

Faculty of Arts, Commerce, Science, Social Science and Business Management
B.A/B.Com/B.Sc/BBA III-Year, CBCS-V Semester Regular Examinations –Jan,2023
PAPER: General English

Time: 3 Hours

Max Marks: 80

Section-A

I. Answer any four of the following (4x5=20 Marks)

1. Mark the words which are stressed in the following sentences.

- The trees in the forest caught fire.
- Giridhar said that he was tired.
- The glass needs to be wiped.
- She is making a dress for Naina.
- This is a government document.

2. Correct the errors in the following.

- I didn't have a lunch today.
- My mother took my brother and I out to lunch.
- The book is much better than the movie.
- I am having two brothers and one sister.
- The president's speech had a great effect on me.

3. Match the scientific terms with their meanings.

- | | |
|--------------|--|
| a. Crystal | 1. Remains of something that has been destroyed |
| b. Decoder | 2. Occurring or existing before birth |
| c. Debris | 3. A wireless communications technology |
| d. Bluetooth | 4. One who converts messages from a code to a text |
| e. Prenatal | 5. A solid substance with a regular atomic structure |

4. Identify the mis-spelt words from the following

Privilege, calender, accomodation, referred, acquir, ninty, grammer, leisure

5. Describe the important steps of writing a film review?

6. Expand the proverb into a Paragraph, "A Penny saved is a Penny earned"

Section-B

II. 7-10 will have internal choice. Students can answer either A or B.

(4x15=60 Marks)

7. a. i. Explain why does Rudyard Kipling urge the youth not to get carried away by the desire to acquire wealth? (10 Marks)

ii. Read the passage and answer the questions that follow? (5 Marks)

I know of what I speak. This is due to a variety of causes, the chief of which is the egotism of the human animal itself. But I can tell you for your comfort that the chief cure for it is to interest yourself, to lose yourself in

some issue not personal to yourself – in another man's trouble or preferably in another man's joy.

- a. What is the chief problem of humans?
- b. What is the chief cure of egotism?
- c. What does it mean to 'lose yourself'?
 - i. lose your life
 - ii. Involve in
 - iii. Get away from
- d. what do you mean by 'egotism'?
- e. give an antonym for 'comfort'.

Or

- b. i. Describe why does Kipling advise youth not to be 'smart'? (10 Marks)
 - ii. Do as directed in the case of each of the following sentences. (5 Marks)
 - a. Having finished work for the day, we left the office.
(change into a compound sentence)
 - b. Even though we missed the bus, we got to office on time.
(Change into a compound sentence)
 - c. Although the curry was too salty, Amit did not complain.
(Change into a simple sentence)
 - d. You must return home before sunset.
(Change into a complex sentence)
 - e. The man who is wearing a white kurta speaks fluent Marathi.
(Change into a simple sentence)
8. a. i. What are the atrocious lies that Laura and Gonzalo make up about their lives after their separation in the play, "A Sunny Morning"? (10 Marks)
- ii. Write short notes on 'Interpersonal Skills' (5 Marks)
- Or
- b. i. Explain how far is it justifiable to call the play 'A Sunny Morning' a blend of romance and comedy? (10 Marks)
 - ii. Add punctuation marks appropriately in the following sentences? (5 Marks)
 - a. No you just cannot stay out so late and come home whenever you want
 - b. How bad I just can't believe this
 - c. I am so happy we have won the championship
 - d. He came home and quarreled with everyone I don't know why he's so upset do you have any clue
 - e. Oh my god this is unbelievable you have made it
9. a. i. Describe the oppression of women in the East and the West as portrayed in the poem, 'I am not that woman'? (10 Marks)

ii. Match the following technical terms used in Movies. (5m)

- | | |
|----------------|---|
| a. Biopic | i. a movie about lives in the previous centuries |
| b. Period film | ii. A biographical movie about a real person |
| c. Thriller | iii. Very old-fashioned American movie |
| d. Scifi movie | iv. a movie with suspense and/or murder plot |
| e. Western | v. any story related to the future or outer space |

b. i. Describe how Kishwar Naheed's 'I am not that Woman' is a liberating poem? (10 Marks)

ii. Match the following literary terms with their meanings. (5 Marks)

- | | |
|---------------|---|
| a. fiction | i. a poem form of 14 lines with a fixed rhyme scheme |
| b. epic | ii. Poetry that does not rhyme or have a regular meter |
| c. Irony | iii. A long narrative poem telling a hero's deeds |
| d. sonnet | iv. incongruity between what is expected and what happens |
| e. free verse | v. a literary work based on imagination |

10. a i. Write a C.V and a covering letter to the following advertisement. (10 Marks)

Wanted: An experienced office assistant with good knowledge of English and Telugu. Contact: Box.No.9876, C/o The Times of India, Hyderabad.

ii. Write the steps in writing an effective Book review. (5 Marks)

b. i. Write a C.V and a covering letter to the following advertisement. (10 Marks)

Wanted: A Chef with at least five years experience in 3-star hotels, for immediate appointment. Must be able to take full charge of kitchen supervision. Apply: Hotel Astor, Hyderabad.

ii. Attempt a review of one of the Books that you have read recently. (5 Marks)

Faculty of Arts, Commerce, Science, Social Science and Business Management
B.A/B.Com/B.Sc/BBA III-Year, CBCS-V Semester Regular Examinations –Jan, 2023
PAPER: Second Language Hindi

Time: 3 hours

Max Marks: 80

Section-A

I. निम्नलिखित प्रश्नों में से कि० ०५ पांच का जवाब दीजिए। (5x4=20 Marks)

1. राष्ट्र भाषा पर अपने विचार व्यक्त कीजिए।
2. भाषा क्या है ? भाषा की परिभाषा लिखिए।
3. कविता का अर्थ क्या है ?
4. आत्मकथा का उद्देश्य क्या है ?
5. जनसंचार का अर्थ समझाइए ?
6. मुद्रण क्या है ? लिखिए।

Section-B

II. निम्नलिखित प्रश्नों के उत्तर दीजिए। (4x15=60 Marks)

7. (a) प्रयोजनमूलक हिंदी की विशेषताएं लिखिए।
(OR)
(b) नव इलेक्ट्रॉनिक जन संचार के माध्यमों पर प्रकाश डालिए।
8. (a) राष्ट्रभाषा और राजभाषा के अंतर को स्पष्ट कीजिए।
(OR)
(b) जनसंचार माध्यम के प्रकारों पर प्रकाश डालिए।
9. (a) रेडियो एवं दूरदर्शन पर प्रकाश डालिए।
(OR)
(b) उपन्यास विधा पर अपने विचार व्यक्त कीजिए।
10. (a) कहानी के उद्भव और विकास पर अपने विचार व्यक्त कीजिए।
(OR)
(b) विश्व में हिंदी के स्थान को निर्धारित कीजिए।

Faculty of Arts, Commerce, Science, Social Science and Business Management
B.A/B.Com/B.Sc/BBA III-Year, CBCS-V Semester Regular Examinations –Jan, 2023
PAPER: Second Language Telugu

Time: 3 hours

Max Marks: 80

విభాగం-ఎ (సంగ్రహ సమాధానాలు)

I. ఈ క్రింది ఏవైనా నాలుగు ప్రశ్నలకు సమాధానములు వ్రాయండి.

(4x5=20 Marks)

1. పద్య లక్షణాలను వ్రాయండి.
2. పాట ప్రత్యేకతలను వివరించండి.
3. వ్యాస పరిణామక్రమాన్ని తెలియజేయండి.
4. అధ్యయన పద్ధతులను విశ్లేషించండి.
5. గజల్ లక్షణాలను వ్రాయండి.
6. రుబాయీలు

విభాగం- బి (వ్యాసరూప సమాధానాలు)

II. ఈ క్రింది ప్రశ్నలకు సమాధానములు వ్రాయండి.

(4x15= 60 Marks)

7. (a) వచన కవిత్వ రచనా పద్ధతులను వివరించండి.

(లేదా)

(b) తెలుగు హైకూ ప్రక్రియలో జరిగిన కృషిని తెలియజేయండి.

8. (a) తెలంగాణ భాషాచైతన్యాన్ని గురించి విశ్లేషించండి.

(లేదా)

(b) వ్యాసంలోని వస్తువైవిధ్యాన్ని వివరించండి.

9. (a) జానపద సాహిత్య లక్షణాలను తెలిపి వర్ణించండి.

(లేదా)

(b) అధ్యయనం వల్ల లభించే ప్రయోజనాలను తెలియజేయండి.

10. (a) గ్రంథ సమీక్షలను గురించి విశ్లేషించండి.

(లేదా)

(b) వ్యాసాన్ని నిర్వచించి, లక్షణాలను వ్రాయండి.

Faculty of Arts, Commerce, Science, Social Science and Business Management
B.A/B.Com/B.Sc/BBA III-Year, CBCS-V Semester Regular Examinations -Jan, 2023

PAPER: Second Language Sanskrit

Time: 3 hours

Max Marks: 80

Section-A

I. Answer any four of the following questions. (4x5=20 Marks)

1. मधुरोपदेशपाठसारांश संक्षेपेण लिखत ।
2. ससन्दर्भ लिखत - 'सूर्यं वद' ।
3. शास्त्रकालस्य परिचयं संग्रहेण लिखत ।
1. कौटिल्य शास्त्रकारस्य शाखवेदुष्यं लिखत ।
4. अलङ्कारस्य लक्ष्य लक्षण समन्वयं लिखत ।
1. दीपकम्
5. ससन्दर्भ लिखत ।
1. सर्व दहेयं यदिदं पृथित्यामिति ।
6. कवेः परिचयं संग्रहेण लिखत ।
1. माधः

Section-B

II. Answer the following questions. (4x15=60 Marks)

7. द्वयोः श्लोकयोः प्रतिपदार्थ तात्पर्यं च लिखत ।
अ) गुरुपदेशः किल करयते बुधैरकर्कशं किञ्चन श्लकुण्डलम् ।
अमेचकं नूतनमञ्जन सतामजातगत्रक्षथमद्भुत तपः ॥
आ) अशेषदोषाङ्कुरकुञ्जभुमयी मदान्धचेतोमृगबन्धवागुराः ।
कयं नु विश्वासपदं मनीषिणां मनोजमायाभटर्शास्त्रकाः स्त्रिय ॥
इ) हितानि कुर्वन्नापि नानुस्तसे जनस्य जल्पन् परुषं रुषा नृपः ।
पयांसि वर्षन्नपि किं न भीषणः कठोरविस्फूर्जयुर्गजज्ञतो घनः ॥
ई) भवादृशास्तु स्वत एव शुद्धया गुरुपदेशैर्गुणित प्रकाराया ।
धिया निस्तव्यसनानुबन्धया विलोक्य कार्याणि विधातुमीराते ॥
8. द्वयोः अलङ्कारयोः लक्ष्यलक्षणसमन्वयं लिखत ।
1) अप्रस्तुतप्रशंसा 2) दुष्टान्तः 3) अनन्वयः 4) प्रतिवस्तुपमा
9. "शिष्यानुशासनम्" इति पाठ्याशंस्य उपदियताम् उपवर्णयत ।
(अथवा)
केनोपनिषद् वर्णितानुसारं ब्रह्मशक्तिः गरीयसी इति पाठचारास्य सारांश लिखत ।
10. द्वयोः महाकविशास्त्रकारयोः परिचयं समग्रेण लिखत ।
1) पाणिनिः 2) भरतमुनिः 3) भारविः 4) श्रीहर्षः

Faculty of Science

B.A/B.Sc (Computer Applications / Computer Science) III-Year, CBCS -V Semester

Regular Examinations –Jan, 2023

Generic Elective

PAPER: Information Technologies

Time: 3 Hours

Max Marks: 80

Section-A

I. Answer any *eight* of the following questions

(8x4=32 Marks)

1. Information Technology
2. E-Commerce
3. Smart card
4. Software
5. Firmware
6. Flowchart
7. Data & Information
8. DML commands
9. Database
10. Internet Security
11. Data switching
12. Bluetooth

Section-B

II. Answer the following questions

(4x12=48 Marks)

- 13.(a) Explain Information Technology components
(OR)
(b) Write about Electronic Data Interchange (EDI)
- 14.(a) Explain evolution of Operating system(OS)
(OR)
(b) Write about File Management
- 15.(a) What is an Algorithm? Explain its characteristics
(OR)
(b) Explain about Database models
- 16.(a) Explain about Types of Networks
(OR)
(b) Write about Cloud Computing

Faculty of Science
B.Sc (Mathematics) III-Year, CBCS -V Semester
Regular Examinations –Jan, 2023
PAPER: Linear Algebra

Time: 3 Hours

Max Marks: 80

Section-AI. Answer any *eight* of the following questions

(8x4=32 Marks)

1. Define vector space and sub space of a vector space.
2. Show that $W = \left\{ \begin{bmatrix} a \\ b \\ c \end{bmatrix} : a - 3b - c = 0 \right\}$ is a sub space of $\mathbb{R}^3$.
3. Find a basis for the set of vectors in $\mathbb{R}^3$ in the plane $x - 3y + 2z = 0$.
4. State the Rank theorem. If A is a 7x9 matrix with a two dimensional null space, what is the rank of A?
5. $\begin{bmatrix} 3 \\ -2 \\ 1 \end{bmatrix}$ is an eigen vector of $\begin{bmatrix} -4 & 3 & 3 \\ 2 & -3 & -2 \\ -1 & 0 & -2 \end{bmatrix}$ then find the eigen value.
6. Define eigen value and eigen vector of a square matrix A.
7. Let $A = PDP^{-1}$ where $P = \begin{bmatrix} 5 & 7 \\ 2 & 3 \end{bmatrix}$ and $D = \begin{bmatrix} 2 & 0 \\ 0 & 1 \end{bmatrix}$ then compute A^4 .
8. Show that the eigen values of $A = \begin{bmatrix} a & -b \\ b & a \end{bmatrix}$ are $a \pm bi$ with corresponding eigen vectors $\begin{bmatrix} 1 \\ -i \end{bmatrix}$ and $\begin{bmatrix} 1 \\ i \end{bmatrix}$ where $a, b \in \mathbb{R}$.
9. Find the B-matrix for the transformation $X \mapsto AX$ where $B = \{b_1, b_2\}$,
 $A = \begin{bmatrix} -4 & -1 \\ 6 & 1 \end{bmatrix}$, $b_1 = \begin{bmatrix} -1 \\ 2 \end{bmatrix}$, $b_2 = \begin{bmatrix} -1 \\ 1 \end{bmatrix}$
10. Define orthogonal set and orthonormal basis.
11. $w = \begin{bmatrix} 3 \\ -1 \\ -5 \end{bmatrix}$ and $x = \begin{bmatrix} 6 \\ -2 \\ 3 \end{bmatrix}$ are two vectors then find $w \cdot w$ and $x \cdot x$
12. If u and v are orthogonal vectors then prove that $\|u + v\|^2 = \|u\|^2 + \|v\|^2$

Section-B

II. Answer the following questions

(4x12=48 Marks)

13.(a) (i) Prove that null space of an $m \times n$ matrix A is a sub space of $\mathbb{R}^n$.

(ii) Find basis and dimension of the sub space $\left\{ \begin{bmatrix} p - 2q \\ 2p + 5r \\ -2q + 2r \\ -3p + 6r \end{bmatrix} : p, q, r \in \mathbb{R} \right\}$

(OR)

(b) Define coordinate vector relative to the basis $\mathcal{B}$. $\mathcal{B} = \{1 + t^2, t + t^2, 1 + 2t + t^2\}$ is a basis for $\mathbb{P}_2$. Find the coordinate vector of $p(t) = 1 + 4t + 7t^2$ relative to $\mathcal{B}$.

14.(a) Find basis for the row space, the column space and the null space of the

$$\text{matrix } A = \begin{bmatrix} -2 & -5 & 8 & 0 & -17 \\ 1 & 3 & -5 & 1 & 5 \\ 3 & 11 & -19 & 7 & 1 \\ 1 & 7 & -13 & 5 & -3 \end{bmatrix}$$

(OR)

(b)(i) Define characteristic equation of a square matrix. Find eigen values of

$$A = \begin{bmatrix} 2 & 3 \\ 3 & -6 \end{bmatrix}$$

- (ii) Define similar matrices. Prove that if A and B are similar matrices then they have same characteristic polynomial.

15.(a) Diagonalize the matrix $A = \begin{bmatrix} 1 & 3 & 3 \\ -3 & -5 & -3 \\ 3 & 3 & 1 \end{bmatrix}$ if possible.

(OR)

(b) $T: \mathbb{P}_2 \rightarrow \mathbb{R}^3$ is defined by $T(p) = \begin{bmatrix} p(-1) \\ p(0) \\ p(1) \end{bmatrix}$ then show that T is a linear

transformation and find the matrix for T relative to the basis $\{1, t, t^2\}$ for $\mathbb{P}_2$ and the standard basis for $\mathbb{R}^3$.

16.(a)(i) State and prove parallelogram law.

(ii) Construct an orthonormal basis for $\begin{bmatrix} 3 \\ -4 \\ 6 \end{bmatrix}, \begin{bmatrix} -3 \\ 14 \\ 7 \end{bmatrix}$

(OR)

(b) Determine the set of vectors $\left\{ \begin{bmatrix} 1/\sqrt{18} \\ 4/\sqrt{18} \\ 1/\sqrt{18} \end{bmatrix}, \begin{bmatrix} 1/\sqrt{2} \\ 0 \\ -1/\sqrt{2} \end{bmatrix}, \begin{bmatrix} -2/3 \\ 1/3 \\ 2/3 \end{bmatrix} \right\}$ are orthonormal?

Faculty of Science
B.Sc (Mathematics) III-Year, CBCS -V Semester
Regular Examinations -Jan, 2023
PAPER: Linear Algebra

Time: 3 Hours

Max Marks: 80

విభాగం - ఎ

I. ఈ క్రింది ఏదైనా 8 ప్రశ్నలకు సమాధానములు రాయండి.

(8x4=32 Marks)

1. సదిశాంతరాళము మరియు ఉపాంతరాళము లను నిర్వచించండి.
2. $\mathbb{R}^3$ కు $W = \left\{ \begin{bmatrix} a \\ b \\ c \end{bmatrix} : a - 3b - c = 0 \right\}$ ఉపాంతరాళము అని చూపండి.
3. $\mathbb{R}^3$ మరియు $x - 3y + 2z = 0$ తలంపై ఉండే సదిశల సమితి ఏర్పరిచే ఆధారమును కనుక్కోండి.
4. కోటి సిద్ధాంతాన్ని ప్రవచించండి. A అనే 7×9 తరగతి మాత్రిక యొక్క శూన్య అంతరాళము యొక్క పరిమాణము రెండు అయితే A యొక్క కోటిని కనుక్కోండి.
5. $\begin{bmatrix} -4 & 3 & 3 \\ 2 & -3 & -2 \\ -1 & 0 & -2 \end{bmatrix}$ అనే మాత్రిక యొక్క ఐగన్ సదిశ $\begin{bmatrix} 3 \\ -2 \\ 1 \end{bmatrix}$ అయితే ఐగన్ విలువను కనుక్కోండి.
6. A అనే చతురస్ర మాత్రిక యొక్క ఐగన్ విలువ మరియు ఐగన్ సదిశలను నిర్వచింపుము.
7. $P = \begin{bmatrix} 5 & 7 \\ 2 & 3 \end{bmatrix}$ మరియు $D = \begin{bmatrix} 2 & 0 \\ 0 & 1 \end{bmatrix}$ అవుతూ $A = PDP^{-1}$ అయితే A^4 ను గణించండి.
8. $\begin{bmatrix} 1 \\ -i \end{bmatrix}$ మరియు $\begin{bmatrix} 1 \\ i \end{bmatrix}$ అనే అనురూప ఐగన్ సదిశలు కలిగిన $A = \begin{bmatrix} a & -b \\ b & a \end{bmatrix}$ అనే మాత్రిక యొక్క ఐగన్ విలువలు $a \pm bi$ అని చూపండి. $a, b \in \mathbb{R}$.
9. $B = \{b_1, b_2\}$ అవుతూ $X \mapsto AX$ అనే పరివర్తనకు B — మాత్రికను కనుక్కోండి. ఇక్కడ $A = \begin{bmatrix} -4 & -1 \\ 6 & 1 \end{bmatrix}, b_1 = \begin{bmatrix} -1 \\ 2 \end{bmatrix}, b_2 = \begin{bmatrix} -1 \\ 1 \end{bmatrix}$
10. లంబ సమితి మరియు లంబాబిలంబ ఆధారమును నిర్వచింపుము.
11. $w = \begin{bmatrix} 3 \\ -1 \\ -5 \end{bmatrix}$ మరియు $x = \begin{bmatrix} 6 \\ -2 \\ 3 \end{bmatrix}$ లు రెండు సదిశలు అయితే $w \cdot w$ మరియు $x \cdot x$ లను కనుక్కోండి.
12. u మరియు v లు రెండు లంబ సదిశలు అయితే $\|u + v\|^2 = \|u\|^2 + \|v\|^2$ అని నిరూపించండి.

విభాగం - బి

II. ఈ క్రింది ప్రశ్నలకు సమాధానములు రాయండి.

(4x12=48 Marks)

13. (a)(i) $m \times n$ తరగతి మాత్రిక A యొక్క శూన్య అంతరాళము $\mathbb{R}^n$ కు ఉపాంతరాళం అని నిరూపించండి.

(ii) $\left\{ \begin{bmatrix} p - 2q \\ 2p + 5r \\ -2q + 2r \\ -3p + 6r \end{bmatrix} : p, q, r \in \mathbb{R} \right\}$ అనే ఉపాంతరాళం యొక్క ఆధారము మరియు పరిమాణములను కనుక్కోండి.

(లేదా)

- (b) ఆధారము $\mathcal{B}$ దృష్ట్యా నిరూపక సదిశను నిర్వచింపుము. $\mathcal{B} = \{1+t^2, t+t^2, 1+2t+t^2\}$, $\mathbb{P}_2$ కు ఆధారము అయితే $p(t) = 1+4t+7t^2$ యొక్క నిరూపక సదిశను $\mathcal{B}$ ఆధారం దృష్ట్యా కనుక్కోండి.

14. (a) $A = \begin{bmatrix} -2 & -5 & 8 & 0 & -17 \\ 1 & 3 & -5 & 1 & 5 \\ 3 & 11 & -19 & 7 & 1 \\ 1 & 7 & -13 & 5 & -3 \end{bmatrix}$ అనే మాత్రిక యొక్క పంక్తి, దొంతి మరియు శూన్య

అంతరాళాల యొక్క ఆధారాన్ని కనుక్కోండి.

(లేదా)

- (b)(i) చతురస్ర మాత్రిక యొక్క లాక్షణిక సమీకరణాన్ని నిర్వచించండి. $A = \begin{bmatrix} 2 & 3 \\ 3 & -6 \end{bmatrix}$ అనే

మాత్రిక యొక్క ఐగన్ విలువలను కనుక్కోండి.

- (ii) సరూప మాత్రికలను నిర్వచించండి. A, B లు రెండు సరూప మాత్రికలు అయితే వాటి యొక్క లాక్షణిక బహుపది ఒకటే అని నిరూపించండి.

15. (a) వీలైతే $A = \begin{bmatrix} 1 & 3 & 3 \\ -3 & -5 & -3 \\ 3 & 3 & 1 \end{bmatrix}$ అనే మాత్రిక వికర్ణీయము అని చూపండి.

(లేదా)

(b) $T: \mathbb{P}_2 \rightarrow \mathbb{R}^3$ ని $T(p) = \begin{bmatrix} p(-1) \\ p(0) \\ p(1) \end{bmatrix}$ అనే ప్రమేయము గా నిర్వచిస్తే T రుజువుపరచగలము అని

చూపి, $\mathbb{P}_2$ కి చెందిన $\{1, t, t^2\}$ ఆధారం మరియు $\mathbb{R}^3$ కి చెందిన క్రమ ఆధారాల దృష్ట్యా T యొక్క మాత్రికను కనుక్కోండి.

16. (a)(i) సమాంతర చతుర్భుజి నియమాన్ని ప్రవచించి నిరూపించండి.

(ii) $\begin{bmatrix} 3 \\ -4 \\ 6 \end{bmatrix}, \begin{bmatrix} -3 \\ 14 \\ 7 \end{bmatrix}$ లకు లంబాబిలంబ ఆధారాన్ని నిర్మించండి.

(లేదా)

(b) $\left\{ \begin{bmatrix} 1/\sqrt{18} \\ 4/\sqrt{18} \\ 1/\sqrt{18} \end{bmatrix}, \begin{bmatrix} 1/\sqrt{2} \\ 0 \\ -1/\sqrt{2} \end{bmatrix}, \begin{bmatrix} -2/3 \\ 1/3 \\ 2/3 \end{bmatrix} \right\}$ అనే సమితి లంబాబిలంబ ఆధారం అని నిర్ధారించండి.

Faculty of Science

B.Sc (Physics) III-Year, CBCS -V Semester Regular Examinations -Jan, 2023

PAPER: Modern Physics

Time: 3 Hours

Max Marks: 80

Section-A

- I. Answer any *eight* of the following questions (8x4=32 Marks)
1. Explain L-S and J-J coupling schemes.
 2. What is Raman Effect? Give its applications.
 3. Wavelength of H_α line is $6560\text{\AA}$. Calculate Rydberg constant.
 4. Write Einstein's photo electric equation. Explain the terms in the equation.
 5. State and explain complimentary principle of Bohr.
 6. If an electron is accelerated with a voltage of 1000V in an electron microscope, find de-Broglie wavelength. (Planck's constant= 6.67×10^{-34} , mass of electron= 9.1×10^{-31} kg, charge of electron= 1.6×10^{-19} coulomb.)
 7. Define Binding energy. Calculate the binding energy of Deuteron.
 8. Write a short note on α -decay.
 9. The radius of Ho^{165} is 7.731 fermi. Find the radius of He^4
 10. Describe the crystal structure of CsCl.
 11. Derive Bragg's law of X-Ray diffraction.
 12. In a simple cubic lattice find the ratio of intercepts on the three axes by $(1, \bar{3}, 2)$ plane.

Section-B

- II. Answer the following questions (4x12=48 Marks)
13. (a) Explain the features of Vector atom model and how they are experimentally verified by the Stern-Gerlach experiment.
(OR)
(b) Discuss about vibrational energies and spectrum of diatomic molecules. Mention transition rules for pure vibration.
 14. (a) What are matter waves? Describe Davisson-Germer experiment to demonstrate wave nature electrons.
(OR)
(b) Derive Schrodinger's time independent wave equation.
 15. (a) Explain Gamow's theory of α -decay. Obtain Geiger-Nuttal law from it.
(OR)
(b) Explain the construction and working of the GM Counter. State its merits and demerits.
 16. (a) Describe lattice energy of an ionic crystal. Obtain the expression for lattice energy of ionic molecule.
(OR)
(b) Describe the Powder method for the analysis of crystal structure.

Faculty of Science
B.Sc (Physics) III-Year, CBCS –V Semester Regular Examinations –Jan, 2023
PAPER: Modern Physics

Time: 3 Hours

Max Marks: 80

విభాగం - ఎ

I. ఈ క్రింది ఏవైనా ఎనమిది ప్రశ్నలకు సమాధానములు వ్రాయండి. (8x4=32 Marks)

1. L-S మరియు J-J కప్లింగ్ లను వివరించండి.
2. రామన్ ప్రభావం అనగానేమి? అనువర్తనాలను పేర్కొనండి.
3. H_2 రేఖ తరంగదైర్ఘ్యం $6560\text{\AA}$ రేడ్ బర్న్ స్థిరాంకం కనుగొనండి.
4. ఐన్ స్టీన్ కాంతి - విద్యుత్ సమీకరణమును తెలిపి, అందులోని పదాలను వివరించండి.
5. బోర్ కాంప్లిమెంటరీ సూత్రం తెలిపి, వివరించండి.
6. ఒక ఎలక్ట్రాన్ మైక్రోస్కోప్ లో 1000° చే త్వరణిక్యతం చేసిన ఒక ఎలక్ట్రాన్ డీ-బ్రోగ్లీ తరంగదైర్ఘ్యం కనుగొనండి.
 (ప్లాంక్ స్థిరాంకం = 6.67×10^{-34} ఎలక్ట్రాన్ ద్రవ్యరాశి = 9.1×10^{-31} ఎలక్ట్రాన్ ఆవేశం = $1.6 \times 10^{-19} \text{C}$)
7. బంధన శక్తిని నిర్వచించి, డ్యూటెరాన్ బంధన శక్తిని లెక్కించండి.
8. α -క్షీణతపై లఘుటీక వ్రాయుము.
9. Ho^{165} యొక్క వ్యాసార్థం 7.731 ఫెర్మీ, He^4 వ్యాసార్థం కనుగొనండి.
10. CsCl స్పటిక నిర్మాణాన్ని వివరించండి.
11. X- కిరణ వివర్తన బ్రాగ్స్ నియమాన్ని తెలపండి.
12. ఒక simple cubic జాలకంలో మూడ అక్షాలపై (1,3,2)తలం యొక్క అంతర్ ఖండాల నిష్పత్తిని కనుగొనండి.

విభాగం - బి

II. ఈ క్రింది ప్రశ్నలకు సమాధానములు వ్రాయండి. (4x12=48 Marks)

13. (a) Vector atom model లక్షణాలను తెలపండి. సెర్న్-గెర్లాక్ ప్రయోగం ద్వారా వాటిని ఎలా ధృవీకరిస్తారు.
 (లేదా)
 (b) కంపన శక్తులు మరియు డయాటమిక్ అణువుల స్పెక్ట్రం ల గూర్చి వివరించండి. స్వచ్ఛమైన కంపనం (pure vibration) యొక్క transition నియమాలను పేర్కొనండి.
14. (a) ద్రవ్యతరంగాలు అనగానేమి? ఎలక్ట్రాన్ తరంగ స్వభావం గూర్చి తెలిపే డేవిసన్ - జెర్మర్ ప్రయోగం వివరించండి.
 (లేదా)
 (b) కాల స్వతంత్ర ఫ్రీడింగర్ తరంగ సమీకరణంను ఉత్పాదించండి.
15. (a) క్షీణతకు సంబంధించి గామో సీద్ధాంతం వివరించండి. దాని నుంచి గ్రెగర్ - నట్టల్ సూత్రం రాబట్టండి.
 (లేదా)
 (b) GM కౌంటర్ యొక్క నిర్మాణం, పనిచేయు విధానం వివరించండి. దాని యోగ్యతలు మరియు లోపాలను పేర్కొనండి.
16. (a) ఒక ఆయానిక స్పటికం యొక్క జాలక శక్తిని వివరించండి. ఆయానిక అణువు యొక్క జాలక శక్తికి సమీకరణం ఉత్పాదించండి.
 (లేదా)
 (b) స్పటిక నిర్మాణాన్ని విశ్లేషించే powder method ను వివరించండి.

Faculty of Science

B.Sc (Physics) III-Year, CBCS –V Semester Regular Examinations –Jan, 2023

Generic Elective

PAPER: Renewal Energy and Energy Harvesting

Time: 3 Hours

Max Marks: 80

Section-A

I. Answer any *eight* of the following questions (8x4=32 Marks)

1. List the different types of renewable energy sources.
2. What are the disadvantages of conventional power plants?
3. Define solar constant. How is it determined?
4. What are the advantages of flat-plate solar collector?
5. List out the collectors requiring one-axis sun tracking.
6. Differentiate active and passive solar heating system.
7. What factors led to accelerated development of wind power?
8. Mention the combustion characteristics of bio-gas.
9. Derive expression for energy available in the wind.
10. What are the potential sites for tidal energy in India?
11. What are geothermal fields?
12. What are the applications of geothermal energy?

Section-B

II. Answer the following questions (4x12=48 Marks)

- 13.(a) Describe role and potential of renewable energy in the present world.
(OR)
(b) Explain how the variation of insolation and temperature effects of a solar cell.
- 14.(a) Draw and explain an equivalent circuit of a practical solar cell.
(OR)
(b) Describe the principle of solar photovoltaic energy conversion.
- 15.(a) Sketch the diagram of a VAWT and explain the functions of its main components.
(OR)
(b) What are the different biomass energy resources and what is the energy yield from each of them?
- 16.(a) Explain the present status of development of ocean energy resources.
(OR)
(b) Explain the various types of geothermal energy resources.

Faculty of Science

B.Sc (Physics) III-Year, CBCS -V Semester Regular Examinations -Jan, 2023

Generic Elective

PAPER: Renewal Energy and Energy Harvesting

Time: 3 Hours

Max Marks: 80

విభాగం - ఎ

I. ఈ క్రింది ఏవైనా ఎనమిది ప్రశ్నలకు సమాధానములు వ్రాయండి.

(8x4=32 Marks)

1. వివిధ పునరుత్పాదక శక్తి వనరులను తెల్పండి.
2. సంప్రదాయక విద్యుత్ ఉత్పాదక కేంద్రాల లోపాలు తెల్పండి.
3. సౌర స్థిరాంకంను నిర్వచించండి. దానిని ఎలా కనుక్కుంటారు?
4. బల్బ పర్వపు పలక సౌర సేకరణ వల్ల లాభాలు ఏమి?
5. సౌర శక్తి ని ఒకే అక్షంపై గ్రహించే సేకరణలను తెల్పండి.
6. క్రియాత్మక మరియు నిష్క్రియాత్మక సౌర హీటర్లను పోల్చండి.
7. పవన శక్తి అభివృద్ధి వేగవంతమవటానికి దారి తీసిన కారణాలు ఏమి?
8. బయోగ్యాస్ దహన లక్షణాలను తెల్పండి.
9. పవన శక్తికి సమీకరణం రాబట్టండి.
10. భారతదేశంలో తరంగ శక్తికి అనువైన ప్రదేశాలు ఏవి?
11. భూ ఉష్ణ ప్రాంతాలు అనగా ఏమి?
12. భూ ఉష్ణ శక్తి అనువర్తనాలను వ్రాయండి.

విభాగం - బి

II. ఈ క్రింది ప్రశ్నలకు సమాధానములు వ్రాయండి.

(4x12=48 Marks)

13.(a) ప్రస్తుత ప్రపంచంలో పునరుత్పాదక శక్తి పాత్ర మరియు సామర్థ్యాలను వివరించండి.

(లేదా)

(b) సౌర ఘటం లక్షణాలను ఇన్సోలేషన్ మరియు ఉష్ణోగ్రతలో మార్పు ఏవిధంగా ప్రభావితం చేస్తాయో వివరించండి.

14.(a) సౌర ఫోటోవోల్టాయిక్ ఘటం తులనాత్మక వలయం గీచి వివరించండి.

(లేదా)

(b) సౌర ఫోటోవోల్టాయిక్ శక్తి మార్పిడి సూత్రం వివరించండి.

15.(a) VAWT పటం గీచి దాని ముఖ్య భాగాల పనితీరును వివరించండి.

(లేదా)

(b) వివిధ జీవరాశి (biomass) శక్తి వనరులను మరియు వాటి శక్తి దిగుబడులను వివరించండి.

16.(a) సముద్ర తరంగ శక్తి వనరుల అభివృద్ధి యొక్క ప్రస్తుత స్థితిని వివరించండి.

(లేదా)

(b) వివిధ భూఉష్ణ శక్తి వనరులను వివరించండి.

Faculty of Science

B.Sc (Statistics) III-Year, CBCS –V Semester Regular Examinations –Jan, 2023

PAPER: Applied Statistics-I

Time: 3 Hours

Max Marks: 80

Section-A

(8x4=32 Marks)

I. Answer any *eight* of the following questions

1. Explain Sampling and Non-Sampling Errors.
2. Discuss the advantages and disadvantages of sampling.
3. Explain mixed sampling methods.
4. Explain method of Optimum allocation.
5. Find the Efficiency of Systematic sampling over Simple random sampling.
6. Find the Variance of the Sample Mean in Stratified Random Sampling.
7. Explain Time series and discuss its components.
8. Explain Semi average method to measure trend.
9. Explain Ratio to trend method to measure the seasonal variations.
10. Explain statistical basis of Schwartz Control charts.
11. Explain the construction of Mean chart.
12. Define process control and product control with examples.

Section-B

(4x12=48 Marks)

II. Answer the following questions

- 13.(a) Elaborate Census survey versus Sample survey in detail.
(OR)

(b) In simple random sampling with replacement, estimate population proportion.
Extract its variance.

- 14.(a) If the population of consists of a linear trend, $Y_i=i$; $i=1,2, \dots, k$, then prove that
$$v(\bar{y}_{st}) \leq v(\bar{y}_{sys}) \leq v(\bar{y}_n)_R$$

(OR)

(b) Compare Simple Random Sampling with Stratified random sampling in detail.

- 15.(a) Explain the various models of Time series.

(OR)

(b) Fit a second degree parabola trend by the method of least squares to the following data.

Years	2005	2006	2007	2008	2009
Sales('000)	10	12	14	10	8

- 16.(a) (i) Defining SQC and discuss the role of 4 M's in SQC.
(ii) Explain the procedure for the construction of R-Chart

(OR)

(b) Explain the construction of C-Chart for fixed and variable sample sizes.

Faculty of Science

B.Sc(Statistics) III-Year, CBCS-V Semester Regular Examinations –Jan, 2023

Generic Elective

PAPER: Basic Statistics

Time: 3 Hours

Max Marks: 80

Section-A

I. Answer any *eight* of the following questions

(8x4=32 Marks)

1. Define Population and Sample gives an example for each.
2. What is meant by nominal scale, ordinal scale?
3. Explain what ogive, give two examples.
4. Obtain Range and Quartile deviation to the following data.
58, 62, 56, 63, 55, 61, 55
5. Define Skewness.
6. Define median, give the importance of median.
7. Discuss about Scatter diagram and discuss its importance.
8. What is principle of least square?
9. Define rank correlation coefficient are give an example.
10. Discuss independent of attributes with suitable examples.
11. Examine the consistency of the given data.
 $(AB) = 256, (\alpha\beta) = 144, (A\beta) = 48, (\alpha B) = 768$.
12. Define contingency, give suitable examples.

Section-B

II. Answer the following questions

(4x15=60 Marks)

13. (a) Explain qualitative and quantitative data give examples each.
(OR)
(b) Explain the scope of statistics in detail.
14. (a) Explain measures of Dispersion.
(OR)
(b) Calculate mean deviation and standard deviation to the following data.
21, 23, 25, 28, 30, 32, 38, 39, 46, 48
15. (a) Define Partial , multiple correlation and Regression with examples.
(OR)
(b) Explain the procedure fitting of an exponential curve of the form $y = ae^{bx}$.
16. (a) Calculate Yule's co-efficient of association and colligation to the given data.
 $(A) = 192, (B) = 172, (\alpha\beta) = 100, N = 366$
(OR)
(b) Calculate remaining class frequencies for the following data.
 $N = 100, (A) = 50, (B) = 70, (AB) = 30$

Faculty of Science

B.Sc (Electronics) III-Year, CBCS -V Semester Regular Examinations -Jan, 2023
(General Elective)

PAPER: Basic Electronics

Time: 3 Hours

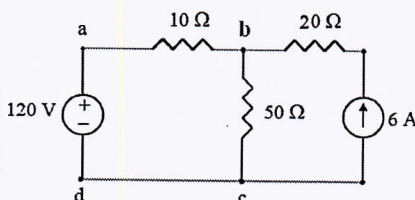
Max Marks: 80

Section-A

- I. Answer any *eight* of the following questions (8x4=32 Marks)
1. Define and write units of Electric field, Electric potential and EMF.
 2. What is capacitor? Explain voltage-current relation in capacitor.
 3. Determine the resistance of the given resistor with the given color sequence (Red, Green, Red, Gold).
 4. Explain impedance and admittance of a network.
 5. Describe branch, lumped and distributed networks.
 6. What is mesh & node analysis.
 7. What is potential barrier. Explain forward bias.
 8. Draw and explain VI characteristics of PN- diode.
 9. Write a short notes on Zener breakdown.
 10. Describe the operation of NPN transistor.
 11. Define β , Show that $\beta = \alpha / (1 - \alpha)$.
 12. Explain cutoff and active regions.

Section-B

- II. Answer the following questions (4x12=48 Marks)
- 13.(a) What is resistor. Find resultant resistance when three resistors are connected in i) series and ii) parallel.
 (OR)
 (b) What is inductor? Explain mutual inductance & coefficient of coupling. Find energy stored in inductors.
 - 14.(a) Explain KVL & KCL with circuit diagram.
 (OR)
 (b) Find voltage and current across 10Ω , 20Ω & 50Ω resistor from the given circuit diagram.



- 15.(a) What is depletion region? Draw and explain VI characteristics of Tunnel diode.
 (OR)
 (b) Draw the circuit diagram of a full wave rectifier and explain its operation.
- 16.(a) Draw the symbol of PNP transistor. Explain the mechanism of current flow in PNP transistor. Why is base made thin.
 (OR)
 (b) What is early effect? Draw CE configuration of transistor, explain its output and input characteristics

Section-A

I. Answer any *eight* of the following questions

(8x4=32 Marks)

1. Convert the following decimal numbers to hexadecimal
a) 375 b) 27.125
2. State and explain the two forms of DeMorgan's laws.
3. Briefly discuss parallel adder.
4. Simplify $Y = \Sigma(2, 3, 5, 6, 13, 15)$
5. Explain two input multiplexer.
6. What is don't care condition explain with truth table.
7. Explain Serial-in Parallel-out shift register.
8. Briefly explain Propagation delay and Race-around condition.
9. Briefly explain Ring Counter.
10. What is an instruction cycle? Draw the timing diagram of fetch cycle.
11. Explain about address space partitioning.
12. Discuss Branch control operations and stack of 8085 microprocessor.

Section-B

II. Answer the following questions

(4x12=48 Marks)

- 13.(a) What is an Octal number system? How to convert an Octal number into a Binary and a Decimal number and Vice-Versa and explain with suitable examples.
(OR)
(b) Draw the CMOS logic circuit diagram and explain its operation. Draw CMOS NAND and NOR diagrams.
- 14.(a) What is a Karnaugh map? Explain how to construct a 3-variable map and solve it with an example.
(OR)
(b) What is an Binary-to-Octal Decoder? Explain its working with the help of truth table and circuit.
- 15.(a) Explain the working of Clocked RS Flip-flop with its logical diagram and truth table.
(OR)
(b) Draw the internal block diagram of 7490 IC and explain its operation as a decade counter.
- 16.(a) Discuss the architecture of 8085 microprocessor and explain each block.
(OR)
(b) Explain logical and data transfer operations in 8085 microprocessor with suitable examples.

Faculty of Science

B.Sc (Statistics) III-Year, CBCS –V Semester Regular Examinations –Jan, 2023

(for data science students only)

PAPER: Analytical Statistics-I

Time: 3 Hours

Max Marks: 80

Section-A

I. Answer any *eight* of the following questions (8x4=32 Marks)

1. Explain the limitations of sampling
2. Define any two types of sampling methods with examples.
3. Explain the concept of proportional allocation
4. What are the models in time series Explain?
5. Explain moving average method for estimating trend.
6. Discuss link relative method.
7. Define 3σ control limits
8. Explain the construction of u- chart
9. Explain the applications of c-chart
10. Define ANOVA and write its assumptions
11. State Cochran's theorem, Give its applications
12. Give the ANOVA table for CRD.

Section-B

II. Answer the following questions (4x12=48 Marks)

- 13.(a) Define sampling and explain the principle steps in conducting sample survey
(OR)

(b) Explain stratified random sampling procedure in detail.

- 14.(a) Explain how to fit Gompertz curve.

(OR)

(b) Define seasonal variations and Explain ratio to trend method in isolating seasonal variations, Also give its merits and demerits

- 15.(a) Define Quality and Explain the statistical basis for control charts

(OR)

(b) Define fraction defective and construct p-chart with a) fixed 'n' b) varying 'n'

- 16.(a) Three sets of five mice were randomly selected to be placed in a standard maze, but with different color doors. The response is the time required to complete the maze seen below. Perform the appropriate analysis to test if there is an effect due to door color (use $\alpha=0.01$)

Color	Time				
Red	6	5	8	14	7
Green	20	21	23	17	30
Black	9	11	10	9	15

Given $F_{0.01}(2,12)=6.93$

(OR)

- (b) Define RBD and Estimate the missing value in Randomized block design

Faculty of Science

B. Sc (Data Science) III-Year, CBCS –V Semester Examinations –Jan, 2023

PAPER: Natural Language Processing

Time: 3 Hours

Max Marks: 80

Section-A

I. Answer any *eight* of the following questions (8x4=32 Marks)

1. What is Language Processing?
2. What are the Simple Statistics for Computing with Languages?
3. Write a short note on WordNet.
4. How to Access Text from the Web?
5. How to process Text with Unicode?
6. How to determine the Category of a Word?
7. What is Evaluation?
8. Write a short note on Neural Networks.
9. Define Deep Learning.
10. What is Chunking?
11. What is Parsing?
12. What is the use of Syntax?

Section-B

II. Answer the following questions (4x12=48 Marks)

13. (a) Describe different ways of Computing Texts and Words in Python.

(OR)

(b) Describe the Conditional Frequency Distributions.

14. (a) What are Regular Expressions? Write the Applications of Regular Expressions. How they are used for detecting Word Patterns?

(OR)

(b) What is Tagging? How to use Tagger? Explain Automatic Tagging.

15. (a) What are Naïve Bayes Classifiers? Explain them.

(OR)

(b) Explain Convolutional Neural Networks.

16. (a) Describe the Recursion in Linguistic Structure.

(OR)

(b) Define Context Free Grammar. Explain the Parsing with Context Free Grammar?

Faculty of Science

B.Sc (Data Science) III-Year, CBCS –V Semester Regular Examinations –Jan, 2023

PAPER: No SQL Data Bases

Time: 3 Hours

Max Marks: 80

Section-A

- I. Answer any *eight* of the following questions (8x4=32 Marks)
1. Explain Materialized Views.
 2. What is Impedance Mismatch? Explain.
 3. Explain Graph Databases.
 4. Discuss about Sharding.
 5. Explain, How NoSQL Databases relax Consistency?
 6. Explain CAP Theorem.
 7. Explain the Use Cases of Key-Value Data Stores.
 8. Why are some applications not suitable to implement with Document Databases?
 9. Compare scalability of Redis and MongoDB.
 10. Explain CRUD operations on table in Cassandra.
 11. Discuss Use Cases of Graph Databases.
 12. Explain consistency of Neo4j.

Section-B

- II. Answer the following questions (4x12=48 Marks)
13. (a) Explain the differences between Relational Databases and NoSQL Databases.
What is the need of NoSQL Databases?
(OR)
(b) What is an Aggregate? Which NoSQL databases use Aggregate structure?
Explain how they are using Aggregate structures?
 14. (a) Explain various Consistencies with example.
(OR)
(b) What is Map-Reduce? Explain Partitioning and Combining functions in detail.
 15. (a) Explain CRUD operations of Key-value Data Stores with the help of Redis.
(OR)
(b) What is Document Database? Explain its features.
 16. (a) What is Column Family Data Stores? Explain its features.
(OR)
(b) Explain CRUD operations of Neo4j.

Faculty of Science
B.A/B.Sc (Computer Applications) III-Year, CBCS –V Semester
Regular Examinations –Jan, 2023
PAPER: Programming in Java

Time: 3 Hours

Max Marks: 80

Section-AI. Answer any *eight* of the following questions (8x4=32 Marks)

1. Define a Class and Object. How to create an Object?
2. Explain Type Casting.
3. What is JVM? Write its function.
4. Define a Constructor? Write different types of Constructors.
5. Write a short note on Static Keyword.
6. Define a Package. How to Create and Execute a Package?
7. Define Exception? Specify User Defined Exceptions.
8. What is Thread Synchronization?
9. Write a short note on Scanner Class.
10. What is an Event? Write the Types of Events.
11. Write a short note on Container Class.
12. Write a short note on JTable.

Section-B

II. Answer the following questions (4x12=48 Marks)

- 13.(a) Describe the Features of Java.
(OR)
(b) Explain the Conditional Statements used in Java Programming.
- 14.(a) What is Overloading? Explain Method Overloading and Constructor Overloading.
(OR)
(b) Define Inheritance. Explain different Types of Inheritance.
- 15.(a) Define a Thread? Write a Program to Create a Thread by Extending Thread Class.
(OR)
(b) Explain File Streams in detail.
- 16.(a) Define an Applet. Explain Applet Life Cycle.
(OR)
(b) Explain AWT Components.

Faculty of Science

B.A/B.Sc (Computer Applications) II-Year, CBCS –IV Semester

Backlog Examinations, Jan-2023

PAPER: Multi Media Systems

Time: 3 Hours

Max Marks: 80

Section-A

I. Answer any *eight* of the following questions

(8x4=32 Marks)

1. What is Multimedia?
2. Write about hypermedia/Hypertext Editors
3. Differentiate bitmap and vector image.
4. Write short notes on different audio formats.
5. Define Animation.
6. Explain briefly about Digital Audio.
7. Explain the stages involved in developing a Multimedia Project.
8. Write about the different output devices in multimedia.
9. List steps involved in Producing Multimedia Application.
10. Write about the history of Internet.
11. Discuss about Animation for Web.
12. Write about delivery of Multimedia on CD-ROM.

Section-B

II. Answer the following questions

(4x12=48 Marks)

- 13.(a) Write about different areas of application of Multimedia.

(OR)

- (b) Explain the criteria used in choosing the Text Font.

- 14.(a) Differentiate between MIDI and Digital Audio.

(OR)

- (b) Write about Computerized Animation Techniques.

- 15.(a) Write about the Software used in making Multimedia.

(OR)

- (b) Explain the process of designing the user interface of a Multimedia project.

- 16.(a) Discuss about the process of designing Images for Web.

(OR)

- (b) What is testing? Discuss about the types of Testing.

Faculty of Science
B.A/B.Sc (Computer Applications) II-Year, CBCS –III Semester
Regular Examinations –Jan, 2023
PAPER: Relational Database Management Systems

Time: 3 Hours

Max Marks: 80

Section-A

- I. Answer any *eight* of the following questions (8x4=32 Marks)
1. Write about Data Redundancy and Data Abstraction.
 2. Write about Data Dictionary.
 3. What is a Data Model?
 4. What is Normalization?
 5. Write about the problems related to decomposition.
 6. Write about types of Indexes in a Databases.
 7. Write about Data Manipulation Language.
 8. Write about Views.
 9. Write about Functions in SQL.
 10. Write the properties of Transaction.
 11. Write about Database Concurrency.
 12. Write about Database security.

Section-B

- II. Answer the following questions (4x12=48 Marks)
- 13.(a) Explain physical Database Architecture.
(OR)
(b) i. Explain the functions of a Database Administrator.
ii. Explain various types of Attributes in an ER Model. (6+6)
- 14.(a) Explain fourth normal form and BCNF.
(OR)
(b) i. Explain about dependency preserving decomposition.
ii. Explain any two types of File Organisation. (6+6)
- 15.(a) Explain Order by, Group by clauses and various Joins in SQL using sample queries.
(OR)
(b) Explain DCL, TCL commands with sample queries and also explain Triggers in SQL with sample code.
- 16.(a) i. Write about Deadlocks in DBMS.
ii. Explain types of Schedules. (6+6)
(OR)
(b) Explain various aspects of Database recovery and Security.
