Code: 1001

Faculty of Commerce, Science and Business Management

B.Com/B.Sc/BBA I-Year CBCS I-Semester Regular Examinations – Feb,2023

Paper: English

Time: 3 Hours **Max. Marks: 70**

Section-A

I. Answer any Five of the following questions. (5×4=20 Marks)

1. Write the definitions with two examples for each of the following.
   a. Collective Noun
   b. Abstract Noun
   c. Reflexive Pronoun
   d. Demonstrative Pronoun

2. Fill in the blanks with suitable verb forms.
   a. Santosh ..... (go) for evening walk every day.
   b. He ..... (pass) 10th class in 2004.
   c. Look! It..... (rain) now.
   d. Sheela ..... (join) job next year.

3. Choose the correct option.
   a. English..... spoken all over the world. (is/am/ are)
   b. One should ..... honest. (is/are/be)
   c. My father came in while I ..... watching T.V. (is/was/were)
   d. We have ..... to Mysore recently. (is/be/been)

4. Use the suitable indefinite pronouns.
   a. I am waiting for..... (Anybody/Somebody)
   b. You have a lot of pencils. Please give me..... (any/someone)
   c. Have you seen..... in class room? (anybody/nobody)
   d. You have many books at home. But give me the ..... in your hand. (some/one)

5. Fill in the blanks with the words formed by adding suitable suffixes to the words in brackets.
   a. We need to stand against..... (imperial)
   b. Socrates was a great Greek ..... (Philosphy)
   c. Don't develop ..... (argue) against your elders.
   d. Chiranjeevi earned everlasting..... (star) in Telugu Cine industry.

6. Match the column A with column B to form meaningful collocations.

A	B
a. nagging	1.melody
b. sprawling	2.threat
c. sweeping	3.campus
d. haunting	4.statement

7. Pick out Odd sound word of the following.
   a. Church Caste Complete
   b. Sit Sink Shut

d. Globe Glee Gene

8. Identify the origin of the word that is derived from.
a. Audience b. Biology c. Dictator d. Homonym

SECTION-B

II. Answer the following questions. (5×10=50 Marks)

9. A. i. i. Annotate the following line.
"But it's difficult to rob a poor man, even one who really doesn't care if he's robbed."
ii. What fate is the poet talking about in 'An Irish Airman Foresees His Death?'

OR

B. i. Read the paragraph given below and answer question.

I have made a study of men's faces when they have lost something of material value. The greedy man shows panic, the rich man shows anger, and the poor man shows fear. But I knew that neither panic nor anger nor fear would show on Arun's face when he discovered the theft; only a terrible sadness not for the loss of the money but for my having betrayed his trust.

1. What has the narrator studied?
2. What does a greedy man do when he loses some thing?
3. How did Arun feel when he discovered the theft?
4. Who exhibits fear when something is lost?
5. Write the meaning of the word, 'betrayed'.

ii. Sketch the character of Arun as you read in the short story, 'The Thief.'

10. A. i. Annotate the following lines.
"Those that I fight I do not hate,
Those that I guard I do not love;"

ii. Write phonetic transcription to the following words.
1.cool 2. poor 3. say 4. English

OR

B. i. Annotate the following lines.
"Sidda was given two meals a day and four rupees a month. "
ii. Read the paragraph and answer the questions.
Mr. Siva Shanker was unable to make up his mind. He called his wife. He looked at Sidda and said" he doesn't seem to me worse than the others who have had" .Leela, their five year old daughter , came out , looked at Sidda and gave a cry of joy". Oh, father ! she said, I like him, Don't send him away. Let us keep him in our house" and that decided it.

1. Whom did Mr. Siva Shanker call ?
2. Write the antonym of "Unable"?
3. Who is Leela ?
4. Who is "I" in this paragraph ?
5. What is the age of Leela?

11. A. i. Annotate the following lines.

" Oh, certainly, if you wish it. I'm due to die of disease in a few days and of poison in a minute or two, but if you like to take extra trouble about my end, please yourself."

ii. Read the passage given here under and answer the questions that follow.

There may be many reasons why young people become addicted to online games. Dr. James Brown, who studies the issue, believes that the games give people a chance to prove themselves. He says that doing well in these games gives players a real sense of achievement. They can become the centre of their virtual universe. This feeling of success may be harder to find in the real world, where many teenagers face exam stress and other problems.

1. Who is Dr James Brown?
2. What does James Brown believe?
3. What does playing games give to the players?
4. Who can become the centre of their virtual universe?
5. Write a meaning of the word, 'virtual.'

OR

B. i. Describe how Prince Dmitri turned the tables on his disloyal guards.

ii. Imagine that you want to give an important message to your friend on phone. But your friend is not available to receive it on phone. Your phone asks you to leave message to be passed on to your friend. Write a 'Leaving Message on Answering Machine.'

12. A. i. Write a paragraph on the importance of 'Knowing Yourself.'

ii. Write the words in English to the following phonetic transcriptions.

1. klɪ:n 2. mæt 3. sɪŋ 4. bʌs 5. θɪŋk

OR

B. i. Read the following lines and answer the questions that follow.

Dimitri: Death has come twice for me in one evening. I'm afraid he must be in earnest. (Passionately) Why didn't you let them kill me? That would have been better than this 'to-be-left-till called-for business. (paces across to window and looks out. Turns suddenly) Stronetz! You offered me a way of escape from a cruel death just now. Let me escape now from a crueler one. I am a monarch. I won't be kept waiting by death. Give me that little bottle.

1. What are the two deaths the narrator is talking about?
2. Who is Stronetz?
3. Who offered escape from cruel death and to whom?
4. What is 'that little bottle?'
5. Write the meaning of the phrase 'to-be-left-till called –for' business.

ii. Write the noun forms to the following verbs.

1. Appoint 2. Calculate 3. Manage 4. Judge 5. Examine

13.A. i. Write a dialogue between you and your friend about the first day in your college.

ii. Write antonyms for the following words.

1. Lean 2. Bliss 3.Deserted 4. Tranquil 5. Difficult

OR

B. i. "Hard Work Never Goes in Vain." Elucidate in a paragraph.

ii. Supply the synonyms to the following words.

1. Excitement 2. Concern 3. Enough 4. Reason 5. Steal

Faculty of Commerce, Science and Business Management

B.Com/B.Sc/BBA I-Year CBCS I-Semester Regular Examinations – Feb,2023

Subject: Telugu

Max Marks: 70 Time: 3 Hrs.

అ- విభాగము

I. ఏవైనొ నాలుగు ప్రశ్నలకు సమాధానం రాయండి. [4★5=20]

1. "కఱుకంఠ! యింతయు మరువకు " సందర్భ సహిత వ్యాఖ్య రాయండి.
2. "వసుధ మీ ఆడబిడ్డల వంటివాడ" సందర్భ సహిత వ్యాఖ్య రాయండి.
3. అరుణము, పర్వము, మధువు, రుచి, ఈశుడు పదాలకు నానార్థాలు రాయండి.
4. ఇచ్ఛ, పెండ్లి, యజ్ఞం, సూర్యుడు, మామిడి పదాలకు పర్యాయ పదాలు రాయండి.
5. శ్రీ శ్రీ గురించి రాయండి.
6. నందనవనం.

ఆ- విభాగం

II. ఈ క్రింది ప్రశ్నలకు వివరంగా సమాధానములు రాయండి. [5★10=50]

7. ఈ క్రింది పద్యానికి కవి పరిచయం, సందర్భం, ప్రతిపదార్థ తాత్పర్యం, వ్యాకరణాంశాలు రాయండి.

(a). విపరీత ప్రతిభాష లేమిటికి నుర్వీనాథ! యీ పుత్రగా
త్రపష్వంగ సుఖంబు నేకొనుము ముక్తాహార కర్పూర సాం
ద్రపరాగ ప్రసారంబు జందనము జంద్రజ్యోత్స్నయం బుత్రగా
త్రపరిష్వంగము నట్లు జీవులకు హృద్యంబే కడున్ శీతమే.

(లేదా)

(b). నాళీకాప్తుడు గోరగించునట మున్ ప్రత్యూష కాలంబునన్
వాలాయంబుగ పుల్లతామరస భవ్యంబైన శృంగారపుం
గేలాకూళిని దీర్ఘమూడి యనురక్తిన్ ధౌతకాషాయుడై
ఫాలాది స్థలులందు నవ్యభసిత ప్రాగల్భ్య మేపారగన్

8. (a). శకుంతల దుష్యంతునితో పలికిన హితోపదేశం తెలుపండి.

(లేదా)

(b). కాసులు పార్శ్వభాగ సారాంశం వివరించండి.

9. (a). మహాదేవరాజ పాత్ర చిత్రణ తెలుపండి.

(లేదా)

(b). "సోమదేవసూరి వృత్తాంతం" వివరించండి.

10. (a). "గోనగన్నా రెడ్డి " రుద్రమ దేవి నమ్మిన బంటు అని రుద్రమదేవి నవల ద్వారా నిరూపించండి.

(లేదా)

(b). రుద్రమదేవి పాత్ర చిత్రణను వివరించండి.

11. (a). వాక్యనిర్మాణ రీతులను సోదాహరణంగా వివరించండి.

(లేదా)

(b). బాలార్కుడు, పిడికిలెత్తక, ఇప్పాటి, వేదరాలు ఈ పదాలను విడదీసి సంధిపేరు, సూత్రాలు రాయండి.

Code: 1003

Faculty of Commerce, Science and Business Management

B.Com/B.Sc/BBA I-Year CBCS I-Semester Regular Examinations – Feb,2023

Subject: Hindi

Max Marks: 70 Time: 3 Hrs.

भाग – अ

निम्न में से किन्ही 4 प्रशनों का उत्तर लिखिए 5X4=20

1. 'चरित्र' से आप क्या समझते है? अपने शब्दों में लिखिए।
2. चूरनवाले भगत जी पर बाज़ार का जादू क्यों नही चल सकता था, अपने शब्दों में लिखिए।
3. 'छोटा जादूगर' का चरित्र आज के युवा पीढी को केसे मार्गदर्शन करतचा है? स्ष्ट कीजिए।
4. महादेवी वर्मा जी के जीवन और साहित्य पर टिप्पणी लिखिए।
5. भगवती चरण वर्मा जी के जीवन पर टिप्पणी लिखिए।
6. कारक किसे कहते हैं, स्पष्ट करते हुए कारकों के प्रकार व उनके चिह्नो को स्पष्ट कीजिए।

भाग – आ

निम्न 8 प्रशनोंमें से किन्ही 5 प्रशनों का उत्तर लिखिए 5X10=50

1. निम्न लिखित 3 वाक्यांशों में से किन्ही 2 का संदर्भ सहित व्याक्या कीजिए।

   अ. बाज़ार में एक जादू है। वह जादू आंखों की राह काम करता है। वह रूप का जादू हे। पर जैसे चुम्बक का जादू लोहे पर ही चलता है, वैसे ही इस जादू की भी मर्यादा है।

   (या)

   अ. मनुष्य का मूल्य उसके चरित्र में है। चरित्र में ही उसके आत्म बल का प्रकाश होता है।

   (या)

   आ. धरती माता की कोख में जो अमूल्य निधियाँ भरी हैं, जिनके कारण वह वसुंधरा कहलाती है, उससे कौन परिचित न होना चाहेगा?

2. 'भाभी' संस्मरण का सारांश लिखिए।
3. भारत में संस्कृति संगम पाठ का सारांश लिखिए।
4. चीफ की दावत कहानी सारांश लिखिए।
5. निम्न लिखित 3 चरित्रों में से किसी 1 का चरित्र चित्रण लिखिए।

   (अ). मि.शामनाथ (आ). पं. घासीराम (इ). पं.परमसुख

6. निम्न लिखित 3 लेखकों में से किसी एक लेखका परिचय संक्षिप्त में लिखिए।

   अ. प्रेमचन्द आ.जयशंकर प्रासाद इ.जैनेन्द्र कुमार

7.निम्न लिखित वाक्यांशों में से किन्ही दो का उत्तर लिखिए।

अ. गीता बाजार जा रही है। (संभाव्य भूत काल में लिखिए)

आ. माँ ----अपने बच्चों----------मिठाई बनाई है। (कारक जोड़कर लिखिए)

इ.तुम तुम्हारा काम करो (वाक्य शुद्ध कीजिए)

ई.Absence शब्द का हिन्दी अनुवाद कीजिए।

8.अनुवाद कीजिए।

क. हिन्दी से अंग्रेज़ी में अनुवाद कीजिए।

अ.महाभारत में भीष्म का चरत्र उदात्त है

आ. मनुष्य को समय का सदुपयोग करना चाहिए।

इ.भारत में दहेज प्रथा का उन्मूलन आवश्यक है।

ई. समाज को बदलने के लिए पहले खुद को बदलना चाहिए

उ. समय एक ऐसी दवा है डजो हर घाव को भरता है।

(या)

ख. अंग्रेज़ी से हिन्दी में अनुवाद कीजिए।

A. Better to be alone than in a bad company

B. Live as if you were to be dying tomorrow

C. A warm smile is the universal language of kindness.

D. Decisions without actions are worthless

E. Every moment is a fresh beginning.

Code: 1004

Faculty of Commerce, Science and Business Management

B.Com/B.Sc/BBA I-Year CBCS I-Semester Regular Examinations – Feb,2023

Subject: SANSKRIT

TIME: 3 Hours **MAX. MARKS.70.**

अ-विभागः Part-A

I. अधो दत्त प्रश्नेषु चतुःप्रश्नानां कृते समाधानम् दत्त सर्वे प्रश्नाः समानाङ्काः। 5X4=20

१.वाल्मीकिः परिचयं लिखत।

II.तदधुनैव परिष्कृतं पारदभस्म तुभ्यं दद्याम् - ससन्दर्भं व्याख्यात।

III. काव्यशास्त्रविनोदेन कालो गच्छति धीमताम्।
व्यसनेन च मूर्खाणां निद्रया कलहेन वा ॥ श्लोकस्य भावं लिखत।

IV.विश्वासाद्भयमुत्पन्नं मूलान्यपि निकृन्तति - ससन्दर्भं व्याख्यात।

V.अधो दत्त चतुः पदानां विभक्ति वचनम् प्रत्यभिजानीत।

१.गवि २.पितृभिः ३.नद्यै ४.फलस्य

VI. अधो दत्त पदाणां सन्धि नामानि प्रत्यभिजानीत।

१.तथैव २.कपीशः ३.पन्नगः ४.वागीशः

आ-विभागः Part-B

७.अधो दत्त द्वौ श्लोकौ प्रतिपदार्थ तात्पर्यं च लिखत। 5X10=50

१.यं सर्वशैला परिकल्प्य वत्सं मेरौ स्थिते दोग्धरि दोहदक्षे।
भास्वन्ति रत्नानि महौषधीश्च पृथूपदिष्टां दुदुहुर्धरित्रीम् ॥

२. कपोलकण्डूः करिभिर्विनेतुं विघट्टितानां सरलद्रुमाणाम्।
यत्र स्रुतिक्षीरतया प्रसूतः सानूनि गन्धः सुरभीकरोति ॥

३. दिवाकराद्रक्षति यो गुहासु लीनं दिवाभीतमिवान्धकारम्।
क्षुद्रेऽपि नूनं शरणं प्रपन्ने ममत्वमुच्चैः शिरसां सतीव ॥

४. यज्ञाङ्गयोनित्वमवेक्ष्य यस्य सारं धरित्रीधरणक्षमं च।
प्रजापतिः कल्पितयज्ञभागं शैलाधिपत्यं स्वयमन्वतिष्ठत ॥

८.धर्मबध्दो दौवारिकः इति पाठ्यांशस्य सारं लिखत।

अथवा

वानरमकरयोः कथां पञ्चतन्त्रमनुसृत्य वर्णयत।

९. एषः धर्मः सनातनः पाठ्यांसस्य सारांशं लिखत।

अथवा

हिमालयो नाम नगाधि राज पाठ्यांश सारांशम् लिखत।

१०.द्वौ शब्दौ सर्वासु विभक्तिष् वचनेषु च लिखत।

१. भानु २.रमा ३.फल ४.वारि

११. अधो दत्त पदानां नामनिर्देशक पूर्व सन्धिं विघट्टयतत्।

१.सुबन्तः २.गुरोराज्ञा ३.षण्मुखः ४.तज्जलम् ५.अन्वेति ६.कुर्वन् +एव
७.अनु + एति ८.रामस् +षष्ठः ९.नव + उदयः १०.गौरी + इयम्

Faculty of Commerce, Science and Business Management

B.Com/B.Sc/BBA I-Year CBCS I-Semester Regular Examinations – Feb,2023

Paper: URDU

Time: 3 Hours **Max. Marks: 70**

Section (A)

ذیل میں دیئے گئے تمام سوالات میں سے چار (4) کے جوابات مطلوب ہے۔ ہر سوال کے پانچ (5) نشانات مقرر ہیں۔

1. غزل کے پہلے شعر کو کیا کہتے ہیں؟ مثال کے ساتھ لکھیئے؟
2. اکبرالہ آبادی کا تعارف لکھیئے؟
3. حکایت کسے کہتے ہیں؟ اپنے الفاظ میں روشنی ڈالیئے؟
4. سفرنامہ ہندوستان جنت نشاں پر اظہار خیال کیجیئے؟
5. میرؔ کو مصورِ غم کیوں کہا جاتا ہے؟
6. سراج اورنگ آبادی کی غزل گوئی کی خصوصیت بیان کیجئے؟

Section (B)

ذیل میں دیئے گئے تمام سوالات کے جوابات مطلوب ہے۔ ہر سوال کے دس (10) نشانات مقرر ہیں۔

7. (a) ''چند منتخب حکایت'' کا تجزیہ اپنے الفاظ میں کیجیئے؟

''یا''

(b) اکبرالہ آبادی کی نظم ''مستقبل'' پر روشنی ڈالیئے؟

8. (a) کسی ایک نظم گو شاعر کے بارے میں اپنے خیالات کا اظہار کیجئے؟

''یا''

(b) علامہ اقبال کے بارے میں آپ کیا جانتے ہیں پر تفصیلی نوٹ لکھیئے؟

9. (a) ولی کے شمالی ہند کے سفر سے اُردو شاعری پر کیا اثرات پڑے بیان کیجیئے؟

''یا''

(b) ولیؔ اورنگ آبادی کی سوانحی حالات پر نوٹ لکھیئے؟

10. (a) غزل کی تعریف کرتے ہوئے میر تقی میر کی غزل گوئی پر تبصرہ کیجیئے؟

''یا''

(b) مظہر علی خان کے چند منتخب حکایت میں سے کسی دو حکایتوں کا خلاصہ لکھیئے؟

11. (a) نظیر اکبرآبادی کی نظم توحید کا خلاصہ بیان کیجئے؟

''یا''

(b) مندرجہ ذیل اشعار میں سے کسی دو کی تشریح متن کے حوالے سے کیجئے؟

1. کوئی نہیں جہاں میں جو اندوہ گیں نہیں — اس غم کدہ میں آہ دلِ خوش کہیں نہیں
2. ہم سے ٹک آگے زمانے میں ہوا کیا کیا کچھ — تو بھی ہم غافلوں نے آ کے کیا کیا کیا کچھ
3. مجکوں یکدم قرار نیں ہرگز — تجھ بغیر اختیار نیں ہرگز
4. جو تیرے غم کی تمنا نہ کیا — ابدی عیش کا سودا نہ کیا

Faculty of Arts, Commerce, Sciences, Social Sciences and Business Management

B.A/B.Com/B.Sc/BBA I-Year, CBCS–I Semester Examinations

PAPER: CLASSICAL PROSE, MODERN PROSE, HISTORY OF ARABIC LITERATURE AND GRAMMAR

Time: 3 Hours | Max Marks: 70

Section – A (4 x 5 = 20)

I. Answer any FOUR questions from the below. Each question carries 5 marks:

1. Translate the following with reference to the context:

لَقَدْ خَلَقْنَا الْاِنْسَانَ فِيْ اَحْسَنِ تَقْوِيْمٍ ○

2. Answer in Arabic:

متى أسست الجامعة العثمانية ؟

3. Write any Five examples of Masculine Noun in Arabic:

أكتب خمسة أمثلة عربية للمذكر:

4. Write the names of the poets of المعلقات السبع :

اكتب الأسماء لشعراء المعلقات السبع :

5. Write any Five meaning of the following words:

كلية ، مدرسة ، المجلة ، حديقة ، تسكن ، بيت ، تصلى ، عاصمة .

6. Convert any Five of the following singular words into plurals :

أخ ، مهندس ، مريض ، طالب ، حافلة ، سيارة ، مدينة ، جامعة .

Cont. Page - 2

Section – B (5x10=50)

II. Answer all questions. Each question carries 10 marks.

7. **(A)** Write the summary of Suratut Teen.

أكتب خلاصة "سورة التين" .

Or

(B) Write the explanation of Sura "Inshirah" .

أكتب تفسير سورة "الانشراح".

8. **(A)** Write the summary of the Lesson "Al Hiwar".

أكتب خلاصة درس "الحوار".

Or

(B) Write in detail about the "Al Nazafah".

أكتب عن "النظافة" مفصلا.

9. **(A)** How many kinds of Noun in Arabic? Explain them with examples:

كم نوعا للإسم؟ إشرح بالأمثلة .

Or

(B) Write about the "كلمة"word in Arabic and its kinds:

أكتب عن الكلمة و أقسامه .

10. **(A)** Write about "The Poets of Pre-Islamic Period":

أكتب عن "الشعراء فى العصر الجاهلي" .

Or

(B) Write the characteristics features of Arabic Language:

أذكر ميزات اللغة العربية .

11. **(A)** Explain the Feminine and Masculine with examples.

اشرح المذكر و المؤنث بالأمثلة .

Or

(B) Explain about Definite and Indefinite with examples.

أكتب عن النكرة و المعرفة بالأمثلة .

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Code: 1302

Faculty of Science

B.Sc (Mathematics) I-Year CBCS I-Semester Regular Examinations – Feb/Mar-2023

Paper: Differential and Integral Calculus

Time: 3 Hours **Max Marks: 70**

SECTION-A

I. Answer any Six of the following questions. **(6×5=30 Marks)**

1. If $u = x^2 \tan^{-1}(y/x) - y^2 \tan^{-1}(x/y)$, $xy \neq 0$ then prove that $\frac{\partial^2 u}{\partial x \partial y} = \frac{x^2 - y^2}{x^2 + y^2}$
2. Find the second order partial derivatives of e^{xyz}
3. Expand the function $f(x, y) = x^2 + xy - y^2$ by Taylor's theorem in powers of(x - 1) and (y + 2)
4. If H = f (y-z, z-x, x-y), prove that $\frac{\partial H}{\partial x} + \frac{\partial H}{\partial y} + \frac{\partial H}{\partial z} = 0$
5. Find the radius of curvature for the equation $\sqrt{x} + \sqrt{y} = \sqrt{a}$ at (,)
6. Find the radius of curvature through the pole for the cardioid $r = a(1 - \cos\theta)$ at the pole(origin)
7. Find the envelop of the family of curves $y = mx + am^3$
8. Find the length of the curve $x = a(\theta + \sin\theta)$, $y = a(1 -$) from =0 to =π
9. $x^y = y^x$ then find $\frac{dy}{dx}$
10. Find the radius of the curvature at the origin for the curve $x^3 + y^3 - 2x^2 + 6y = 0$

SECTION-B

II. Answer the following questions. **(4×10=40 Marks)**

11. (A). If $u = \tan^{-1}\left(\frac{x^3+y^3}{x+y}\right)$, $x \neq y$ show that

(i). $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial x} = \sin 2u$

(ii). $x^2 \frac{\partial^2 u}{\partial x^2} + 2xy \frac{\partial^2 u}{\partial x \partial y} + y^2 \frac{\partial^2 u}{\partial y^2} = (1 - 4\sin^2)\sin 2$

OR

(B). State and prove Euler's theorem on homogeneous function of two variables.

12. (A). State and prove Taylor' s theorem for a function of two variables.

OR

(B). Find the minimum value of $x^2 + y^2 + z^2$ subject to the conditions ax + by + cz = p.

13. (A) Define curvature of the curve at a point. Show that the Curvature at the point $\left(\frac{3a}{2}, \frac{3a}{2}\right)$ on the folium $x^3 + y^3 = 3axy$ is $-8\sqrt{2}/3a$.

OR

(B). Define Evolutes. Find the evolutes of $x = a\cos^3\theta, y = a\sin^3\theta$

14. (A). Find the perimeter of the loop of the curve $9a^2 = (x - 2a)(x - 5a)^2$ between x=2a and x=5a

OR

(B).Find the surface of the solid formed by revolving cardioid $r = (1 + cos\theta)$.

Code: 1303

Faculty of Science

B.Sc(Physics) I-Year CBCS I-Semester Regular Examinations Feb- 2023

Paper: Mechanics and Oscillations

Time: 3 Hours | Max Marks: 70

SECTION-A

I. Answer any Six of the following questions. (6×5=30 Marks)

1. Define gradient of a scalar and give its significance.
2. Show that $A = e^{x}(-yz\,i + z\,j + y\,k)$ is irrotational.
3. Define impact parameter and scattering cross section.
4. Write a note on gyroscope.
5. Explain the conservative nature of central force.
6. Explain the concept of time delation.
7. Write the applications of Lissajous figures.
8. Explain Quality factor and Sharpness of resonance.
9. Prove that divergence of position vector is equal to three.
10. Explain logarithmic decrement.

SECTION-B

II. Answer the following questions. (4×10=40 Marks)

11. a) State and prove Stokes theorem.

(OR)

b) State Gauss theorem. Find where $F = 4xzi - y2\,j + yz\,k$ and S is the surface of a cube bounded by x=0, x=1, y=0, y=1, z=0, z=1

12. a) If two particles of equal mass undergo 2D- head on elastic collision, prove that two particles will move in mutually perpendicular direction after the collision.

(OR)

b) What is symmetric top? Arrive at an expression for the angular velocity of precession of a symmetric top

13. a) State Kepler's laws of planetary motion and prove the first law.

(OR)

b) Explain the concept of length contraction. If an observe notices length of a moving meter scale as 96cm, find its velocity.

14. a) Explain simple harmonic motion. Deduce the expression for the total energy of a simple harmonic oscillator.

(OR)

b) Setup the equation of motion for forced vibrations and deduce its solution.

Code: 1304

Faculty of Science

B.Sc(Statistics) I-Year CBCS I-Semester Regular Examinations – Feb, 2023

Paper: Descriptive Statistics and Probability

Time: 3 Hours | Max Marks: 70

SECTION-A

I. Answer any **Six** of the following questions. (6×5=30 Marks)

1. What do you understand by secondary data? State their main sources.
2. Define non-central and central moments.
3. State and prove addition theorem of probability for two events.
4. Define conditional probability with an example.
5. Define the distribution function of a random variable and state its important properties.
6. The probability mass of functions of X is given by

x	-1	1	2	3
P(x)	1/8	3/8	3/8	1/8

Find the probability distribution of $Y=X^2$.

7. Define random variable and its mathematical expectation.
8. Define Cumulant Generating Function of a random variable and state the first four cumulants in terms of central moments.
9. Define i) Marginal Probability Mass Functions of X and Y.
   ii) Conditional probability function of Y given X=x.
10. If X and Y are two independent random variables, show that $V(aX + bY) = a^2\ V(X) + b^2\ V(Y)$.

SECTION-B

II. Answer the following questions. (4×10=40 Marks)

11. a) Establish the relation between the moments about any point in terms of moments about mean.

    (OR)

    b) Show that for any frequency distribution coefficient of Kurtosis is greater than unity and Bowley's coefficient of skewness is less than unity.

12. a) State and prove Baye's theorem.

    (OR)

    b) Prove that if A,B and C are pair wise independent and A is independent of (B ∪ C), then A, B and C are mutually independent.

13. a) A random variable X has the following probability distribution.

Value of X (x)	0	1	2	3	4	5	6	7	8
P(x)	k	3k	5k	7k	9k	11k	13k	15k	17k

   i) Find the value of k
   ii) Find $P(X < 3)$, $P(X \geq 3)$, $P(0 < X < 5)$
   iii) What is the smallest value of x for which $P(X \leq x) > 0.5$

iv) Find the distribution function of random variable X.

(OR)

b) The length of time that a certain lady speaks on the telephone is found to be random phenomenon with a probability function specified by the pfd f(x) is

$f(x) = A\, e^{-x/5}$; $x \geq 0$

$= 0$; otherwise

i) Find the value of A when f(x) is p.d.f.

ii) Find $P(X > 10)$

iii) Find $P(X < 5)$

iv) Find $(5 < X < 10)$

14. a) Define Covariance. State and prove Cauchy Schwartz inequality.

(OR)

b) Obtain the m.g.f. of the random variable X having p.d.f.

$f(x) = x$ for $0 \leq X < 1$

$= 2-x$ for $1 \leq X < 2$

$= 0$ otherwise.

Hence find its mean and variance.

Code: 1201

Faculty of Science

B.Sc (Data Science) I-Year CBCS I-Semester Regular Examinations – Feb/Mar-2023

Paper: Fundamentals of Information Technologies

Time: 3 Hours **Max Marks: 70**

SECTION-A

I. Answer any Six of the following questions. **(6×5=30 Marks)**

1. Explain about the simple model of a computer.
2. Write short notes on Error Detecting codes.
3. Write about the various physical devices used as storage cells.
4. List and explain the specifications of a CPU.
5. Explain peer to peer computing.
6. Write about the applications of LAN.
7. Write about Software Quality Attributes.
8. Write about Agile Development approaches.
9. What is an Operating System? Write about its functions
10. Write about CDROM.

SECTION-B

II. Answer the following questions. **(4×10=40 Marks)**

11. Explain in detail about different types of Data.

OR

12. Convert (258)10 to binary and hexadecimal equivalent.

13. What do you understand by Random Access Memory?

OR

14. What is a motherboard? What does it contain?

15. Write about Link technologies used to build Networks.

OR

16. Explain about the different types of Display Devices.

17. Explain about Waterfall model.

OR

18. Write about Structured Programming Concept.

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Code: 1301

Faculty of Science

B.Sc (Computer Science) I-Year CBCS I-Semester Regular Examinations – Feb/Mar-2023

Paper: Programming in C

Time: 3 Hours **Max Marks: 70**

SECTION-A

I. Answer any Six of the following questions. **(6×5=30 Marks)**

1. Explain the Classification of Programming Languages.
2. Describe the Structure of a C Program.
3. Discuss Escape Sequences.
4. Explain the Memory Representation in Arrays.
5. Define Function. Explain the concept of Function.
6. What are Pointers? How to represent them? Write the Pointer Arithmetic Operations.
7. Write a short note on Enumeration Types.
8. Define Files. Explain File Accessing Modes in C.
9. Explain Type Conversions in C.
10. Differentiate while and do-while statements.

SECTION-B

II. Answer the following questions. **(4×10=40 Marks)**

11. (a) Define Algorithm. Describe the different ways of stating Algorithms.

OR

(b) Explain the Data Types of C with an example Program.

12. (a) Describe the Selection Statements in C with example code.

OR

(b) Write a C Program for 2x2 Matrix Multiplication.

13. (a) Explain Call-by-Value and Call-by-Reference in Functions with example C program.

OR

(b) Write a C Program to demonstrate Array of Pointers.

14. (a) Compare and Contrast Structures Vs Unions.

OR

(b) Write a C program to demonstrate Random Access to Files of Records.

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