. Who is the IT minister of Telangana according to the passage?

3. Name the world's largest furniture retailer?

4. Name some of the companies which are planning to invest in Telangana?

5. What does the passage speak about?

(OR)

11) b) i) Annotate the following: (5M)

"I am his mother: I love him and deem it to be my fault that he is what he is."

ii) Write an Essay on Social Media: a curse or boon? (5M)

12. a) i) What is Team Work? Why it is important? (5M)

ii) What is personal diary, Explain with example. (5M)

(OR)

b) i) Write a brief article of around 500 words about the life and works of Dr. A. P. J. Abdul Kalam? (5M)

ii) Expand the proverb Actions speaks louder than words. (5M)

13) a) i) Write about your favourite hobby? (5M)

ii)What is Expository Essay? (5M)

(OR)

13) b) i) Write conversation on the following situation. (5M)

A group of friends share the experience of visiting various places during their vacation

ii) Write synonyms for the following words (5M)

1)Refund 2) Traitor 3) Corpse 4) weary 5) capital

Faculty of Commerce, Sciences and Business Management
B.Com/B.Sc/BBA II-Year, CBCS-IV Semester Regular Examinations June- 2024
PAPER: UNIVERSAL HUMAN VALUES (SEC)

Time:2 Hours

Max Marks:40

Section-A

I. Answer any two of the following questions

(2x4=8 Marks)

1. Define 'Empathy'.
2. What is 'Non-Violence'?
3. What is 'Justice'?
4. What is 'Equality'?

Section-B

II. Answer the following questions

(2x16=32 Marks)

5. (a) Define Universal Truth, Truth as Value, and Truth as fact.

(OR)

- (b) How is Peace related to Harmony and Balance? Explain.

6. (a) Define service and list its different forms.

(OR)

- (b) Discuss a historical figure known for their practice of Righteousness and their Influence.

Faculty of Science

B.Sc (Computer Science) II-Year, CBCS-IV Semester Regular Examinations June-2024

SEC PAPER: PYTHON-II

Time: 2 Hours

Max Marks:40

Section-A

I. Answer any *two* of the following questions

(2x5=10Marks)

1. What is Inheritance?
2. What is Tuple and Dictionary? Give an example?
3. What is Polymorphism?
4. What are different GUI widgets used in Python?

Section-B

II. Answer the following questions

(2x15=30Marks)

5. (a) What is List? Explain about operations performed on List with example.

(OR)

- (b) Define String and explain about different String Operations in Python with examples.

6. (a) Define Object and Class in Python. Explain with example.

(OR)

- (b) Discuss about GUI Programming in Python? Explain how to create GUI application using Tkinter with one example?

Faculty of Commerce, Sciences, Business Management
B.Com/B.Sc/BBA I-Year, CBCS-II Semester Examinations June- 2024
Subject: SECOND LANGUAGE HINDI

Time: 3 hours

Max Marks: 70

खण्ड 'अ'

निम्नलिखित छह प्रश्नों में से किन्हीं चार (4) प्रश्नों का उत्तर दीजिए। (4x5=20)

1. रहीम का कवि परिचय लिखिए :

2. रहिमन तब तक ठहरिये-----

----- तुरतहि करिय पयान दोहे का संदर्भ सहित व्याख्या कीजिए।

3. बिहारी किस काल के कवि माने जाते हैं। चार शब्दों में समझाइये।

4. सोहत ओढ़ें पटु-----

----- आतपु परयौ प्रभात। दोहे का संदर्भ सहित व्याख्या कीजिए ?

5. तू क्यों बैठ गया है पथ पर कविता का समीक्षा कीजिए ?

6. महादेवी वर्मा का कवि परिचय लिखिए ?

खण्ड 'आ'

(5x10=50)

7. निम्न में से किसी एक काल के बारे में लिखिए।

(1x10=10)

(क) रीतिकाल की आर्थिक सामाजिक परिस्थिति का वर्णन कीजिए।

(ख) आधुनिक काल की राजनीतिक परिस्थिति का वर्णन कीजिए।

8. निम्न में से किसी एक कविता का सारांश लिखिए।

(1x10=10)

(क) 'भगवान् बुद्ध के प्रति' कविता का समीक्षा कीजिए ?

(ख) 'वे मुस्काते फूल नहीं' कविता का समीक्षा कीजिए ?

(ग) 'कलम और तलवार' कविता का समीक्षा कीजिए ?

9. निम्न में से किसी एक युग के बारे में लिखिए।

(1x10=10)

(क) छायावाद की विशेषता क्या है ?

(ख) भारतेन्दु युग के जनक किस कवि को माना जाता है, उस कवि के बारे में लिखिए ?

(ग) प्रगतिवाद की किन्हीं दो प्रवृत्तियों के बारे में लिखिए।

10. निम्न में से किसी एक कवि का परिचय लिखिए।

(1x10=10)

क. रामधारी सिंह दिनकर ख. हरिवंशराय बच्चन ग. महावीर प्रसाद द्विवेदी

11. निम्न बोध्यगद्य गद्यांश पढ़कर अंग्रेजी में अनुवाद कीजिए ? (1x10=10)

प्रकृति हमें पीने को पानी, सांस लेने, शुद्ध हवा, पेट के लिये भोजन, रहने के लिए जमीन, पशु-पक्षी, पेड़-पौधे आदि हमारे लिये देती है। प्रकृति की रक्षा करना हमारा कर्तव्य है। जंगलों को काटना नहीं चाहिए। प्रकृति ही जीवन का आधार है। प्रकृति और हम एक अटूट रिश्ता हैं। प्रकृति के संतुलन को हम बिगाड़ रहे हैं और इसके परिणामस्वरूप पर्यावरण को हानि पहुंचा रहे हैं।

Faculty of Commerce, Sciences and Business Management
B.Com/B.Sc/BBA II-Year, CBCS-IV Semester Examinations, June 2024

PAPER: SECOND LANGUAGE TELUGU

Time: 3 Hours

Max Marks: 70

భాగం -- ఆ

ఈ క్రింది ప్రశ్నలలో ఏదేని నాలుగు గంటలకి సమాధానాలు రాయండి.

4*5=20

1. నీ కృపాపాత్రులకు జాతి నీతులేలా? సందర్భ సహిత వాక్యము రాయండి.
2. నేను నిగర్వి నైనాను ఈ సిగ్గులేని ముఖాన్ని చూపించలేను ---సందర్భ సహిత వాక్యం రాయండి.
3. ఈ క్రింది పద్యంలో గల వస్తు విశ్లేషణ చేయండి.

మాకుగల లేమి జాడకు

మా కురుపతి సంపదలకు నచ్చేరుపడకీ

చీకటి వెన్నెల గాదా !

లేకులసంపదలు క్షణములో జెడు హెచ్చునీ

4. కాళోజీ నారాయణరావు గారి జీవిత విశేషాలు తెలపండి.
5. 'సి.పి.ట్రాన్ తెలుగు సాహిత్య సేవ' సంక్షిప్త సమాధానం రాయండి
6. కొండమల్లెలు కథలోని 'శివనాథం' యొక్క పాత్ర పోషణ

భాగం - ఆ (వ్యాస రూప సమాధానాలు)

5*10=50

7. క్రింది పద్యానికి కవి పరిచయం, ప్రతి పదార్థ తాత్పర్యము, వ్యాకరణాంశాలు రాయండి.

ఎ) నెచ్చిలి పిండుదానును, వనీస్థలి దండ నొకింత గానగా వచ్చెనో రాదో యా కమలవాసినీ, యంతనె యేమి చెప్పుదును! హెచ్చిన సంభ్రమంబున ననేకులు బద్దలవార లేక్కడనీ వచ్చియు మోది రా కొలువువారి గళావికల్ప చననీ వడినీ

లేదా

బి) కనుగవకెంపు బార మది కళ్యణ మంతకు బొంపుదేర హెచ్చిన తమి మీర జెక్కువగ చెమటజార ప్రలంబవైరి పై తన కనీధీర పట్టువిడి తాలిమిదూర సరోషభీషణా నన మలరార నాకమలనాథునిచెంతకు జేరి యిట్లనెనీ

8. ఎ) తుంబురుడిని గెలవడానికి నారదుడు పడిన క్రమము వివరించండి

లేదా

బి) సుభద్ర తన అన్న బలరామునితో ఏమని మాట్లాడిందో తెలపండి

9. ఎ) కాళోజీ మనిషి జీవన విధానం గురించి విలువరించిన జీవన సత్యాలను వివరించండి.

లేదా

బి) దేవరకొండ దుర్గ పూర్వ వైభవాన్ని డా|| ముకురాల రామిరెడ్డి గారు ఏ విధంగా స్మరించారు.

10. ఎ) భారత స్వాతంత్ర్యము నాటి సంస్థానాల విలీన చరిత్రను పేర్కొనండి.

లేదా

బి) రమణ 'నిపురు తొలగిన నిప్పు' వంటి వాడని నిరూపించండి.

11. ఎ) సిపి ట్రాన్ తెలుగు సాహిత్యానికి చేసిన సేవ ఎట్టిదో తెలపండి.

లేదా

బి) శివనాథము శకుంతల దంపతుల దాంపత్య బంధాన్ని వివరించండి.

NISHITHA DEGREE COLLEGE

B.A.,B.Sc,B.Com II-Year, IV Semester Examinations,

Paper : SL URDU

Marks : 70

Set - 1

Time: 3:00 Hours

سیکشن - A

(4 x 5 = 20)

- I مندرجہ ذیل میں سے کوئی چار سوالات کے جوابات لکھیے۔ ہر سوال کے پانچ نشانات مقرر ہیں۔
- 1 مضمون نگاری کے کہتے ہیں؟ اُس کے اقسام بیان کیجئے؟
- 2 قطعہ کے کہتے ہیں اسکی خصوصیات بیان کیجئے؟
- 3 رباعی کے کہتے ہیں رباعی کے اقسام بیان کیجئے؟
- 4 جگت موہن لال روائ کی زندگی کے حالات بیان کیجئے؟
- 5 امجد حیدر آبادی کے بارے میں آپ کیا جانتے ہیں؟
- 6 طہر اور عرافت میں کیا فرق ہے؟

سیکشن - B

(5 x 10 = 50)

- II مندرجہ ذیل سوالات کے جوابات لکھیے۔ ہر سوال کے 10 نشانات مقرر ہیں۔
- 7 (a) مردہ بدست زعدہ میں قبرستان کی کیا حالت بیان کی گئی ہے؟
(b) میر انیس کی زندگی کے حالات بیان کیجئے؟
- 8 (a) رپورتاژ کے کہتے ہیں۔ اسکا جزاء بیان کیجئے؟
(b) گل ہند کانفرنس کا خلاصہ بیان کیجئے؟
- 9 (a) فرحت اللہ بیک کی زندگی کے حالات بیان کیجئے؟
(b) اقبال کے قطعہ کی تشریح کیجئے؟
- 10 (a) اکبر الہ آبادی نے اپنے قطعہ میں کیا پیغام دیا ہے؟
(b) امجد حیدر آبادی کی ایک رباعی کا خلاصہ لکھیے؟
- 11 (a) الطاف حسین حالی کی زندگی کے بارے میں لکھیے؟
(b) میر بہر علی انیس کی زندگی پر ایک نوٹ لکھیے؟

Faculty of Commerce, Sciences and Business Management
B.A/B.Com/B.Sc/BBA II-Year, CBCS-IV Semester Examinations June- 2024
Paper: SECOND LANGUAGE SANSKRIT

Time: 3 Hours

Max Marks: 70

Section-A

I- Answer any 4 Questions.

(4x5=20 Marks)

चत्वारि प्रश्नाः समाधेयाः।

1. भाषान्तरीकरणम् कुरु।
पुष्पस्रजस्तु नक्ष्त्रमीकैर्मयि वृद्धेष्टान्कमिथुनम्।
धृतं बाल्ये नदायैण पुण्यमाकर्ण्यमव्रतम् ॥
2. समन्दर्भ व्याख्यात।
1. ततः क एष वान्तः को वा भवान्, कश्च चयमापदायला?
3. अनयोः कृदन्तं प्रत्याभिजानीत।
1. पाठित्वा 2. गन्तुम्
4. समन्दर्भ व्याख्यात।
1. "सर्वथा अपूर्ववैशो अपि सत्पुरुषोऽयं हशते।"
5. ध्रुवोपाख्यानस्य कथां विशदयत।
1. "पि. वि. काणे महादयः" विशयं लिखत।
6. अनयोः कृदन्तं प्रत्याभिजानीत।
1. वक्तव्यम् 2. परिकल्प 3. तपितः

Section-B

II. Answer All the Questions.

(5x10=50 Marks)

SET-1 SET-2

PART-18

- प्रथमं प्रश्नः समाधेयाः । अथ समानाश्रयाः ।
 7) दृष्टेः श्लोकयोः प्रतिपदार्थं तात्पर्यं च लिखत ।
 अ) आम्नातृयस्तेन वर्यं विरुद्धास्त्वं ।
 वीणे एवाहि नवं च सज्यम्
 युक्तः प्रजानामनुसन्ने
 श्यास्तस्माद्विश्वे यत्परमे धर्मं व ॥

(अथवा)

- अ) ब्रह्मादयो ब्रह्महिताय ताज्जता परस्मदर्थं शरणां तर्थासि ।
 एतान्यदर्शनं पुरः पुराणाः स्वान्येव तेजोसि तपोभवान् ॥
 8) पुत्रसंज्ञान्तलक्ष्मीकैर्यद् वृद्धेस्त्वत्पुत्रिर्भूतम् ।
 द्युतं बाल्ये तदार्थेण पुण्यकारणकवृत्तम् ॥

(अथवा)

- अ) आ विवाहस्य गमादं गृहे वने शैशवे तदनु शौचो पुनः
 स्वापदेतुरनुपाश्रितोऽन्याः समवाहुरपह्नाजमेष ते ।
 निवन्ध्यमेकं निरात ।

चित्रपटदर्शनस्य विषयान् विशदयत ।

(अथवा)

- अ) विषयान् स्वरवर्णेन स्मृत्युत्थ विवेकानन्दस्य अनेरिका
 चित्रपटदर्शनस्य विषयान् विशदयत ।

10) निम्नलिखित लिखत।

विद्युतः आस्करवर्णनं कार्यं विद्वद्भिरुद्देशस्य राजानम्
अकरोत्, विवृणुत।

(अथवा)

मात्रा सुनीत्या अकरोत् : कुतः किमकरोत् ? विवृणुत।

11) देशानां कृत्वा तत्त्वानि प्रत्यभिजानीत।

१) स्मृत्वा २) प्राप्य ३) पठितम् ४) त्यक्तवान्

५) आशयन् ६) गम्यमानः ७) जेतव्यः ८) ग्राहयित्वा

९) विहाय १०) प्रतिकर्तुम् ११) कृतम् १२) पृष्ठवान्

१३) लिखत् १४) दीयमानः १५) परित्यज्य

Section-A

I- Answer any 4 Questions. Each Question carry Five marks. (4x5=20 Marks)

Q.1. Translate the following:

(1) ترجم هذه العبارة الآتية:

"ثم قام رسول الله صلى الله عليه وسلم بدعوة الإسلام جهراً، فصعد الصفاء، ودعا الناس إلى دين الإسلام، وأظهر الحق كما أمر الله عز وجل، فجعل الكفار يؤذون الرسول صلى الله عليه وسلم وأصحابه"

Q.2. Answer the following question:

(2) من ولد إبراهيم بن محمد رسول الله صلى الله عليه وسلم؟

Q.3. How many الحروف المشبهة بالفعل are there? what are they ? :

(3) كم عدد الحروف المشبهة بالفعل؟ وما هي؟

Q.4. Write any Five meanings from the following words :

(4) اكتب خمسة معان من الكلمات الآتية:

رهط - دار - يسقين - الزاد -

شقت - أدّى - انحاز - النطاق -

Q.5. Convert any Five of the following words from singular into plural:

(5) هات خمسة جموع من الكلمات التالية:

صحابة - صنم - أمير - غزوة -

صالحة - صابرة - صفة - ولد -

Q.6. What do you know about the "Poetry during Abbasid Period":

(6) ماذا تعرف عن الشعر في العصر العباسي.

Section-B

II- Answer all questions Each question carry (10) (5x10=50 Marks)

Q.7. (A) Explain the summary of the lesson "سيرة الرسول ا":

(7) اكتب خلاصة "سيرة الرسول ا"

(OR)

(B) Describe "أشهر صحابييات الرسول ا":

بين أشهر صحابييات الرسول صلى الله عليه وسلم

Q.8. (A) Explain in detail about "إن وأخواتها" with examples:

(8) اكتب عن "إن وأخواتها" بالتفصيل مع الأمثلة.

(OR)

(B) Write about "كان وأخواتها" in detail with examples:

اكتب عن "كان وأخواتها" بالتفصيل مع الأمثلة.

Q.9. (A) Explain the life history of the poet "أبو العلاء المعري":

(9) اكتب عن حياة الشاعر "أبي العلاء المعري":

(OR)

(B) Describe about the poet "أبو العتاهية":

اكتب عن الشاعر "أبي العتاهية":

Q.10. (A): What do you know about the "Poetry and Poets during Abbasid Period":

(10) ماذا تعرف عن الشعر والشعراء في العصر العباسي.

(OR)

(B) Describe about the poet "المتنبي":

اكتب عن الشاعر المتنبي:

Q.11. (A): Translate and explain with reference to the context:

(11) ترجم وشرح واذكر مرجع هذه العبارة:

"كان رسول الله صلى الله عليه وسلم أفضلُ القومِ مروءةً، وأحسنهم خلقاً، وأشدّهم حياءً، وأكملهم عفةً ونزاهةً، وأصدقهم حديثاً، وواصلأً بالرحم، حاملاً لثقلِ الناسِ، مُكرماً للضيوفِ، عوناً على البرِّ والتقوى، فكان يأكلُ من كسبِ يده، فاشتهرَ في القومِ بـ "الأمين" و"الصادق"

(OR)

(B) Write 5 examples of "إن وأخواتها"

اكتب عن خمسة امثلة لـ "إن وأخواتها"

Faculty of Science

B.Sc. (Mathematics) II-Year CBCS IV-Semester Regular Examinations June- 2024

SEC Paper: VECTOR CALCULUS

Time: 2 Hours

Max Marks:40

Section-A

I. Answer any *two* of the following questions (2x5=10Marks)

1. Evaluate the line integral of a vector field $U=(xy, z^2, x)$ along the curve given by $x=1+t, y=0, z=t^2$ where $0 \leq t \leq 3$
2. Compute the gradient of the scalar function $f = (x, y, z)$ and evaluate at a point $(2 \ 1 \ 1)$.
3. Find the unit normal vector to the surface $x^2y + 2az^2 = 8$ at a point $(1 \ 0 \ 2)$.
4. Prove that the vector $\vec{F} = e^{x+y-2z}(\vec{i} + \vec{j} + \vec{k})$ is solenoidal.

Section-B

II. Answer the following questions (2x15=30Marks)

5. (a) Evaluate the line integral of a vector field $U= (y^2, x, z)$ along the curve given by $y=z=e^x$ from $x=0$ to $x=1$

(OR)

- (b) Evaluate the surface integral $\iint_S \vec{F} \cdot \vec{n} ds$ where $\vec{F} = (y, x^2, z^2)$ over the surface 'S' is the triangular surface on $x=0$ with $y \geq 0, z \geq 0, y+z \leq 1$ with normal ' $\vec{n}$ ' directed in positive x direction.

6. (a) Find the volume of the tetrahedron with vectors $(a \ 0 \ 0), (0 \ b \ 0), (0 \ 0 \ c)$ and $(0 \ 0 \ 0)$.

(OR)

- (b) Find the directional derivative of $\phi = 4xy^2 + 2x^2yz$ at a point $A(1 \ 2 \ 3)$ in the direction of $\vec{AB}$ where $B=(5 \ 0 \ 4)$.

Faculty of Science

B.Sc. (Physics) II-Year CBCS IV-Semester Regular Examinations June – 2024

Paper: WAVES AND OPTICS

Time: 3Hours

Max. Marks: 70

SECTION-A

I. Answer any SIX questions. All questions carry equal marks.

(6X5=30Marks)

1. What is Transverse impedance in wave motion?
2. Write a short note on Tuning fork.
3. Write the conditions for sustained interference
4. Light passes through narrow slits with a separation of 0.4mm. on a screen 1.6m away the distance between two successive maxima is 2.5mm. What is the wave length of light used.
5. Write the distinction between Fraunhofer's and Fresnel's diffraction
6. Write a short note on Resolving power of grating.
7. Explain Malus law
8. A half - wave plate is constructed for a wavelength of $6000\text{\AA}$ for what wavelength does it work as a quarter wave plate.
9. The transverse wave velocity on a stretched string is 500m/s. Find the linear density of the string if the tension in the string is 2500N?
10. Explain Babinet's compensator Working with neat diagram

SECTION-B

II. Answer ALL questions. All questions carry equal marks.

(4X10=40Marks)

11.a). Derive the equation for the velocity of transverse wave along a stretched String State the laws of vibrations of stretched string.

OR

b). Obtain the expression for longitudinal vibrations of a bar fixed at both the ends

12.a). Describe the construction and working of Fresnel's biprism. Explain how it can be used to find the thickness of a transparent material?

OR

b) Explain Newton's rings experiment by reflection and determine the wavelength of monochromatic light?

13.a). Explain the Fraunhofer diffraction due to double slit with neat diagram and deduce the conditions of maxima and minima of diffraction pattern

OR

b). Explain Fresnel's diffraction pattern due to a straight edge

14.a). What is Double refraction? Explain Huygen's theory of double refraction

OR

b) Define specific rotation. Describe the construction and working of Laurent's half shade polarimeter.

Time: 3 Hours

Max. Marks: 70

SECTION – A

I. Answer any SIX questions. All questions carry equal Marks

(6 x 5 = 30 Marks)

1. (a).Most Powerful test (b)Uniformly most powerful test .
2. Define (i) one sample test (ii) Two sample test.
3. Explain (i) Type I error (ii) Type II error with suitable examples.
4. Write Test procedure of single sample mean in large sample test.
5. Explain Chi-square test of Goodness of fit.
6. Explain test for single proportion.
7. Explain Non-parametric test.
8. F-Statistic for the difference of two variances.
9. Explain run test.
10. Define statistical Hypothesis.

SECTION B

II. Answer any ALL questions. All questions carry equal Marks

(4 x 10 = 40 Marks)

- 11.(a) State and prove Neyman Pearson's Lemma for testing.

OR

(b) Let $x_1, x_2, \dots, x_n$ be a random sample of size n drawn from the poisson distribution with parameter λ and you are testing the hypothesis are $H_0 : \lambda = \lambda_0$ against $H_1 : \lambda = \lambda_1 (> \lambda_0 \text{ and } < \lambda_0)$. Find the most power critical region

- 12.(a) In a Bernoulli distribution with parameter p , $H_0 : p = 1/2$ against $H_1 : p = 2/3$ is rejected if more than 3 heads and obtained out of 5 throws of a coin .Find probability of Type I error & Type II error.

OR

(b) Explain test for difference of means.

- 13.(a) Explain paired t-test, and explain t-test for difference of means for independent samples.

OR

(b) Explain Chi-square test for independence of attributes.

- 14.(a) Explain test procedure of Median test.

OR

(b) Derive the Sign test for single sample.

SECTION – A

I. Answer any SIX questions. All questions carry equal Marks

(6 x 5 = 30 Marks)

1. What are the applications of DBMS.
2. Write short notes on different Data Models.
3. Define strong entity and weak entity and show they are represented in an ER diagram
4. Write about Extended ER features.
5. List and explain different types of joins in SQL.
6. Explain stored procedure concept in PL/SQL.
7. Draw and explain Transaction state diagram.
8. Write short notes on Serializability.
9. Write about the functions of DBA.
10. Define Composition.

SECTION B

II. Answer ALL questions. All questions carry equal Marks

(4 x 10 = 40 Marks)

11. (a) Write about the different Database Languages.

OR

- (b) Explain set operations in Relational Algebra with examples.

12. (a) What is ER Model? Write about the various symbols used in ER diagram.

OR

- (b) Define Normalization. Explain about 3NF and BCNF with example.

13. (a) Write about DDL,DML,DCL and TCL commands with syntax.

OR

- (b) What is a Trigger? Write about the types of Triggers.

14. (a) What is Database Security? What are the different types of Threats?

OR

- (b) Explain various RAID models.

SECTION – A

I. Answer any SIX questions. All questions carry equal Marks

(6 x 5 = 30 Marks)

1. What is Machine Learning?
2. What is Inductive Bias?
3. What is Bias and Variance?
4. What is Gradient Descent?
5. Define Neural Network.
6. Define Back Propagation.
7. What is Divisive Clustering?
8. Define MST(Minimum Spanning Tree).
9. What is Unsupervised Learning?
10. What are Association Rules?

SECTION B

II. Answer ALL questions. All questions carry equal Marks

(4 x 10 = 40 Marks)

11. (a) Explain about K-Means Clustering Algorithm with Example.

OR

- (b) Explain about Decision Tree Model of Learning with supporting algorithm.

12. (a) Explain about Perceptron algorithm for Neural model of learning.

OR

- (b) Explain about Support Vector Machine with Example.

13. (a) Explain about Naïve Bayes Algorithm with example.

OR

- (b) Explain about bio-inspired and multi layer networks.

14. (a) What is Clustering? and Explain about in detail with example?

OR

- (b) Explain about Apriori Algorithm with Example.

Faculty of Science

B.Sc. (Mathematics) II-Year CBCS IV-Semester Regular Examinations June- 2024

Paper: ALGEBRA

Time: 3 Hours

Max. Marks: 70

SECTION – A

I. Answer any SIX questions.

(6 x 5 = 30 Marks)

1. Let G be a group and $a, b \in G$ then prove that $(ab)^{-1} = b^{-1}a^{-1}$
2. Find the inverse of $\begin{bmatrix} 4 & -4 \\ -4 & 3 \end{bmatrix}$ in $SL(2, Z_5)$ with respective Matrix multiplication.
3. Find all the generators of Z_6 and Z_{20} .
4. Determine the permutation $(1\ 2\ 3\ 4)(3\ 5\ 2\ 1)$ is even or odd.
5. Let $\alpha = \begin{bmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 2 & 1 & 3 & 5 & 4 & 6 \end{bmatrix}$, $\beta = \begin{bmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 6 & 1 & 2 & 4 & 3 & 5 \end{bmatrix}$ be two permutations then compute $\alpha\beta$ and $\beta\alpha$.
6. Prove that the Intersection of any two normal sub-group is again a normal sub-group of group.
7. Show that $\phi: C \rightarrow C$ defined by $\phi(a + ib) = a - ib$ is a ring of Homomorphism.
8. Define prime ideal and maximal ideal with examples.
9. Prove that intersection of any two ideals is again an ideal of ring.
10. Find the factor ring for $Z_6 = \{0, 1, 2, 3, 4, 5\}$ and $A = \{0, 3\}$ is an ideal of Z_6 .

SECTION B

II. Answer ALL the following questions.

(4 x 10 = 40 Marks)

- 11.(a) Define cyclic group. Prove that every Sub-group of cyclic group is cyclic.

OR

- (b) G is a group and $a \in G$ with order n , k is an integer then show that $\langle a^k \rangle = \langle a^{\gcd(n,k)} \rangle$ and $|a^k| = \frac{n}{\gcd(n,k)}$.

- 12.(a) State and prove Lagrange's theorem. What about its converse?

OR

- (b) State and prove Orbit-Stabilizer theorem.

- 13.(a) Prove that every field is an integral domain. What about its converse.

OR

- (b) Prove that the Necessary and Sufficient condition for a Homomorphism to be an Isomorphism is that $\text{Ker } f = \{0\}$.

- 14.(a) If ' A ' is an ideal of R and ϕ is onto on ' S ' then prove that $\phi(A)$ is an ideal of ' S '

OR

- (b) Let R be a commutative ring with unity and ' A ' be an ideal of R then prove that R/A is an integral domain if and only if ' A ' is a prime ideal of R .