

Seat No.	
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Ph.D. Course Work (New) Examination: July-2024
English (Paper – 3)
Advanced Knowledge in Core Domain of English
(A Study of English Literary and Critical Theories)

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) Attempt a critical evaluation of the first wave feminist criticism.
 - b) Bring out the concept of Marxist feminism.
- Q.2 Answer any one of the following. 20**
- a) What is poststructuralism? Comment on the contribution of Roland Barthes.
 - b) Elaborate on psychoanalytic theories in the context of poststructuralism.
- Q.3 Answer any one of the following. 20**
- a) Attempt a critical survey of postcolonial theories.
 - b) Discuss the perspectives of Edward Said and Gayatri Chakraborty Spivak with reference to postcolonial theories.
- Q.4 Answer any two of the following. 20**
- a) Illustrate gay, lesbian and queer theories and bring out their significance in the contemporary studies.
 - b) Discuss the linguistic aspects a translator has to consider in the process of translation.
 - c) Write a note on the schools and trends in comparative studies.
- Q.5 Answer any two of the following. 20**
- a) What is relevance theory? Discuss.
 - b) State and explain the parameters of stylistic analysis.
 - c) Explain discourse analysis as a research perspective.

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Ph.D. Course Work (New) Examination: July-2024
Marathi (Paper – 3)
Advanced Knowledge in Core Domain of Marathi
मराठी साहित्याचे स्वरूप आणि उपयोजन

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
 2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20**
 अ) “संत साहित्याने सामाजिक विषमता नष्ट करण्याचा प्रयत्न केला” या विधानाची पडताळणी करा.
 ब) फुले, आंबेडकरी साहित्य समीक्षेचे स्वरूप व महत्त्व स्पष्ट करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे सविस्तर उत्तर लिहा. 20**
 अ) साठोत्तरी मराठी साहित्य व मराठी बोली यांचा अनुबंध स्पष्ट करा.
 ब) भाषा बदलाचा साहित्यावर, कर्ता, कर्म व क्रियापदावर होणारा परिणाम मराठी भाषेच्या संदर्भात उदाहरणासह स्पष्ट करा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20**
 अ) मार्क्सवादी साहित्य समीक्षा संकल्पना स्पष्ट करून मराठी मार्क्सवादी समीक्षेची वाटचाल सांगा.
 ब) साहित्य संशोधनातील भाषिक संशोधनाचे महत्त्व स्पष्ट करा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची थोडक्यात उत्तरे लिहा. 20**
 अ) साहित्य आणि वाचक यांचा परस्पर संबंध स्पष्ट करा.
 ब) वर्तमानकालीन साहित्य संस्कृती स्पष्ट करा.
 क) ‘नवता परंपरा’ या संकल्पना संस्कृती बदलाच्या अनुषंगाने स्पष्ट करा.
 ड) साहित्य, समाज आणि संस्कृती यांचा अनुबंध स्पष्ट करा.
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची थोडक्यात उत्तरे लिहा. 20**
 अ) धर्म व संस्कृती यांचे परस्पर संबंध स्पष्ट करा.
 ब) ‘समकालीन साहित्य’ ही संकल्पना संस्कृतीच्या अनुषंगाने स्पष्ट करा.
 क) बदलती समाजमाध्यमे व साहित्य व्यवहार यांचा सहसंबंध स्पष्ट करा.
 ड) ई-साहित्याची वैशिष्ट्ये व मर्यादा सांगा.

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**Ph.D. Course Work (New) Examination: July-2024
Hindi (Paper – 3)**

Advanced Knowledge in Core Domain of Hindi (हिंदी साहित्य)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

- सूचना : 1) सभी प्रश्न अनिवार्य हैं।
2) सभी प्रश्नों को समान अंक है।

- प्र.1 निम्नलिखित में से किन्हीं एक प्रश्न का उत्तर लिखिए। 20
 अ) कहानी की परिभाषा स्पष्ट करते हुए प्रेमचंद पूर्व युग की कहानियों की विशेषताओं का विवेचन कीजिए।
 ब) नाटक के तत्वों के आधार पर 'आधे-अधुरे' नाटक की समीक्षा कीजिए।
- प्र.2 निम्नलिखित में से किन्हीं एक प्रश्न का उत्तर लिखिए। 20
 अ) 'रश्मिर्थी' खण्डकाव्य में कर्ण के समक्ष अन्य सभी पात्र निस्तेज हो गये हैं।'' इस उक्ति के आधार पर कर्ण का चरित्र-चित्रण कीजिए।
 ब) सुशीला टाकमौरे की कहानियों की भाषा की चर्चा करते हुए विशेषता स्पष्ट कीजिए।
- प्र.3 निम्नलिखित में से किन्हीं एक प्रश्न का उत्तर लिखिए। 20
 अ) नाटक की परिभाषा स्पष्ट करते हुए नाटक के तत्वों का विवेचन कीजिए।
 ब) आलोचना की परिभाषा देते हुए आलोचक के गुणों की चर्चा कीजिए।
- प्र.4 निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर लिखिए। 20
 अ) हिंदी आत्मकथा की विशेषता लिखिए।
 ब) रेखाचित्र का स्वरूप स्पष्ट कीजिए।
 क) यमदीप उपन्यास की भाषा स्पष्ट कीजिए।
- प्र.5 निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर लिखिए। 20
 अ) तुलनात्मक साहित्य की विशेषताएँ लिखिए।
 ब) एकांकी के तत्वों को स्पष्ट कीजिए।
 क) 'सुदामा पांडे का प्रजातंत्र' में चित्रित समस्याओं का अंकन कीजिए।

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Ph.D. Course Work (New) Examination: July-2024
Kannada (Paper – 3)
Advanced Knowledge in Core Domain of Kannada

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

- ಪ್ರ.1 ಬೇಕಾದ ಒಂದು ಪ್ರಶ್ನೆಗೆ ಉತ್ತರಿಸಿರಿ. 20
 ಅ) ಹಳಗನ್ನಡ ಸಾಹಿತ್ಯದ ಸ್ವರೂಪ ಲಕ್ಷಣಗಳ ಕುರಿತು ಬರೆಯಿರಿ.
 ಬ) ನಡುಗನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರೇರಣೆ-ಧೋರಣೆಗಳಾವುವು? ವಿವರಿಸಿರಿ.
- ಪ್ರ.2 ಬೇಕಾದ ಒಂದು ಪ್ರಶ್ನೆಗೆ ಉತ್ತರಿಸಿರಿ. 20
 ಅ) ಹೊಸಗನ್ನಡ ಸಾಹಿತ್ಯಕ್ಕೆ ಒದಗಿ ಬಂದ ಪ್ರೇರಣೆಗಳಾವುವು? ವಿವರಿಸಿರಿ.
 ಬ) ಹೊಸಗನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಮುಖ ಘಟ್ಟಗಳಾವುವು? ಸಂಕ್ಷಿಪ್ತವಾಗಿ ಅವಲೋಕಿಸಿರಿ.
- ಪ್ರ.3 ಬೇಕಾದ ಒಂದು ಪ್ರಶ್ನೆಗೆ ಉತ್ತರಿಸಿರಿ. 20
 ಅ) ಕಾವ್ಯ ಪ್ರಯೋಜನಗಳಾವುವು? ವಿವರಿಸಿರಿ.
 ಬ) ಪಾಶ್ಚಾತ್ಯಕಾವ್ಯಮೀಮಾಂಸೆಯ ಪರಿಕಲ್ಪನೆಗಳಾವುವು? ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವೇಚಿಸಿರಿ.
- ಪ್ರ.4 ಬೇಕಾದ ಎರಡು ಪ್ರಶ್ನೆಗಳಿಗೆ ಸಂಕ್ಷಿಪ್ತವಾಗಿ ಉತ್ತರಿಸಿರಿ. 20
 ಅ) ಭಾಷೆ ಎಂದರೇನು? ವ್ಯಾಖ್ಯಾನಿಸಿರಿ.
 ಬ) ಪ್ರಮುಖ ವ್ಯಾಕರಣ ಗ್ರಂಥಗಳನ್ನು ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿರಿ.
 ಕ) ಮಾತ್ರಾಣ ಮತ್ತು ಅಂಹಗಣಗಳ ಕುರಿತು ಬರೆಯಿರಿ.
- ಪ್ರ.5 ಬೇಕಾದ ಎರಡು ಪ್ರಶ್ನೆಗಳಿಗೆ ಸಂಕ್ಷಿಪ್ತವಾಗಿ ಉತ್ತರಿಸಿರಿ. 20
 ಅ) ಸಂಸ್ಕೃತಿ ಎಂದರೇನು? ವ್ಯಾಖ್ಯಾನಿಸಿರಿ
 ಬ) ಜನಪದ ಸಾಹಿತ್ಯದ ಸ್ವರೂಪ-ಲಕ್ಷಣಗಳಾವುವು? ವಿವರಿಸಿರಿ.
 ಕ) ಜನಪದ ಸಾಹಿತ್ಯದ ಪ್ರಕಾರಗಳಾವುವು? ವಿವರಿಸಿರಿ.

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**Ph.D. Course Work (New) Examination: July-2024
Prakrit (Paper – 3)
Advanced Knowledge in Core Domain of Prakrit**

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 वित्थरेण उत्तरं ददातु। (को वि 1) 20
अ) पाइय सिलालेहस्स इदिहास वण्णण।
ब) पागिद हत्थलेहस्स पिट्टभुमि उवयोग।
- प्र.2 वित्थरेण उत्तरं ददातु। (को वि 1) 20
अ) सोरसेणी आगम साहिच्च।
ब) अद्धमागहि आगम साहिच्च।
- प्र.3 वित्थरेण उत्तरं ददातु। (को वि 1) 20
अ) पाइय कव्व साहिच्च।
ब) पाइय कहा साहिच्च।
- प्र.4 संखेवेण वण्णणं करोतु। (को वि 2) 20
अ) आयरिय कुंदकुंद।
ब) सडखंडागम।
क) नेमिचंदायरिय एवं तस्स दव्वसंगहो
- प्र.5 संखेवेण वण्णणं करोतु। (को वि 2) 20
अ) वररुइ एवं तस्स पागिद पगास।
ब) पेमसुमण एवं तस्स पाइय सयं सिक्खगो
क) उदयचंदो एवं तस्स बालरुव पागिद वागरण

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Ph.D. Course Work (New) Examination: July -2024
Advanced Knowledge in Core Domain of Urdu

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the left indicate full marks.

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سوال نمبر 1. مفصل سوال کا جواب لکھیے۔ (کوئی ایک)

(A) ترقی پسند تحریک کے اغراض و مقاصد کا مفصل جائزہ لیجیے؟
(B) ترقی پسند سے وابستہ چند اہم ناول نگاروں پر سیر حاصل معلومات لکھیے؟

20

سوال نمبر 2. مفصل سوال کا جواب لکھیے۔ (کوئی ایک)

(A) کلیم الدین احمد کی تنقید نگاری کا تنقیدی جائزہ لیجیے؟
(B) ترقی پسند تنقید کے اردو ادب پر کیا اثرات رونما ہوئے؟ مفصل وضاحت کیجیے؟

20

سوال نمبر 3. مفصل سوال کا جواب لکھیے۔ (کوئی ایک)

(A) ترقی پسند اردو افسانہ نگاری کا آغاز و ارتقاء کا پر مفصل نوٹ لکھیے؟
(B) ترقی پسند اردو نظم نگاری پر مفصل نوٹ لکھیے؟

20

سوال نمبر 4. مفصل جواب لکھیے۔ (کوئی دو)

(A) علی سردار جعفری کی نظم نگاری کا مفصل جائزہ لیجیے؟
(B) راجندر سنگھ بیدی کی ناول نگاری کا جائزہ لیجیے؟
(C) حیات اللہ انصاری کی افسانہ نگاری پر روشنی ڈالیے؟

20

سوال نمبر 5. مختصر سوالات کے جوابات لکھیے۔ (کوئی دو)

(A) سعادت حسن منٹو کے چند اہم ناولوں کا تنقیدی جائزہ لیجیے؟
(B) احتشام حسین کی ترقی پسند تنقید نگاری کا اجمالی جائزہ لیجیے؟
(C) قرۃ العین حیدر کی ناول نگاری پر نوٹ لکھیے؟

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Ph.D. Course Work (New) Examination: July-2024
Psychology (Paper – 3)
Advanced Knowledge in Core Domain of Psychology

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

- सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
 2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
 अ) बोधनिक वर्तन उपचार पद्धतीचे वर्णन करा.
 ब) मूड डिसऑर्डरची कारणे स्पष्ट करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
 अ) चिंता विकाराची लक्षणे आणि प्रकारांची चर्चा करा.
 ब) चिकित्सालयीन मूल्यांकन मुलाखतीचे सामान्य प्रकार कोणते आहेत? प्रत्येक प्रकाराचे थोडक्यात वर्णन करा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
 अ) समुपदेशनाची व्याख्या करा. समुपदेशनाची प्रक्रिया स्पष्ट करा.
 ब) समुपदेशकांच्या व्यावसायिक विकासाच्या कायदेशीर आणि नैतिक समस्यांचे स्पष्टीकरण द्या.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20
 अ) व्यक्तिमत्व व्याख्या द्या. व्यक्तिमत्त्वाचे पंच घटक प्रारूप स्पष्ट करा.
 ब) अशाब्दिक संप्रेषण म्हणजे काय? अशाब्दिक संप्रेषणाचे मूलभूत माध्यमे सांगा.
 क) व्यक्तिमत्त्वातील हृदय व रक्तवाहिन्यासंबंधी रोग समजावून सांगा.
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20
 अ) समूह समुपदेशनाचे फायदे आणि तोटे समजावून सांगा.
 ब) समुपदेशनाची उद्दिष्टे स्पष्ट करा.
 क) समुपदेशक कौशल्यांची तपशीलवार चर्चा करा.

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**Ph.D. Course Work (New) Examination: July-2024
Psychology (Paper – 3)
Advanced Knowledge in Core Domain of Psychology**

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
 a) Describe the Cognitive behavior therapy.
 b) Explain the causes of mood disorders.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
 a) Discuss the symptoms and types of anxiety disorder.
 b) What are the most common types of clinical assessment interviews? Briefly describe each type.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
 a) Explain the process of counseling.
 b) Explain the counselors' professional development legal and ethical issues.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
 a) Define Personality. Explain the five factor model of personality.
 b) What is non-verbal communication? State the Basic Channels of Non-Verbal Communication.
 c) Explain the cardiovascular diseases of personality.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
 a) Explain the benefits and drawbacks of group counseling.
 b) Explain the Goals of Counseling.
 c) State the definition of counseling. Discuss the detail counselor skills.

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**Ph.D. Course Work (New) Examination: July-2024
Philosophy (Paper – 3)**

Advanced Knowledge in Core Domain of Philosophy (Theory of Values)

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

- सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20
अ) नैतिक मूल्ये आणि न-नैतिक मूल्ये यातील फरक करा.
ब) आंतरिक आणि बाह्य मूल्ये म्हणजे काय? स्पष्ट करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20
अ) उपयुक्ततावादाचे स्वरूप स्पष्ट करा.
ब) चांगले आणि शुभ यातील भेद स्पष्ट करा.
- प्र.3 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20
अ) निष्काम कर्माचे स्वरूप स्पष्ट करा.
ब) बौद्ध धर्मानुसार ब्रह्मविहार म्हणजे काय? स्पष्ट करा.
क) कांटच्या दृष्टिकोनातून कर्तव्य म्हणजे काय?
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20
अ) अॅरिस्टॉटलच्या मतानुसार स्वातंत्र्य म्हणजे काय? स्पष्ट करा.
ब) ऋत संकल्पना स्पष्ट करा.
क) बौद्ध धर्मानुसार पंचशील म्हणजे काय?
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20
अ) मूरच्या मतानुसार अ-निसर्गवाद स्पष्ट करा.
ब) इच्छामरण संकल्पना स्पष्ट करा.
क) डॉक्टर आणि रूग्ण यांच्यातील नैतिक संबंध कसे असावेत ते स्पष्ट करा.

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Ph.D. Course Work (New) Examination: July-2024

Philosophy (Paper – 3)

Advanced Knowledge in Core Domain of Philosophy (Theory of Values)

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
 a) Distinguish between Moral and Non-moral Values.
 b) What is Intrinsic and Extrinsic Values? explain.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
 a) Explain the nature of Utilitarianism.
 b) Distinguish between Good and Right.
- Q.3 Answer any two of the following. (Short Answer Question) 20**
 a) Explain the nature of Nishkama karma.
 b) What is Brahmavihara according to Buddhism? Explain.
 c) What is duty by Kant?
- Q.4 Answer any two of the following. (Short Answer Question) 20**
 a) Explain, What is freedom by Aristotle?
 b) Explain the concept of Rta.
 c) What is Panchashila by Buddhism.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
 a) Explain Non-naturalism by Moore.
 b) Explain the concept of Euthanasia.
 c) Explain how the ethical relationship between doctor and patient should be.

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Ph.D. Course Work (New) Examination: July -2024
History (Paper – 3)
Advanced Knowledge in Core Domain of History
(Basic & Advanced Knowledge in History)

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
 2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
 अ) नवाश्मयुगाची वैशिष्ट्ये सांगा.
 ब) जैन धर्मातील तत्त्वज्ञानाची माहिती द्या.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
 अ) सम्राट चंद्रगुप्त मौर्याच्या कामगिरीचे मुख्यमापन करा.
 ब) मुघलकालीन आर्थिक व सांस्कृतिक परिस्थितीचे वर्णन करा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
 अ) भारतातील 1857 च्या उठावाची कारणे सांगा.
 ब) भारतीय राज्यघटनेची वैशिष्ट्ये सांगा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20
 अ) इतिहासाचे विविध प्रकार स्पष्ट करा.
 ब) 1789 च्या फ्रेंच राज्यक्रांतीचे परिणाम स्पष्ट करा.
 क) सुलतानशाही काळातील आर्थिक परिस्थितीचे वर्णन करा.
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20
 अ) जहालमतवाद्यांचा कार्यक्रम स्पष्ट करा.
 ब) चलेजाव चळवळीचे विश्लेषण करा.
 क) सविनय कायदेभंग चळवळीची माहिती द्या.

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Ph.D. Course Work (New) Examination: July -2024
History (Paper – 3)
Advanced Knowledge in Core Domain of History
(Basic & Advanced Knowledge in History)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
a) Discuss on the Features of Neolithic Age.
b) Explain the Philosophy of Jainism.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
a) Evaluate the achievements of Emperor Chandragupta Maurya.
b) Describe the Social and Cultural conditions during the Mughal Period.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
a) Explain the reasons for the Revolt of 1857 in India.
b) Explain the Silent features of Indian Constitutions.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
a) Explain the Various Kinds of History.
b) Explain the Effects of French Revolution 1789.
c) Describe the Economical Conditions during the Sultanshahi Period.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
a) Explain the program of Extrements.
b) Analysis the Quit India Movement.
c) Give information of the Civil disobedience Movement.

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Ph.D. Course Work (New) Examination: July-2024

A.I.H.C & A (Paper – 3)

Advanced Knowledge in Core Domain of A.I.H.C & A.

[Research in Indian Art and Architecture (From Prehistory to 1300 C.E.)]

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Describe the difference between Nagar and Dravid Style of Temple Architecture.
- b) Describe the salient features of Town planning of Indus Valley Civilization.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the beginning and development of Rock cut Architecture during Mauryan Period.
- b) Explain the Dravid style of Temple Architecture with special reference to South Indian Temples.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the emergence and development of rock cut Architecture with special reference to Ajanta and Ellora caves.
- b) Describe the origin of Temple Architecture during Vakataka Gupta period.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Explain the difference between Religious Art and secular Art.
- b) Discuss in detail on the Prehistoric Rock Art of Bhimbetka.
- c) Describe the main feature of Rath Temple of Mahabalipuram.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Describe the art and architecture of Bhaje and Karie caves.
- b) Konark Sun Temple.
- c) Temple architecture at Khajuraho

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**Ph.D. Course Work (New) Examination: July -2024
Political Science (Paper – 3)**

Advanced Knowledge in Core Domain of Political Science

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

- सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
अ) शीतयुद्धानंतरच्या आंतरराष्ट्रीय राजकारणाचे बदलते स्वरूप स्पष्ट करा.
ब) महात्मा गांधींच्या स्वराज्य संकल्पना स्पष्ट करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
अ) भारताच्या परराष्ट्र धोरणाचे निर्धारक घटक आणि भारताच्या परराष्ट्र धोरणाचे सत्तात्य आणि बदल स्पष्ट करा.
ब) राज्याच्या कल्याणकारी सिद्धांताच्या संदर्भात लोकशाहीवर निबंध लिहा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
अ) स्त्रीवादी चळवळीचे स्वरूप स्पष्ट करा.
ब) तुलनात्मक राजकारणाची व्याप्ती स्पष्ट करा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20
अ) डॉ. बी. आर. आंबेडकरांची सामाजिक न्यायाची संकल्पना स्पष्ट करा.
ब) भारतीय राज्यघटनेतील मुलभूत अधिकार स्पष्ट करा.
क) नव-लोकप्रशासन म्हणजे काय स्पष्ट करा.
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20
अ) पर्यावरणवादाच्या मूळ संकल्पना.
ब) जागतिकीकरणाच्या युगात विकास प्रशासनापुढील आव्हाने स्पष्ट करा.
क) नागरी समाजाचे स्वरूप

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Ph.D. Course Work (New) Examination: July -2024
Political Science (Paper – 3)
Advanced Knowledge in Core Domain of Political Science

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the Changing nature of International Politics in the post-cold war era.
- b) Explain Mahatma Gandhiji's Concept of Swaraj.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the determining factors of foreign policy of India and continuity and changes in Indian's Foreign Policy.
- b) Write an essay on democracy with reference to concept of Welfare State.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the Nature of Feminist Movement.
- b) Explain the Scope of Comparative Politics.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Explain Dr. B. R. Ambedkar's Concept of Social Justice.
- b) Explain the Fundamental Rights in the Constitution of Indian.
- c) Explain the what is New Public Administration.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Define Ecologism.
- b) Explain the Challenges before Development Administration in the era of Globalization.
- c) Nature of Civil Society.

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Ph.D. Course Work (New) Examination: July-2024
Sociology (Paper – 3)
Advanced Knowledge in Core Domain of Sociology
(Industry and Society)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20
अ) एमिल दुर्खीम यांच्या श्रमविभाजनाच्या सिद्धांताची चर्चा करा.
ब) औद्योगिकरण आणि नागरीकरणाचे भारतातील ग्रामीण भागावर होणारे परिणाम स्पष्ट करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20
अ) कामाच्या ठिकाणी केली जाणारी लिंग असमानता विशद करा.
ब) औद्योगिककरणाचे भारतीय समाजावरील परिणाम स्पष्ट करा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20
अ) औद्योगिककरणाचा जातीवर झालेला प्रभाव स्पष्ट करा.
ब) औद्योगिककरणामुळे सामाजिक संरचनेत झालेल्या बदलांची चर्चा करा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20
अ) घरगुती श्रमविभाजनात झालेले बदल सांगा.
ब) कार्ल मार्क्स यांचा अतिरिक्त मूल्याचा सिद्धांत स्पष्ट करा.
क) औद्योगिककरणाचा कुटुंबावर झालेला प्रभाव स्पष्ट करा.
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20
अ) औद्योगिककरणाचा विवाह संस्थेवरील प्रभाव स्पष्ट करा.
ब) कॉर्पोरेट क्षेत्रांची सामाजिक जबाबदारी सांगा.
क) मॅक्स वेबर यांची औद्योगिक नोकरशाहीची संकल्पना स्पष्ट करा.

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Ph.D. Course Work (New) Examination: July-2024
Sociology (Paper – 3)
Advanced Knowledge in Core Domain of Sociology
(Industry and Society)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
a) Discuss Emile Durkheim's theory of division of labour.
b) Explain the effects of industrialization and urbanization on rural areas in India.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
a) Elaborate on gender inequality in the workplace.
b) Explain the effects of industrialization on Indian society.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
a) Explain the impact of industrialization on the Caste.
b) Discuss the changes in social structure due to industrialization.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
a) State the changes in domestic division of labour.
b) Explain Karl Marx's theory of Surplus Value.
c) Explain the impact of industrialization on the family.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
a) Explain the impact of industrialization on the institution of marriage.
b) State the social responsibility of corporate sectors.
c) Explain Max Weber's concept of Industrial Bureaucracy.

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Ph.D. Course Work (New) Examination: July -2024
Economics (Paper – 3)
Advanced Knowledge in Core Domain of Economics

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
 2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
 अ) कर आकारणीचे करदेय क्षमता तत्व आणि लाभता तत्व वा सिद्धांत स्पष्ट करा.
 ब) अलीकडी काळात शेती क्षेत्रात झालेले तांत्रिक बदल विस्ताराने लिहा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
 अ) मिलर यांचा शेती विकासाचा सिद्धांत लिहा.
 ब) कृषी वित्तपुरवठ्यातील नाबार्डची (NABARD) भूमिका लिहा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
 अ) सार्वजनिक खर्च या संकल्पनेची व्याख्या आणि त्यातील वाढीची कारणे स्पष्ट करा.
 ब) कृषी-उद्योग म्हणजे काय? कृषी-उद्योगांची भूमिका आणि समस्या स्पष्ट करा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20
 अ) चलनविषयक धोरणाचा अर्थ सांगून जागतिकीकरणानंतरची या धोरणाची भूमिका लिहा.
 ब) वस्तू आणि सेवा कराचे (GST) स्वरूप आणि भार स्पष्ट करा.
 क) भारतातील अन्न सुरक्षा व्यवस्था विस्ताराने स्पष्ट करा.
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20
 अ) शेती क्षेत्रातील घटत्या फलाचा सिद्धांत लिहा.
 ब) भारतातील सहकारी चळवळीवर जागतिकीकरणाचा झालेला परिणाम विशद करा.
 क) भारतातील कामगार संघटनांची वृद्धी आणि रचना स्पष्ट करा.

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Ph.D. Course Work (New) Examination: July -2024
Economics (Paper – 3)
Advanced Knowledge in Core Domain of Economics

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the Theory of Ability to Pay and The Benefit Theory of taxation.
 - b) Write in details about the Recent Technological Changes in Agriculture sector.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the Mellor's Theory of Agricultural development.
 - b) Write the role of NABARD in Agriculture Finance.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Define the concept of public expenditure and explain the causes of growth in it.
 - b) What is Agro-Industry? Explain the role and problems of Agro-Industries.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Write the meaning and role of monetary policy after globalization.
 - b) Explain the nature and burden of GST.
 - c) Explain in detail the food security system in India.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Write the Law of Diminishing Returns in Agriculture.
 - b) Explain the impact of globalization on Co-operative movement in India.
 - c) Explain the growth and structure of trade unionism in India.

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Ph.D. Course Work (New) Examination: July -2024
Rural Development (Paper – 3)
Advanced Knowledge in Core Domain of Rural Development
(Recent Trends in Rural Development)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20
अ) ग्रामीण विकासाचा अर्थ, महत्त्व आणि गरज लिहा.
ब) विविध प्रकारची ग्रामीण अ-कृषी क्षेत्रे स्पष्ट करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20
अ) भारतातील पंचवार्षिक योजना काळातील ग्रामीण विकास स्पष्ट करा.
ब) शाश्वत कृषी आणि ग्रामीण जीवन वा उदरनिर्वाह (livelihood) याबाबत विस्ताराने लिहा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20
अ) ग्रामीण गृहनिर्माणाचा अर्थ, प्रकार आणि त्याच्या समस्या लिहा.
ब) 'महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार हमी कायदा' ही ग्रामीण विकासाची योजना स्पष्ट करा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20
अ) ग्रामीण जीवन वा उदरनिर्वाहाच्या (livelihood) उन्नतीसाठीच्या सरकारी योजना स्पष्ट करा.
ब) दारिद्र्य म्हणजे काय? ग्रामीण विकासासाठी दारिद्र्य निर्मूलनाचा कोणताही एक कार्यक्रम लिहा.
क) ग्रामीण श्रामिकाचा अर्थ आणि त्याची महत्त्वाची वैशिष्ट्ये स्पष्ट करा.
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20
अ) ग्रामीण पायाभूत सुविधेची संकल्पना आणि त्याच्या समस्या स्पष्ट करा.
ब) श्रमिकांच्या स्थलांतराबाबतचे ढकलणारे आणि ओढणारे (push and pull) घटक लिहा.
क) प्रधानमंत्री ग्राम सडक योजना (PMGSY) स्पष्ट करा.

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Ph.D. Course Work (New) Examination: July -2024
Rural Development (Paper – 3)
Advanced Knowledge in Core Domain of Rural Development
(Recent Trends in Rural Development)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
a) Write the meaning, importance and need of rural development.
b) Explain the different rural non-farm sectors.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
a) Explain the rural development under five year plans in India.
b) Write in detail about the Sustainable agriculture and rural livelihood.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
a) Write about the meaning, types and problems of rural housing.
b) Explain the rural development schemes of Mahatma Gandhi National Rural Employment Guarantee Act – MGNREGA.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
a) Explain the Government policies to promote rural livelihoods.
b) What is poverty? Write any one poverty alleviation programme for rural development.
c) Explain the meaning and key features of rural labour
- Q.5 Answer any two of the following. (Short Answer Question) 20**
a) Explain the concept and problems of rural infrastructure.
b) Write the push and pull factors of labour migration.
c) Explain the Pradhan Mantri Gram Sadak Yojana - PMGSY.

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Ph.D. Course Work (New) Examination: July-2024
LAW (Paper – 3)
Advanced Knowledge in Core Domain of Law

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
a) "Law is the command of sovereign." Comment.
b) Critically examine legal realism.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
a) Comment on freedom of press in the light of media trial.
b) Examine basic structure doctrine under Indian constitution.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
a) Evaluate issues involved in enforcement of morality under Indian legal system.
b) Examine impact of information technology upon right to privacy.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
a) Explain the impact of climate change on environment jurisprudence.
b) Write a brief note on social engineering.
c) Evaluate right to education in India.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
a) Does law have any role in social transformation? Explain.
b) Write a brief note on theory of justice by Amartya Sen.
c) Critically evaluate compensatory jurisprudence.

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Ph.D. Course Work (New) Examination: July-2024
Chemistry (Paper – 3)
Advanced Knowledge in Core Domain of Chemistry
(Recent Trends in Chemistry)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) The X-ray powder diffraction pattern of AgCl is obtained using radiation of wavelength 1.54 Å. The peaks are observed at 2θ values: 27.80°, 32.20°, 46.20°, 54.80°, 57.45° and 67.45°. On the basis that the structure is cubic and of NaCl type, index (assign hkl values) the peaks observed above and calculate unit cell parameter 'a' using the hkl value of one of the above peak?
- b) State the principle of HPLC. Describe the instrumentation of HPLC and mention its applications.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) What is the principle of Mossbauer spectroscopy? Outline its instrumentation and outline its applications with suitable examples.
- b) Explain the role of ionic liquids and green solvents in the organic synthesis. Write their advantages and limitations.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Write the applications of TGA, DTA, XPS and BET analysis.
- b) Compare C^{13} and H^1 NMR spectroscopy and explain the factors affecting the C^{13} chemical shifts.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) What are the specific properties of nanomaterials? Explain any two methods of synthesis of nano materials.
- b) What do you mean by the terms accuracy, precision and linearity range? Explain each of these with suitable examples.
- c) Explain the significance of McLafferty rearrangement reactions in structure elucidation using mass spectroscopy data.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Explain the molecular docking in details.
- b) Describe briefly the phase transfer catalysts.
- c) Discuss the working of ion chromatography and its applications.

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Ph.D. Course Work (New) Examination: July -2024
Physics (Paper – 3)
Advanced Knowledge in Core Domain of Physics
(Characterization Techniques)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) How X-ray diffraction technique is useful in the characterization of materials. When small angle XRD technique is used? Explain the role of JCPDs data card in analysis of XRD.
 - b) Describe any one surface characterization technique used for the determination of particle size. How the particle size is determined?
- Q.2 Answer any one of the following. 20**
- a) Explain the principle of TEM? Draw the block diagram of TEM and explain, how image formation takes. What is SAED?
 - b) Explain the principle and working of AFM. What are the different modes in it? What information can derive from AFM images?
- Q.3 Answer any one of the following. 20**
- a) What is the principle of Scanning Electron Microscopy (SEM)? Explain the role of backscattered electrons and secondary electrons in it. What information that one obtains from SEM?
 - b) What is the principle of XPS spectroscopy? Derive the relation between a photon (x-ra) and photoelectron energy. How XPS pattern is analyzed? Why do auger lines appear in XPS?
- Q.4 Answer any two of the following. 20**
- a) Explain the principle of FESEM. What information we obtain from FESEM?
 - b) How does IR spectroscopy differ from Raman spectroscopy?
 - c) Explain various advantages of Fourier transform spectroscopy.
- Q.5 Answer any two of the following. 20**
- a) What are symmetric and asymmetric vibrations? Explain with the example of the H₂O molecule.
 - b) What is Williamson-Hall Plot? How it is used in strain analysis and particle size determination.
 - c) How the band gap of the semiconductor material is determined using UV-VIS technique?

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Ph.D. Course Work (New) Examination: July -2024
Botany (Paper – 3)
Advanced Knowledge in Core Domain of Botany
(Recent Trends in Botany)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
a) Describe the applications of plant pathology in agriculture and industry.
b) What is IPM? Describe its management and control measures.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
a) What is Apomixis? Give its classification and significance in plant breeding.
b) Give the protocol of media preparation of plant tissue culture.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
a) Describe the principles, outlines, merits and demerits of Bentham and Hookers system.
b) Discuss the evolution of photosynthetic apparatus with suitable diagram.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
a) Give any five names and their uses of biopesticides.
b) Discuss various methods employed in breeding of cross pollinated plants.
c) Discuss the post harvest technology of fruit crops.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
a) Describe recent classification of algae.
b) Explain the plant habitat relationship with respect to allelopathy.
c) What is GMO crops? Describe any two GMO crops.

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Ph.D. Course Work (New) Examination: July -2024
Statistics (Paper – 3)
Advanced Knowledge in Core Domain of Statistics
(Advanced Statistics)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) Describe various control chart used for variables. Illustrate with real life example.
 - b) Explain: OC and ARL of control chart with its advantages.
- Q.2 Answer any one of the following. 20**
- a) Illustrate moving average and CUSUM control charts in detail.
 - b) Derive EWMA and Hotelling T^2 control chart.
- Q.3 Answer any one of the following. 20**
- a) Estimate the parameters for multiple linear regression models with and without intercept case.
 - b) Define Multicollinearity and explain the methods of diagnostic checking for it.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Define Simulation and discuss its application in industrial sector.
 - b) Discuss Jack Knife estimator and its properties.
 - c) Explain Box-Cox power Transformation of variables.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Define and explain: Artificial Neural Network.
 - b) Define and explain: Support vector machine.
 - c) Illustrate with suitable example Boot -Strap method.

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Ph.D. Course Work (New) Examination: July-2024
Zoology (Paper – 3)
Advanced Knowledge in Core Domain of Zoology
(Advanced Knowledge in - Zoology)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Discuss Evolutionary tree of Echinodermata.
 - b) What is the difference between Coelomate, Pseudocoelomate and acoelomates? Write short note on its evolutionary significance.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Describe origin of amphibian.
 - b) Describe adaptive radiation in Reptilia.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) What is taxonomy? Describe difference between taxonomy and biosystematics.
 - b) What is digestion? Describe digestion of Proteins and fats in detail.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Describe structure and function of adrenal gland.
 - b) What is PCR?
 - c) Enlist atleast 20 endangered species of animals.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Describe structure and functions of cell membrane.
 - b) Describe technique of Centrifugation.
 - c) Describe steps involved in histochemical staining.

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Ph.D. Course Work (New) Examination: July-2024
Microbiology (Paper – 3)
Advanced Knowledge in Core Domain of Microbiology
(Medical microbiology and Immunology)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Draw diagrams wherever necessary.
3) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) Explain schematically construction, types and working of biosafety cabinets in microbiological laboratories in industries.
 - b) Explain schematically construction, principle, working and applications of UV/ Visible Spectroscopy.
- Q.2 Answer any one of the following. 20**
- a) Write on Basic requirement of patentability and process of patenting.
 - b) Describe 16-s r-RNA gene sequencing and Fingerprinting.
- Q.3 Answer any one of the following. 20**
- a) Explain in detail on meaning, types and production of biological weapons.
 - b) Write on collection of clinical Samples (oral cavity, throat, skin, Blood, CSF, urine and faeces) and precautions required
- Q.4 Answer any two of the following. 20**
- a) Write on disease Leptospirosis w.r.t. causative agent, pathogenesis, lab diagnosis and treatment.
 - b) Write on disease Covid-19 w.r.t. causative agent, pathogenesis, lab diagnosis and treatment.
 - c) Explain Antimicrobial agents-Antibiotics w.r.t. types and mechanism of action.
- Q.5 Answer any two of the following. 20**
- a) Explain evolution and molecular mechanisms of antimicrobial resistance.
 - b) Describe Serological methods for diagnosis of microbial diseases.
 - c) Write on disease caused by Rotaviruses w.r.t. causative agent, pathogenesis, lab diagnosis and treatment.

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Ph.D. Course Work (New) Examination: July-2024
Microbiology (Paper – 3)
Advanced Knowledge in Core Domain of Microbiology
(Industrial and Food Microbiology)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw diagrams whatever necessary.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Explain schematically construction, types and working of biosafety cabinets in microbiological laboratories in industries.
 - b) Write on Biosafety Level standards, protocols, engineering, design, and construction techniques in industrial laboratories.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Explain construction, principle and applications of UV/ Visible Spectroscopy and GCMS.
 - b) Explain construction, principle and applications Thin Layer Chromatography and Gel filtration.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) What is patent? Write on basic requirement of patentability, process of patenting and patenting biological materials.
 - b) Explain in detail on meaning, types and production of biological weapons. Write a note on principles of bioethics.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Types of bioreactors
 - b) Biomass separation by centrifugation, filtration, flocculation and other recent developments.
 - c) Immobilization of Enzymes and Cells.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Single Cell Protein- Chlorella, Spirulina, Yeasts and Mushrooms.
 - b) Types and sources of biocatalysts in biotransformations.
 - c) Biosensors- Types and Applications.

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Ph.D. Course Work (New) Examination: July-2024
Microbiology (Paper – 3)
Advanced Knowledge in Core Domain of Microbiology
(Environmental and Agricultural Microbiology)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) What is GLP? Describe specification and working of BSL-1, BSL-2, and BSL-3.
 - b) Explain the principle, working and applications of Gas chromatography.
- Q.2 Answer any one of the following. 20**
- a) What is the difference between disinfection and sterilization? Which are the different methods used for disinfection and sterilization of biohazard waste?
 - b) Explain the principle, working and applications of density gradient centrifugation.
- Q.3 Answer any one of the following. 20**
- a) Explain the aerobic and anaerobic treatment methods used for waste water treatment.
 - b) Explain the principle, working, types and applications of Scintillation counters.
- Q.4 Answer any two of the following. 20**
- a) What is IPR? Explain the process and steps involved in patenting?
 - b) Describe the preparation and applications of Rhizobium biofertilizers.
 - c) Describe the microbial life in extreme environment w.r.t. barophiles and acidophiles.
- Q.5 Answer any two of the following. 20**
- a) What is GMO? Comments on its applications with suitable example?
 - b) Describe the biological control of soil born plant diseases.
 - c) Explain the principle and application of Agarose gel electrophoresis.

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Ph.D. Course Work (New) Examination: July-2024
Mathematics (Paper – 3)
Advanced Knowledge in Core Domain of Mathematics
(Fractional Differential Equations)

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q. 1 Answer any one of the following. (Long Answer questions) 20

a) If $\alpha \in \mathbb{C}$ such that $Re(\alpha) > 0$, then show that,

$$L\{I_x^\alpha e^{\lambda x}\} = \frac{s^\alpha}{s-\lambda}$$

b) Let $\alpha \in \mathbb{R}$ be such that $0 < \alpha < 1$, then show that the Fourier transform of fractional integral for function f is given by,

$$F\{I_\pm^\alpha f(x), \xi\} = (\pm 2\pi i \xi)^{-\alpha} \hat{f}(\xi)$$

Q.2 Answer any one of the following. (Long Answer questions) 20

a) Find the solution of the following differential equation

$${}_0 D_n^\alpha y - \lambda {}_0 D_x^\beta y = 0$$

$$y^{(k)}(0) = b_k, \quad k = 0, 1, \dots, n-1,$$

where ${}_0 D_x^\alpha$ denotes the Caputo derivative, $n-1 < \alpha < n$ and $\beta < \alpha - 1$.

b) Solve the following fractional differential equation

$${}_0 D_t^{1/2} y(t) + a y(t) = 0, \quad t > 0$$

subject to

$$\left[{}_0 D_t^{-1/2} y(t) \right]_{t=0} = c$$

c constant, where operator D denotes RL fractional derivative / integral.

Q.3 Answer any one of the following. (Long Answer questions) 20

a) Let f be an integrable function in $[a, b]$ and $\alpha > 0$ be a non-integer then

prove that $\lim_{\alpha \rightarrow 0} I_a^{-\alpha} f(x) = f(x)$ where $I_a^{-\alpha}$

denote α^{th} order RL fractional integral.

b) Evaluate Mellin transform of Caputo fractional derivative.

Q.4 Answer any two of the following. (Short Answer questions)

20

- a) Derive relation between Gamma function and Beta function.
 b) With all usual notations, show that,

$$\Gamma(z) \Gamma\left(z + \frac{1}{2}\right) = \sqrt{\pi} \cdot 2^{-2z+1} \Gamma(2z)$$

where $2z \neq 0, -1, -2, \dots$

- c) Define GL, RL and Caputo fractional derivatives and integration.

Q.5 Answer any two of the following. (Short Answer questions)

20

- a) Prove that, the RL fractional derivative operator is left inverse of the RL fractional integral of the same order.
 b) Let $p > 0$ ($p \in \mathbb{R}$). Compute

$${}_a^{\underline{D}}{}^p \sin at, \quad {}_a^{\underline{D}}{}^p \cos at \quad \text{where } a \in \mathbb{C}$$

- c) Let $p > 0$ ($p \in \mathbb{R}$). Evaluate

$${}_a^{\underline{D}}{}^p e^{at}, \quad a \in \mathbb{C}.$$

further if $n - 1 < p < n$, then verify that

$$\lim_{p \rightarrow n} {}_a^{\underline{D}}{}^p e^{at} = \frac{d^n}{dt^n} (e^{at})$$

Seat No.	
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Ph.D. Course Work (New) Examination: July-2024
Mathematics (Paper – 3)
Advanced Knowledge in Core Domain of Mathematics
(Computational Methods for Boundary Layer Theory)

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- What is Homotopy pade method and nth-order deformation equation of non linear Differential equation explain with the help of example.
 - What is Pade Approximation explain in detail with an example? How to calculate Pade approximation? Why they are important?
- Q.2 Answer any one of the following. 20**
- Use Homotopy Analysis Method (HAM) and write initial guess zeroth order and nth order deformation equation for

$$f'''(\eta) + f(\eta) f''(\eta) = 0, \quad f(0) = f'(0) = 0, f'(+\infty) = 1$$
 - Explain Advantages and limitations pertaining to pade approximants? Also write a note on Pade approximants for functions whose Taylor series has a finite radius of convergence, Two-point Pade approximants, Uniqueness of Pade approximants.
- Q.3 Answer any one of the following. 20**
- What is HAM algorithm explain its relation to ADM and HPM.
 - Find the increasing order Padé approximations for $f(x) = \frac{\log(1+x)}{x}$ Also, find $\cos(x)$ function searching for the $P[1/1]$ Pade approximant.
- Q.4 Answer any two of the following. 20**
- Brief on the Mathematica codes for ADM for Solving NLDEs.
 - Write a note on Similarity Solution for PDE's.
 - Explain Modified Adomian Decomposition Method with the help of example.
- Q.5 Answer any two of the following. 20**
- Use Adomian Decomposition Method to Solve.

$$u_t = x^2 + \frac{1}{4}u_x^2 \quad u(x, 0) = 0$$
 - Group Theoretic Methods related to Similarity Methods.
 - Write the similarity transformations and Similarity Differential equation for wave equation in one dimension $u_{tt} = c^2u_{xx}$

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Ph.D. Course Work (New) Examination: July -2024
Applied Geology (Paper – 3)
Advanced Knowledge in Core Domain of Applied Geology

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Write down in detail mineralogy, structure, chemistry and occurrence of Plagioclase felspar group of minerals.
 - b) Discuss in detail how Himalayas were formed.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Write down in detail classification, Genesis, field Petrographic & Chemical characters of Deccan Volcanic Province (DVP), Western Ghats, India.
 - b) Discuss in details Petroliferous basins of India.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Write down classification of Carbonate and evaporite deposits.
 - b) Discuss in detail Mechanics of folding.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Global positioning system (GPS).
 - b) Management of Groundwater in Deccan Basaltic terrain.
 - c) Write brief note on Environmental Impact Assessment.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Write note on Isotope Geochemistry.
 - b) What are different geomorphic markers of tectonic activities?
 - c) Describe ground water pollution. Discuss the causes and its effects.

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Ph.D. Course Work (New) Examination: July -2024
Geography (Paper – 3)
Advanced Knowledge in Core Domain of Geography
(Recent Trends Geography)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
अ) भूखंडवहन सिद्धांत व भूमंच विर्वतन सिद्धांताचे टिकात्मक परीक्षण करा.
ब) हवामान बदल म्हणजे काय? ते सांगून हवामान बदलाचे कारणे व परिणाम स्पष्ट करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
अ) आल्फ्रेड वेबर यांच्या औद्योगिक स्थानिकिकरणाच्या सिद्धांताचे वर्णन करा.
ब) आर्थिक भूगोलाच्या अभ्यासाचे विविध दृष्टिकोनांचे वर्णन करा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20
अ) व्हॉन थुनेन यांचे कृषी भूमिउपोजन प्रतिमान स्पष्ट करा.
ब) कृषी उत्पादकता म्हणजे काय? ते सांगून कृषी उत्पादकता काढण्याचे सांख्यिकी पद्धती स्पष्ट करा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20
अ) लोकसंख्या संक्रमण सिद्धांत
ब) लोकसंख्या माहितीच्या स्रोत
क) भारतातील लोकसंख्या वाढीचे कारणे
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20
अ) पर्यटन भूगोलाचे स्वरूप व व्याप्ती
ब) पर्यावरण पर्याटन
क) भारतातील पर्यटन नियोजन व धोरण

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Ph.D. Course Work (New) Examination: July -2024
Geography (Paper – 3)
Advanced Knowledge in Core Domain of Geography
(Recent Trends Geography)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Critically explain the continental Drift theory and plate tectonics theory.
 - b) What is Climate Change? Explain the causes and effect of climate change.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Describe the Industrial Location theory of Alfred Weber.
 - b) Evaluate the different approaches to the study of Economic Geography.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the Von Thunen Model of Agriculture Land use.
 - b) What is Agriculture productivity? Explain the quantitative techniques to determine Agriculture productivity.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Demographic Transition Theory
 - b) Sources of Population Data
 - c) Causes of Populations Growth of India
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Nature and scope of Tourism
 - b) Eco-Tourism
 - c) Tourism planning and policies in India

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Ph.D. Course Work (New) Examination: July-2024
ELECTRONICS (Paper - 3)
Advanced Knowledge in Core Domain of Electronics
(Recent Trends in Electronics)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) Discuss architecture of LPC 2148 ARM microcontroller. What are on chip peripherals? Explain any one in brief.
 - b) With reference to LPC 2148 discuss the following.
 - i) Timers and counters
 - ii) I²C mode
 - iii) ADC
- Q.2 Answer any one of the following. 20**
- a) What is system on chip? Explain SoC design methodology. What are SoC peripherals?
 - b) What is the concept of intelligent electronic system? With neat block diagram discuss the intelligent electronic system.
- Q.3 Answer any one of the following. 20**
- a) Write short notes on the following
 - i) FPGA
 - ii) Energy efficient protocols wireless network
 - iii) Fuzzy system
 - b) Explain Artificial intelligent and machine learning and compare.
- Q.4 Answer any two of the following. 20**
- a) Discuss the architecture of the PSoC.
 - b) Write a note on the wireless sensor network
 - c) What is IOT? What are its characteristics? Discuss in brief building blocks of IOT.
- Q.5 Answer any two of the following. 20**
- a) What is image? what are its types? What are elements of image processing? Explain phases of image processing in brief.
 - b) Discuss in brief wireless communication protocols.
 - c) Explain in brief the following
 - i) Crop water management
 - ii) Smart Home

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Ph.D. Course Work (New) Examination: July -2024
Environmental Science (Paper – 3)
Advanced Knowledge in Core Domain of Environmental Science
(Applied Research in Environmental Science)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
a) Enlighten the difference between Primary and Secondary Data.
b) Explain in detail about the collection of primary and secondary data.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
a) Explain the Use of tools and instruments helpful for observation and data collection from aquatic environment.
b) What is Carbon Footprint? Which factors are to be considered in calculation of Carbon footprint of your University?
- Q.3 Answer any one of the following. (Long Answer Question) 20**
a) Which equipment's are used for sampling sediments? Also explain the parameters used for analysis of sediment.
b) Which simulations are used for studying the environmental disasters? Explain.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
a) Write in detail about sampling equipment's used for radioactively study and collection of samples.
b) What is energy crisis? How an organization can become energy efficient?
c) Explain the role of Environmental Nanotechnology in environmental protection.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
a) Write in detail about wastewater quality monitoring parameters.
b) Enlighten the methods used to study population explosion.
c) What is the difference between Carbon emission and Carbon sequestration?

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Ph.D. Course Work (New) Examination: July -2024
Biotechnology (Paper – 3)
Advanced Knowledge in Core Domain of Biotechnology

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Describe in detail Tissue engineering. Add a note on Soft tissue engineering.
 - b) Give an account on Fermented Foods, Cheese and Yoghurt.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Give an account on Stem cell therapies for different diseases like Diabetic, Alzheimer
 - b) Give an account on Nucleic acid and protein sequence databases.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the Qualitative and quantitative analysis of drug molecules using HPLC and LCMS.
 - b) Give an account on Pharmaceutical applications of Plant bioactive compounds. Add a Note on its examples.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Give an account on Solid waste management methods.
 - b) Write a note on Biogas production and its utility.
 - c) Give an account on Bio- fertilizers.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Write a Note on processing and testing of seeds of crop plants.
 - b) Production of vaccines
 - c) Applications of NMR

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Ph.D. Course Work (New) Examination: July-2024
PHARMACY (Paper - 3)
Advanced Knowledge in Core Domain of Pharmacy

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Discuss the commonly used methods in Drug Design.
 - b) Describe the various approaches used to design Controlled Drug Delivery system.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Describe in details various parameters studied in Preformulation.
 - b) Discuss the various steps involved in Drug development Process.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Discuss the various Extraction techniques of Medicinal plants.
 - b) Describe the Biological & Physicochemical properties to design Controlled Drug Delivery system.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Discuss about Good Laboratory Practices (GLP).
 - b) Explain the guidelines of CPCSEA committee for animal experimentation.
 - c) Discuss the instrumentation & applications of HPLC.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Discuss the role of polymers in modifying drug delivery system.
 - b) Explain the In vitro experimental techniques.
 - c) Discuss the various techniques used for microencapsulation.

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Ph.D. Course Work (New) Examination: July-2024
Geoinformatics (Paper – 3)
Advanced Knowledge in Core Domain of Geoinformatics

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Write a detailed note on various types of network analysis.
 - b) Discuss methods of evaluating point patterns in detail.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Distinguish between deterministic and Geostatistic methods of interpolation.
 - b) Explain different methods of raster-based analysis in detail.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the role of Geoinformatics in disaster management in detail.
 - b) Discuss the various steps involved in urban land use planning using RS & GIS techniques.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Write a note on the significance of GNSS data for spatial analysis.
 - b) Discuss any two of India's web-map services.
 - c) Discuss the importance of open-source GIS in the context of developing countries.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Explain about location-based service, including its advantage.
 - b) Discuss the need for hyperspectral images for information extraction.
 - c) Write a note on vector and raster-based topographical model.

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Ph.D. Course Work (New) Examination: July -2024
MECHANICAL ENGINEERING (Paper - 3)
Advanced Knowledge in Core Domain of Mechanical Engineering-
Design Engineering

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Support the answers by neat sketches wherever necessary.

- Q. 1 Answer any one of the following. 20**
- a) Explain convex and concave functions. Also explain single variable optimization and problem formulation.
 - b) Explain multivariable optimization and optimality criteria.
- Q.2 Answer any one of the following. 20**
- a) Derive differential equations of equilibrium in cartesian and polar coordinates.
 - b) Explain in detail the stress strain relations for orthotropic and transversely isotropic materials.
- Q.3 Answer any one of the following. 20**
- a) Explain the finite element discretization, element shapes, sizes and node locations.
 - b) Explain post-processing for Finite Element Method (FEM).
- Q.4 Answer any two of the following. 20**
- a) Explain principal stresses and Mohr's circle method to find stresses in detail.
 - b) Explain in detail Saint Venant's principle and its applications.
 - c) Explain in Castigliano's theorem.
- Q.5 Answer any two of the following. 20**
- a) Explain buckling of beam for various boundary conditions.
 - b) Explain Centripetal and Coriolis acceleration.
 - c) Explain gyroscope-precession and nutation.

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Ph.D. Course Work (New) Examination: July-2024
Mechanical Engineering (Paper – 3)
Advanced Knowledge in Core Domain of Mechanical Engineering-
Manufacturing Engineering

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) List and discuss the guide lines recommended for designing an experiment and What are the advantages of factorial designs?
 - b) Explain steps of a software used for design of experiment and optimization and Compare the response surface method and Taguchi method.
- Q.2 Answer any one of the following. 20**
- a) Discuss the vital role of various allowances in designing a pattern with help of sketches and also mention how they are typically expressed.
 - b) With the help of flow chart describe the steps involved in powder metallurgy.
- Q.3 Answer any one of the following. 20**
- a) Discuss various sources of errors in measurement and discuss and R charts.
 - b) Explain the steps of finite element analysis method (FEM) and Discuss the procedure of finite element analysis using visual FEA / FEA software.
- Q.4 Answer any two of the following. 20**
- a) Describe the mechanics of chip formation and types of chips formed during metal cutting process.
 - b) What is the significance of LASER machining and describe principle involved in it. Discuss its application.
 - c) What are the essential characteristics in the proper design of jigs and fixtures?
- Q.5 Answer any two of the following. 20**
- a) What are the five metal forming operations with aid of diagrams?
 - b) Give reasons why composites are replacing traditional materials. Explain any one fabrication method of making of composite material.
 - c) Explain the principle of welding used for welding the rails at the site.

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Ph.D. Course Work (New) Examination: July -2024
Mechanical Engineering (Paper – 3)
Advanced Knowledge in Core Domain of Mechanical Engineering-
Thermal and Heat Power Engineering

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Explain Bracketing methods and region-elimination method with suitable example.
 - b) Explain simulated annealing and ANN based optimization.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) With statistical description explain role of vorticity and viscosity.
 - b) Explain concept of a boundary layer in high Reynolds number flow.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Derive expression for getting exact solution to incompressible N-S equation for Poiseuille flow.
 - b) Explain analysis of experimental data and determination of overall uncertainties in experimental investigation.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Explain Kinetic energy budget in turbulent flow and Wall turbulence
 - b) Explain construction of enthalpy derivation curve.
 - c) Explain Langrange and Hermite polynomials in FEM.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Explain Non-dimensional numbers of interest in incompressible flow.
 - b) Explain air fuel mixture requirements in SI engine and techniques used to fulfil these requirements.
 - c) Explain use of Nano materials in heat exchangers and its effect on performance of HE.

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Ph.D. Course Work (New) Examination: July-2024
Electronics and Telecommunication Engineering (Paper - 3)
Advanced Knowledge in Core Domain of Electronics and
Telecommunication Engineering-Advances in Telecommunication

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) Explain in detail application of Cooperative Communications.
 - b) Discuss the concept of MIMO and application of smart antenna.
- Q.2 Answer any one of the following. 20**
- a) Explain with neat diagram Cognitive Radio Network architectures.
 - b) Explain classification of spectrum sharing.
- Q.3 Answer any one of the following. 20**
- a) Discuss security issues in E -Business.
 - b) Explain Block Chain Technology in detail.
- Q.4 Answer any two of the following. 20**
- a) Discuss Green Communication.
 - b) Explain efficiency in LTE Radio access Network.
 - c) Interface management in 5G Communication.
- Q.5 Answer any two of the following. 20**
- a) Mobility management in 5G Communication
 - b) Explain Simulation Methodology in Detail.
 - c) Power and Energy Metrics.

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Ph.D. Course Work (New) Examination: July -2024
Electronics and Telecommunication Engineering (Paper - 3)
Advanced Knowledge in Core Domain of Electronics and
Telecommunication Engineering-Machine Learning

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) Describe Find S algorithm. What are its key properties? What are issues associated with it?
 - b) With suitable example explain below algorithms-
 - i) version space and candidate
 - ii) list then eliminate
 - iii) candidate elimination
- Q.2 Answer any one of the following. 20**
- a) With reference to decision tree algorithms explain - inductive bias, why short hypotheses is preferred? and how to avoid overfitting
 - b) Explain - basic perceptron, how it can be used to implement AND and OR logical functions and basic algorithm to train it
- Q.3 Answer any one of the following. 20**
- a) Explain 'k nearest neighbor' and 'distance weighted nearest neighbor' algorithm.
 - b) Explain PAC learnability and error of a hypothesis.
- Q.4 Answer any two of the following. 20**
- a) With suitable example compare similarities and differences in-
 - i) supervised and unsupervised learning.
 - ii) classification and regression
 - iii) linear and non linear regression
 - b) With suitable example explain bootstrapping data sets
 - c) Compare Bayesian model averaging and committee networks
- Q.5 Answer any two of the following. 20**
- a) Explain mixtures of linear regression models.
 - b) With suitable example explain an end to end system for any machine learning application of your choice. Explain each step.
 - c) Discuss strengths, limitations and applications of support vector machines.

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Ph.D. Course Work (New) Examination: July-2024
Electronics and Telecommunication Engineering (Paper - 3)
Advanced Knowledge in Core Domain of Electronics and Telecommunication Engineering-Advances in Image and Video Processing

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Explain the fundamental principles of 3D image sampling. Examine the role of anti-aliasing techniques in 3D image sampling.
 - b) Explain the basic components of a digital video signal. Describe the process of digitizing analog video signals.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Define multispectral imaging and its significance in remote sensing. Explain the challenges associated with multispectral image enhancement with examples.
 - b) Define interlaced video and the need for deinterlacing. Examine the role of motion analysis in deinterlacing.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) What are the advantages and limitations of region-based segmentation techniques compared to other segmentation approaches? Provide examples of scenarios where region-based methods excel.
 - b) Define spatiotemporal change detection and explain how it combines spatial and temporal information for segmentation in video sequences. Discuss the principles of algorithms that leverage both spatial and temporal characteristics.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Explain with an example the concept of a histogram and how it visually represents the distribution of pixel intensities. How does a well-distributed histogram contribute to image quality?
 - b) Define point processing in image enhancement and explain how it operates at the pixel level to manipulate individual pixel values. What are the basic attributes that point processing can adjust?
 - c) Define motion segmentation and its role in separating moving objects from the background in video sequences. What algorithms are commonly used for motion segmentation?

Q.5 Answer any two of the following. (Short Answer Question)**20**

- a)** Describe strategies to model and mitigate noise in image observation models.
- b)** Discuss the application of Bayesian methods in image restoration. How does Bayesian inference contribute to a probabilistic framework for image reconstruction?
- c)** What are the techniques used for intraframe shift-invariant restoration? How do these methods address spatial misalignments within a single frame?

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Ph.D. Course Work (New) Examination: July -2024
Computer Science and Engineering (Paper – 3)
Advanced Knowledge in Core Domain of Computer Science and
Engineering-Data Science & Machine Learning

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) What is the significance of Data Analytics in Data Science? Compare analytics with reporting along with their importance. Elaborate the tools used for Data Science along with the applications.
 - b) What is an intelligent agent in AI? Elaborate its significance in AI along with the types of Intelligent Agents and applications.
- Q.2 Answer any one of the following. 20**
- a) What are the variations in probability theory? How the probability and statistics takes part in data analysis. Explain Vectors, Matrices and statistics with examples.
 - b) What is the role of Machine Learning in Data Science? Elaborate the Machine Learning Algorithms with their significance and applications.
- Q.3 Answer any one of the following. 20**
- a) In Artificial Neural Networks, how multilayer networks and back propagation works? Elaborate with example.
 - b) What are the AI searching techniques? Explain the significance along with the examples.
- Q.4 Answer any two of the following. 20**
- a) What is Correlation, Simpson's Paradox and Causation in Linear Algebra? Elaborate with examples and significance
 - b) How can ANN improve decision making? Why ANN is better than algorithms? Give reason with applications.
 - c) How Big data analytics is improving the performance of data analytics? Explain its types with examples.
- Q.5 Answer any two of the following. 20**
- a) Solve the given problem using appropriate algorithm. Name and explain that algorithm.
 By using NLP, detect spam e-mails in the inbox. Consider that the word 'offer' occurs in 80% of the spam messages in the mail account. Also assume, 'offer' occurs in 10% of the desired e-mails. If 30% of the received e-mails are considered as a scam containing word 'offer', what is the probability that it is spam?

- b)** What is probability theory and its variations? Solve the following problem using probability.

A fair coin is tossed, and a fair die is thrown. Write down sample spaces for

- i) the toss of the coin
- ii) the throw of the die
- iii) the combination of these experiments

Let A be the event that a head is tossed, and B be the event that an odd number is thrown. Directly from the sample space, calculate $P(A \cap B)$ and $P(A \cup B)$.

- c)** What are discrete and continuous random variables? Give the example of cumulative distribution function with discrete and continuous random variables.

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Ph.D. Course Work (New) Examination: July-2024
Computer Science and Engineering (Paper – 3)
Advanced Knowledge in Core Domain of Computer Science and
Engineering-Network Security and Cloud Computing

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data, if necessary.

- Q. 1 Answer any one of the following. 20**
- List the issues in designing the routing protocol for Ad-hoc networks and Explain Destination Sequenced Distance Vector routing protocol (DSDV).
 - Explain in details Dynamic Source Routing (DSR) & Ad-hoc On-Demand Distance Vector Routing (AODV) Protocols.
- Q.2 Answer any one of the following. 20**
- How does the Hadoop Map reduce data flow work for a word count program (Give an example) and Explain HDFS Name node federation, NFS Gateway, Snapshots, Checkpoints, and Backups?
 - Describe an example of IoT service that uses publish-subscribe communication model and Determine the IoT levels for designing health monitoring systems.
- Q.3 Answer any one of the following. 20**
- Imagine a central government that needs to create a cloud ecosystem that can serve different states or local administrations. It also needs to keep some sensitive data and internal tasks on local servers. The local administrations can protect their confidential data and save energy and IT staff costs, suggest suitable cloud deployment model for the same and justify.
 - Define Aneka? Explain Aneka framework architecture and Use case of resource provisioning under Aneka.
- Q.4 Answer any two of the following. 20**
- What is Intrusion Detection Systems (IDSs)? Enlist & Explain Types of Intrusion Detection Systems.
 - What is content filtering? Justify with a neat diagram Content filtering works best in conjunction with security measure such as Kerberos.
 - Workforce private Limited is a business process outsourcing (BPO) outfit handling business process outsourcing for various clients in North America and Europe. The employees of workforce become privy to confidential customer information during their work. The nature of this information ranges from medical records of individuals to financial data of companies. The unprocessed data is transmitted from client's location to workforce offices in Gurgaon, Pune, and Hyderabad through the internet using VPN (Virtual Private Network) connections on broadband. Workforce allows clients to

transfer information via dedicated FTP server on internet, which can then be accessed and processed by its employee's workforce, through its website, workforce.com, allows its clients to log in and view billing and other information specific to them. Access to this information is restricted through the usual username - password combination found on most websites. Looking at the above scenario, discuss the threats workforce faces to its information and suggest controls which it may put in place to secure its information from such threats.

Q.5 Answer any two of the following. (Short Answer Question)

20

- a)** Explain the key features of Apache Spark? Is there an API for implementing graphs in Spark?
- b)** Is there a module to implement SQL in Spark? Explain How does it work.
- c)** List and explain the classification of routing protocols based on the routing information update mechanism.

Seat No.	
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Ph.D. Course Work (New) Examination: July -2024
Computer Science and Engineering (Paper – 3)
Advanced Knowledge in Core Domain of Computer Science and
Engineering-Image Processing

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) How does image restoration work? Explain with the help of a real life example.
 - b) Explain the morphological operation to extract the boundary of an object for binary image.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) How are Artificial Neural Networks different from Normal Computers? Explain how artificial neurons learn.
 - b) Explain how colour images are represented using HSI colour space model.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) How do you use Haar cascades for detecting things in an image?
 - b) With the help of a block diagram, explain DCT based JPEG compression standard.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Describe the Feature detection algorithm in computer vision to detect and describe local features in images.
 - b) How Conditional Random Field is different from the hidden Markov model? Explain with the help of an example.
 - c) Explain how SIFT keypoints are used to detect corresponding points between overlapping image in a panoramic sequence?
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Describe the challenges in real life related to face detection using eigen faces.
 - b) Describe the process of formulating the least-squares optimization problem for aligning two images based on feature correspondences.
 - c) How is image classification performed for bag-of-words? Explain with the help of example.

Seat No.	
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Ph.D. Course Work (New) Examination: July -2024
Civil Engineering (Paper - 3)
Advanced Knowledge in Core Domain of Civil Engineering-Advanced
Knowledge in Structural Engineering & Concrete Technology

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q. 1 Answer any one of the following. (Long Answer question) 20

a) Design the mix proportioning for a concrete of M40 grade for following:
 Stipulations For Proportioning

- 1) Grade designation: M40
- 2) Type of cement: PPC conforming to IS 1489 (Part 1)
- 3) Maximum nominal size of aggregate: 20 mm
- 4) Minimum cement content and maximum water-cement ratio to be adopted and/or: Severe (for reinforced concrete)
 Exposure conditions as per Table 3 and Table 5 of IS: 456-2000
- 5) Workability: 75 mm (slump)
- 6) Method of concrete placing: Chute (Non pumpable)
- 7) Degree of site control: Good
- 8) Type of aggregate: Crushed angular aggregate
- 9) Maximum cement content not including fly ash: 450 kg/m³
- 10) Chemical admixture type: Super plasticizer – normal

TEST DATA FOR MATERIALS

- a) Cement used: PPC conforming to IS: 1489 (Part 1)
- b) Specific gravity of cement: 2.88
- c) Chemical admixture: Super plasticizer conforming to IS 9103
- d) Specific gravity of
 - 1) Coarse aggregate [at saturated surface dry: 2.74 (SSD) Condition]
 - 2) Fine aggregate [at saturated surface dry: 2.65 (SSD) Condition]
 - 3) Chemical admixture: 1.145
- e) Water absorption
 - 1) Coarse aggregate : 0.5 percent
 - 2) Fine aggregate : 1.0 percent
- f) Moisture content of aggregate [As per IS: 2386 (Part 3)]
 - 1) Coarse aggregate: Nil
 - 2) Fine aggregate: Nil

- g) Sieve analysis:
 1) Coarse aggregate

IS Sieve	Cumulative Percentage of Passing Fraction I 20mm (%)	Cumulative Percentage of Passing Fraction II 10mm (%)	Confirmed Combined grading as per IS:383-2016, Table 7
20 mm	100	100	100
10 mm	0	71.20	95-100
4.75 mm	0	9.40	25-55
2.36mm	0	0	0-10

- 2) Fine aggregate

Sieve	Wt. retained (gm)	Cumulative wt. retained (gm)	Cumulative percent retained	Cumulative percent passing	Cumulative percent passing as per IS: 383- 2016 (Table 9) ZONE II
4.75mm	12.91	12.91	4.30	95.60	100
2.36mm	9.51	22.42	7.47	92.53	90-100
1.18mm	50.19	72.61	24.20	75.80	75-100
600micron	111.0	183.61	61.20	38.80	55-90
300micron	77.90	261.51	87.16	12.80	35-59
150micron	28.57	290.08	96.69	3.31	8-30
<150micro	9.92	300.00	100	0.00	0-10

Fine aggregate: Conforming to grading Zone II of Table 9 of IS: 383-2016

Given: Std. deviation for M40 grade of concrete = 5 N/mm², X = 6.5 N/mm²
 For 20mm M.S.A. air content = 1%

Fine aggregate: Conforming to grading Zone II of Table 9 of IS: 383-2016

Given: Std. deviation for M40 grade of concrete = 5 N/mm², X = 6.5 N/mm²
 For 20mm M.S.A. air content = 1%

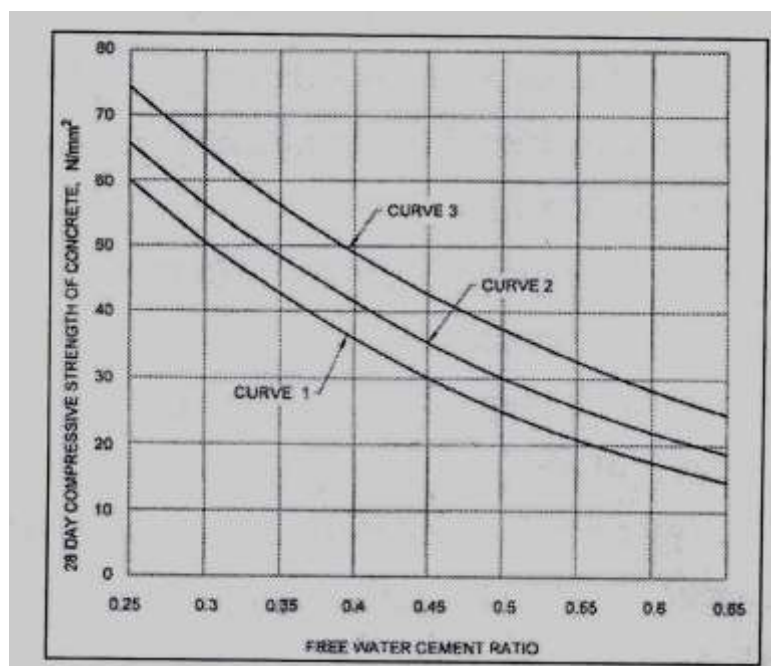


Table 3 Approximate Air Content
(Clause 5.2)

Sl No.	Nominal Maximum Size of Aggregate mm	Entrapped Air, as Percentage of Volume of Concrete
(1)	(2)	(3)
i)	10	1.5
ii)	20	1.0
iii)	40	0.8

Table 4 Water Content per Cubic Metre of Concrete For Nominal Maximum Size of Aggregate
(Clause 5.3)

Sl No.	Nominal Maximum Size of Aggregate mm	Water Content ¹⁾ kg
(1)	(2)	(3)
i)	10	208
ii)	20	186
iii)	40	165

¹⁾Water content corresponding to saturated surface dry aggregate.

Table 5 Minimum Cement Content, Maximum Water-Cement Ratio and Minimum Grade of Concrete for Different Exposures with Normal Weight Aggregates of 20 mm Nominal Maximum Size
(Clauses 6.1.2, 8.2.4.1 and 9.1.2)

Sl No.	Exposure	Plain Concrete			Reinforced Concrete		
		Minimum Cement Content kg/m ³	Maximum Free Water-Cement Ratio	Minimum Grade of Concrete	Minimum Cement Content kg/m ³	Maximum Free Water-Cement Ratio	Minimum Grade of Concrete
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Mild	220	0.60	-	300	0.55	M 20
ii)	Moderate	240	0.60	M 15	300	0.50	M 25
iii)	Severe	250	0.50	M 20	320	0.45	M 30
iv)	Very severe	260	0.45	M 20	340	0.45	M 35
v)	Extreme	280	0.40	M 25	360	0.40	M 40

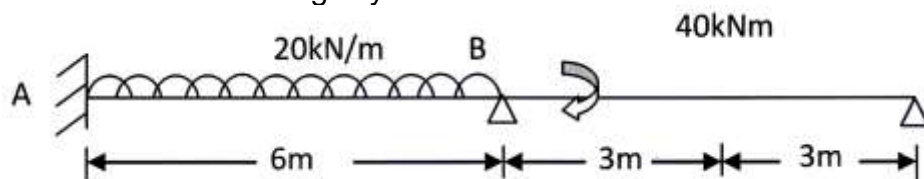
OR

- b) Describe waste material based concrete by taking any one example (viz...GGBS- Ground Granulated Blast-furnace Slag) and mention its composition, origin strength parameters after substitution merits and demerits.

Q.2 Answer any one of the following.

20

- a) Determine the bending moments at the supports by using stiffness matrix method for a two span continuous beam ABC as shown in fig. Assume all spans have same flexural rigidity.



OR

- b) Write a note on various techniques used for concrete testing for quality assurance.

Q.3 Answer any one of the following.

20

- a) Give the dimensioning requirements for ductile detailing of flexural members/Beam and dimensioning requirements for Transverse /shear reinforcement of flexural members as per provisions of IS: 13920-2016 with the help of neat sketch.

OR

- b) Which types of fibres are used in the concrete? Which properties of concrete are enhanced by addition of steel fibers in concrete.

Q.4 Answer any two of the following. 20

- a) Write note on sustainable development in civil engineering.
- b) Write a detailed note on Design thinking for Civil Engineering along with need and methodology. Explain the same with case study
- c) Use of regression analysis in resource management.

Q.5 Answer any two of the following. 20

- a) Write note on Environmental Impact Assessment (EIA) and Environmental Audit (EA).
- b) Write note on under water concreting.
- c) Write a detailed note on Bivariate Frequency Distribution.

Seat No.	
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Ph.D. Course Work (New) Examination: July-2024

Civil Engineering (Paper – 3)

**Advanced Knowledge in Core Domain of Civil Engineering-Advanced
Knowledge in Geotechnical Engineering and Construction Management**

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long answer questions) 20**
- a) What is difficult soil in the context to foundation? Enlist the various techniques for Foundation in difficult soil and explain any two methods in detail.
 - b) What is sub surface contamination? Discuss in details its detection, control and remediation.
- Q.2 Answer any one of the following. (Long answer questions) 20**
- a) Explain in brief the various types of cost-associated activity with detailed sketches/graphs. Also explain the importance of the “Project Network Compression technique” as well as write down the steps used for the “Compression of Project Network”.
 - b) Explain in brief about “Types of Network Techniques” and various technical terms of Network Technique like Activity Time, Event Time, Forward Path, Backward Path, etc.
- Q.3 Answer any one of the following. (Long answer questions) 20**
- a) Which are the dynamic soil properties? Enlist the laboratory test to measure dynamic soil properties.
 - b) In the company there is a need to have complete information about “Working Capital” and “Project Cash Flow Projections and Statements”. Explain in brief its objective and significance for the successful running of the Company.
- Q.4 Answer any two of the following. (Short answer questions) 20**
- a) Discuss Winklerian approach of soil structure interaction analysis.
 - b) Discuss various Types of underground contamination.
 - c) What is “Break Even Analysis”? Draw a graph of “Break Even Analysis” and explain in detail various technical terms show in the graph.
- Q.5 Answer any two of the following. (Short answer questions) 20**
- a) Explain the methods of data handling and data analysis with reference to Civil Engineering.
 - b) What is Environmental Impact Assessment? Discuss the methodologies for measurement of environmental impact.
 - c) What is sustainable Development? Discuss with the example.

Seat No.	
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Ph.D. Course Work (New) Examination: July -2024
Civil Engineering (Paper - 3)
Advanced Knowledge in Core Domain of Civil Engineering-Advanced
Knowledge in Environmental Engineering and Water Resources
Engineering

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) Explain different unit operations and unit processes those are used for water treatment.
 - b) Explain Activated Sludge Process (ASP).
- Q.2 Answer any one of the following. 20**
- a) Explain different air pollutants along with its sources and control.
 - b) Explain recycling and disposal techniques of Municipal Solid Waste and Hospital waste.
- Q.3 Answer any one of the following. 20**
- a) Explain the National water policy and explain the unit hydrograph theory.
 - b) Explain different aspects of Hydrological cycle.
- Q.4 Answer any two of the following. 20**
- a) Explain the key methods and technologies used for surface water resources mapping.
 - b) Write note on flood plain mapping techniques, flood plain zoning and flood mitigation techniques
 - c) Explain in detail Climate change and its impact on Indian monsoon.
- Q.5 Answer any two of the following. 20**
- a) Discuss the step-by-step methodology of applying Design Thinking to a Civil Engineering project. Provide specific examples of how each step contributes to the overall project success.
 - b) Explain the applications of Conventional Neural Network (CNN) with examples of Civil Engineering for Mapping, Regression and Classification.
 - c) Enlist different distributions those are used for data handling and explain Correlation and Regression in details.

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Ph.D. Course Work (New) Examination: July-2024
Electronics Engineering (Paper – 3)
**Advanced Knowledge in Core Domain of Electronics Engineering-
Machine Learning**

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) Related to version space and candidate elimination algorithm, discuss -
 - i) Will candidate elimination algorithm converge to the correct hypothesis
 - ii) What Training Example Should the Learner Request Next?
 - b) With regard to perceptron, discuss -
 - i) Representational power of a single perceptron- which problems can be solved and which can't be solved.
 - ii) Training rule
- Q.2 Answer any one of the following. 20**
- a) Discuss -
 - i) Sample complexity for finite hypothesis space for PAC learnability
 - ii) PAC-Learnability of other concept classes
 - b) What are the issues related to decision tree learning? How to overcome them?
- Q.3 Answer any one of the following. 20**
- a) Explain 'k nearest neighbor' and 'distance weighted nearest neighbor' algorithm.
 - b) Describe Find S algorithm. What are its key properties? What are issues associated with it?
- Q.4 Answer any two of the following. 20**
- a) With suitable example compare similarities and differences in
 - i) supervised and unsupervised learning.
 - ii) classification and regression
 - iii) linear and non linear regression
 - b) Discuss - Maximum Margin Classifiers
 - c) Discuss - Multiclass SVMs
- Q.5 Answer any two of the following. 20**
- a) Discuss - ensemble learning using boosting
 - b) Discuss - ensemble learning using bagging
 - c) Discuss various steps in -
 - i) classification task
 - ii) clustering task

Seat No.	
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Ph.D. Course Work (New) Examination: July-2024
Electronics Engineering (Paper – 3)
Advanced Knowledge in Core Domain of Electronics Engineering-
Advances in Image and Video Processing

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer Any one of the following questions. 20**
- a) Explain different image and video file formats used in image processing.
 - b) How discontinuities are detected? Explain line and edge detection based segmentation.
- Q.2 Answer Any one of the following questions. 20**
- a) Explain contrast stretching and bit plane slicing enhancement operations.
 - b) **Write short note on :**
 - 1) Inverse & Wiener filtering
 - 2) Multi frame restoration
- Q.3 Answer Any one of the following questions. 20**
- a) What is the need for transform? Explain negative and power law transformation in details.
 - b) **Explain the following terms :**
 - 1) Thresholding
 - 2) Region based segmentation
- Q.4 Answer Any two of the following questions. 20**
- a) What is sampling in image processing? Explain 2-D sampling theory.
 - b) Explain the concept of frame rate conversion and deinterlacing.
 - c) Write note on maximum entropy restoration.
- Q.5 Answer Any two of the following questions. 20**
- a) Explain image processing operations.
 - b) Explain spatiotemporal change detection.
 - c) Write short note on Bayesian Method.

Seat No.	
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Ph.D. Course Work (New) Examination: July-2024
Electronics Engineering (Paper – 3)
Advanced Knowledge in Core Domain of Electronics
Engineering-Advances in Telecommunication

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) Explain in detail application of Cooperative Communications.
 - b) Discuss the concept of MIMO and application of smart antenna.
- Q.2 Answer any one of the following. 20**
- a) Explain with neat diagram Cognitive Radio Network architectures.
 - b) Explain classification of spectrum sharing.
- Q.3 Answer any one of the following. 20**
- a) Discuss security issues in E -Business.
 - b) Explain Block Chain Technology in detail.
- Q.4 Answer any two of the following. 20**
- a) Discuss Green Communication.
 - b) Explain efficiency in LTE Radio access Network.
 - c) Interface management in 5G Communication.
- Q.5 Answer any two of the following. 20**
- a) Mobility management in 5G Communication
 - b) Explain Simulation Methodology in Detail.
 - c) Power and Energy Metrics.

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Ph.D. Course Work (New) Examination: July -2024
Education (Paper – 3)
Advanced Knowledge in Core Domain of Education

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

- सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
 2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे सविस्तर उत्तर लिहा. 20**
 अ) शिक्षक शिक्षणाची संकल्पना आणि ध्येये स्पष्ट करा. शिक्षक शिक्षणातील गुणवत्ता वाढीसाठी संशोधनाची विविध क्षेत्रे स्पष्ट करा.
 ब) अध्ययन अक्षम मुलांची संकल्पना, प्रकार आणि वैशिष्ट्ये स्पष्ट करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे सविस्तर उत्तर लिहा. 20**
 अ) समावेशक शिक्षणाचे प्रकार कोणते आहेत? तुम्ही समावेशनासाठी विद्यार्थ्यांची निवड कशी कराल? समावेशक शिक्षणाचे समर्थन करताना शिक्षकांसमोरील आव्हाने स्पष्ट करा.
 ब) आभासी विद्यापीठ म्हणजे काय? आभासी वर्गखोल्या आणि पारंपारिक वर्गखोल्यांमधील फरक स्पष्ट करा. आभासी विद्यापीठाचे फायदे आणि तोटे सांगा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे सविस्तर उत्तर लिहा. 20**
 अ) मुले विकासात्मक दृष्ट्या अक्षम असण्याची कारणे सांगा व त्यांची वैशिष्ट्ये स्पष्ट करा. त्यांना अध्यापन करण्यासाठीच्या विविध कार्यनीती स्पष्ट करा.
 ब) यु.जी.सी. (UGC) आणि एन.सी.टी.ई (NCTE) ची रचना आणि कार्ये स्पष्ट करा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची थोडक्यात उत्तरे लिहा. 20**
 अ) प्रकल्प आधारित अध्ययनाची संकल्पना आणि प्रक्रिया स्पष्ट करा.
 ब) ज्ञानरचनावादी अध्यापनाची तत्त्वे सांगा आणि लेव्ह वायगोत्स्कीचा सामाजिक ज्ञानरचनावाद स्पष्ट करा.
 क) जीवन कौशल्य म्हणजे काय? जागतिक आरोग्य संघटनेने सांगितलेली दहा जीवन कौशल्ये स्पष्ट करा.
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची थोडक्यात उत्तरे लिहा. 20**
 अ) सहयोगी/सहकार्यात्मक अध्यापन कार्यनीती आणि मिश्र अध्ययन तंत्र उदाहरणांसह स्पष्ट करा.
 ब) सातत्यपूर्ण आणि सर्वकष मूल्यमापन प्रणालीची संकल्पना स्पष्ट करा. सातत्यपूर्ण आणि सर्वकष मूल्यमापन प्रणालीची विविध साधने स्पष्ट करा.
 क) क्लाउड कॉम्प्युटिंग म्हणजे काय? क्लाउड कॉम्प्युटिंगचे प्रकार कोणते आहेत? क्लाउड कॉम्प्युटिंगची वैशिष्ट्ये स्पष्ट करा.

Seat No.	
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Ph.D. Course Work (New) Examination: July -2024
Education (Paper – 3)
Advanced Knowledge in Core Domain of Education

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Candidates who intend to write their answers in Marathi are advised to read original questions in English

- Q. 1 Answer Any one of the following questions in detail. 20**
- a) Explain the concept and aims of teacher education. Explain the different areas of research for quality enhancement in teacher education.
- b) Explain the concept, types and characteristics of learning disabled children.
- Q.2 Answer Any one of the following questions in detail. 20**
- a) What are the types of inclusive education? How will you select students for inclusion? Explain challenges faced by the teachers in supporting inclusive education.
- b) What is meant by virtual University? Differentiate between virtual classrooms and traditional classrooms. State the advantages and disadvantages of virtual University.
- Q.3 Answer Any one of the following questions in detail. 20**
- a) State the reasons why children are developmentally disabled and explain their characteristics. Explain different strategies for teaching them.
- b) Explain the structure and functions of UGC and NCTE.
- Q.4 Answer Any two of the following questions in brief. 20**
- a) Explain the concept and process of project based learning.
- b) State the principles of constructivist teaching and Explain the Lev Vygotsky's social constructivism.
- c) What is meant by life skills? Explain ten life skills stated by World health organization.
- Q.5 Answer Any two of the following questions in brief. 20**
- a) Explain the collaborative teaching strategy and blended learning technique with suitable examples.
- b) Explain the concept of continuous and comprehensive evaluation system. Explain the various tools of continuous and comprehensive evaluation system
- c) What is meant by cloud computing? What are the types of cloud computing? Explain the characteristics of cloud computing.

Seat No.	
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Ph.D. Course Work (New) Examination: July-2024
Physical Education (Paper – 3)
Advanced Knowledge in Core Domain of Physical Education

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.

2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20**
 अ) श्वसन संस्था व रक्ताभिसरण संस्थेवर व्यायामाचा होणारा परिणाम स्पष्ट करा.
 ब) शारीरिक शिक्षण व क्रीडा मध्ये क्रीडा मानसशास्त्र का महत्वाचे आहे हे सविस्तर स्पष्ट करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20**
 अ) शरीरक्रिया शास्त्राची व्याप्ती शारीरिक शिक्षण व क्रीडा शास्त्रात स्पष्ट करा.
 ब) क्रीडेतील उदाहरणासह जिवयांत्रिक चे महत्त्व स्पष्ट करा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घोत्तरी प्रश्न) 20**
 अ) ताणाची व्याख्या देवून ताणाचे व्यवस्थापन क्रीडा मानसशास्त्रातून कसे होते ते स्पष्ट करा.
 ब) सॉफ्टवेअर चे प्रकार स्पष्ट करून क्रीडाशास्त्र संशोधनात मूल्यमापनासाठी त्याचे महत्त्व स्पष्ट करा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20**
 अ) क्रीडेतील उदाहरणासह प्रक्षेपण स्पष्ट करून त्याचे क्रीडेतील उपयोजन स्पष्ट करा.
 ब) मानवमिती (Anthropometry) स्पष्ट करून त्याचे क्रीडाशास्त्र संशोधनात उपयोजन स्पष्ट करा.
 क) वातावरणाचा क्रीडा मार्गदर्शन व प्रशिक्षणावर होणारा परिणाम लिहा.
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20**
 अ) न्यूटनचा गतीविषयक नियम लिहून क्रीडा कौशल्याच्या संदर्भात कोणत्याही एका नियमाचे वर्णन करा.
 ब) शारीरिक क्षमता चाचणीचे उपयोजन क्रीडाशास्त्र संशोधनाच्या उपयोजनासह स्पष्ट करा.
 क) तरफ स्पष्ट करून त्याचे क्रीडेतील उपयोजन स्पष्ट करा.

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Ph.D. Course Work (New) Examination: July-2024
Physical Education (Paper – 3)
Advanced Knowledge in Core Domain of Physical Education

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Explain effect of exercise on Respiratory system and circulatory system.
 - b) Explain in details why sports psychology is important in Physical Education and Sports.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Explain scope of physiology in the field of Physical Education and Sports Sciences.
 - b) Explain in details importance of Biomechanics in sports with examples.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Define stress and explain how management of stress through sports psychology.
 - b) Explain types of software and their importance in evaluation in sports science research.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Explain projection and its application in sports with sports examples.
 - b) Explain Anthropometry and their application in sports science research.
 - c) Explain effect environment on sports coaching and training.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) State Newtons law of motion and describe any one with reference to its application in sports skill.
 - b) Explain application of physical fitness test in sports science research.
 - c) Explain Lever and its application in sports.

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Ph.D. Course Work (New) Examination: July-2024
Mass Communication (Paper – 3)
Advanced Knowledge in Core Domain of Mass Communication
(New Advances in Mass Communication)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
a) Discuss the changing trends in Print Media industry?
b) What are the advancements in Electronic Media? Discuss its significance.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
a) What are the advancement in the field of journalism with reference to storytelling ideas.
b) How alternative media is became the voice of voiceless? Define with examples.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
a) The challenges of Fake news in India. How fake news impacts the public opinion?
b) Discuss the use of social media for public relations?
- Q.4 Answer any two of the following. (Short Answer Question) 20**
a) What is citizen journalism? Discuss its importance with reference to India context.
b) What are the modern techniques used for Branding?
c) How AI is reshaping the advertisement industry? explain the concept and its importance.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
a) Which editing software's are used in Media Industry? Why these software's are important?
b) What are the challenges and issues are related to the Fake news in India?
c) How Community Radio is changing the field of audio industry?

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Ph.D. Course Work (New) Examination: July -2024

Library and Information Science (Paper – 3)

Advanced Knowledge in Core Domain of Library and Information Science

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.

2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घात्तरी प्रश्न) 20**
- अ) स्वॉट (SWOT) विश्लेषण म्हणजे काय? हे तंत्र ग्रंथालये आणि माहिती केंद्रांमध्ये कसे उपयुक्त ठरू शकते यावर चर्चा करा.
- ब) शैक्षणिक ग्रंथालयांमधील संघटनात्मक रचनेची तपशीलवार चर्चा करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घात्तरी प्रश्न) 20**
- अ) बौद्धिक संपदा अधिकार (आयपीआर) चे महत्त्व स्पष्ट करा.
- ब) इन्स्टिट्यूशनल रिपोझिटरी ही संकल्पना स्पष्ट करून इन्स्टिट्यूशनल रिपोझिटरी विकसित करण्यामध्ये ग्रंथपालाच्या भूमिकेची चर्चा करा.
- प्र.3 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घात्तरी प्रश्न) 20**
- अ) जॉब डीस्क्रीपशन आणि जॉब अॅनालिसिस या संकल्पनांची व्याख्या सांगून चर्चा करा.
- ब) ज्ञान व्यवस्थापन म्हणजे काय? ज्ञान व्यवस्थापनातील ग्रंथपालाच्या भूमिकेची चर्चा करा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20**
- अ) ग्रंथालय आणि माहिती केंद्रांच्या विकासामध्ये माहिती आणि संप्रेषण तंत्रज्ञानाच्या भूमिकेवर चर्चा करा.
- ब) डिजिटल लायब्ररीची व्याख्या सांगून डिजिटल लायब्ररीच्या फायद्यांचे तपशीलवार वर्णन करा.
- क) 'बिब्लियोमेट्रिक्स' म्हणजे काय? बिब्लियोमेट्रिक्सची वैशिष्ट्ये स्पष्ट करा.
- प्र.5 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लघुत्तरी प्रश्न) 20**
- अ) सकल गुणवत्ता व्यवस्थापन या संज्ञेची व्याख्या सांगून सकल गुणवत्ता व्यवस्थापनाच्या विविध घटकांचे तपशीलवार वर्णन करा.
- ब) माइंड मॅपिंगच्या संकल्पनेचे सखोल वर्णन करा.
- क) वाङ्मयचौर्य म्हणजे काय? शैक्षणिक संस्थांमधील वाङ्मयचौर्य रोखण्यासाठी ग्रंथालये आणि ग्रंथपाल कशी मदत करू शकतात ते सांगा.

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Ph.D. Course Work (New) Examination: July -2024

Library and Information Science (Paper – 3)

Advanced Knowledge in Core Domain of Library and Information Science

Day & Date: Friday, 26-07-2024

Max. Marks: 100

Time: 11:00 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) What is SWOT Analysis? Discuss how this technique can be useful in Libraries and Information Centres.
 - b) Discuss in detail Organizational structure in academic libraries.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Explain importance of Intellectual Property Rights (IPR)?
 - b) Explain the concept of Institutional Repository. Discuss the role of Librarian in developing Institutional Repository.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Define and discuss the Concepts Job Description and Job Analysis.
 - b) What is Knowledge Management? Discuss the role of Librarian in Knowledge Management.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Discuss role of Information and Communication Technology in the development of Library and Information Centres.
 - b) Define Digital Library. Describe in detail advantages of Digital Library.
 - c) What is meant by 'Bibliometrics'? Explain the features of Bibliometrics?
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) Define the term Total quality management. Describe in detail various Elements of Total quality management.
 - b) Describe in detail the concept of Mind mapping.
 - c) What is plagiarism? How libraries and librarians can help in preventing plagiarism in academic institutions?

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Ph.D. Course Work (New) Examination: July -2024
Social Work (Paper – 3)
Advanced Knowledge in Core Domain of Social Work Human Resource
Management

Day & Date: Friday, 26-07-2024
 Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

- Q.1 Answer any one of the following (Long Answer Question) 20**
 a) Discuss the relationship and functions of HRM and HRD in detailed.
OR
 b) State the objectives of HRM and elucidate the biggest challenges that HR facing today in India.
- Q.2 Answer any one of the following (Long Answer Question) 20**
 a) Define Human Resource Planning and Discuss the Importance of Planning Human Resource?
OR
 b) What is the strategic process of human resource management?
- Q.3 Answer any one of the following (Long Answer Question) 20**
 a) What are the different types of performance management processes? State the need and importance of performance management.
OR
 b) What is Organizational Development in organizational behavior?
- Q.4 Answer any two of the following. (Short Answer Question) 20**
 a) Discuss the key issues in Corporate Social Responsibility?
 b) What are the social factors in HRM and how social worker can address them?
 c) Explain the significance of Line Management in HRM?
- Q.5 Answer any two of the following. (Short Answer Question) 20**
 a) Write about Social Security Measures.
 b) What are the main functions of ILO?
 c) Explain the principles of Labour Legislation in India.

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Ph.D. Course Work (New) Examination: July-2024

Social Work (Paper - 3)

Advanced Knowledge in Core Domain of Social Work - Urban Rural and Tribal Community Development

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- Explain the various Principles of Community Organizations.
 - Write on existing schemes and programmes related to Slum Improvement Programme.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- Highlight in detail on Integrated Rural Development Programmes (IRDP) in Indian context.
 - Describe the concept and Importance of people's participation in Rural Community Development.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- Indicate characteristics of Tribal Community and various tribes community existing in India.
 - Write on various Schemes available in India for Tribal Community Development.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- Explain the concept of Local self government.
 - Write on 73rd and 74th Amendment to the Constitution of India.
 - Describe the functions of Panchayat Raj Institutions.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- Write on weakness or shortcoming in Panchayat Raj Institutions in India.
 - Describe the concept of e-governance.
 - Explain the concept of empowerment.

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Ph.D. Course Work (New) Examination: July -2024**Social Work (Paper - 3)****Advanced Knowledge in Core Domain of Social Work - Family and Child Development**

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
a) State Human Right Agencies at International Level.
b) Elaborate Social Work Intervention with Adolescents.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
a) Sexual Harassment at workplace; Comment
b) Write a brief note on Patriarchy & Gender Disparity
- Q.3 Answer any one of the following. (Long Answer Question) 20**
a) Highlight various NGOs working for Child Rights
b) Discuss various Stages of Child Development.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
a) Discuss Family Life education.
b) Explain National Youth Policy.
c) Define Geriatric and Discuss issues faced by the elderly in India.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
a) Describe LGBTQA Communities.
b) Explain Person with Disabilities Act.
c) Discuss Millenium Development goals.

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Ph.D. Course Work (New) Examination: July-2024
Social Work (Paper - 3)
Advanced Knowledge in Core Domain of Social Work - Medical and
Psychiatric Social Work

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) What is abnormal behavior? Explain the biological, psychological and sociological factors in abnormal behavior.
 - b) What is non-communicable disease? Highlight major types and causes of non-communicable diseases in India.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Comment on 'concept of patient as person' in detail.
 - b) Describe the DSM & ICD classification of mental disorders.
- Q.3 Answer any one of the following. (Long Answer Question) 20**
- a) Highlight the historical development of medical social work.
 - b) Describe the psychiatric interviewing and skills of psychiatric social worker in it.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Explain the behavioral problems in school going children.
 - b) Concept of health and disease, explain the indicators of health.
 - c) Describe behavioral therapy in detail.
- Q.5 Answer any two of the following. (Short Answer Question) 20**
- a) What is Counselling? Explain its need and application at individual and group level.
 - b) Explain the obsessive-compulsive disorder.
 - c) Comment on 'Need of psychiatric social work in India'

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Ph.D. Course Work (New) Examination: July -2024
Commerce & Management (Paper – 3)
Advanced Knowledge in Core Domain of Commerce & Management
(Advanced Knowledge in Commerce & Management)

Day & Date: Friday, 26-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. 20**
- a) Describe Customer Relationship Management and e- Marketing.
 - b) Explain Social media Marketing and its impact on business.
- Q.2 Answer any one of the following. 20**
- a) Define Talent Management System? Explain components, benefits and challenges of Talent Management System.
 - b) Describe Harassment and discrimination at the workplace and Ethical issues in HRM.
- Q.3 Answer any one of the following. 20**
- a) Explain the International Financial Reporting Standards and Indian Accounting Standards- Implementation & Challenges in India.
 - b) Describe Indian Accounting Standards as notified in section 133 of the Companies Act, 2013.
- Q.4 Answer any two of the following. 20**
- a) Describe recent Trends in Modern Banking.
 - b) Explain the meaning and need of financial inclusion.
 - c) Explain Credit Rating Models in Banks.
- Q.5 Answer any two of the following. 20**
- a) Describe Ind AS 1: Preparation of Financial Statements.
 - b) Explain the impact of Service Marketing on business.
 - c) Explain Recent Developments in Capital market and Banking Sector.

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**Ph.D. Course Work (New) Examination: July-2024
Research Methodology (Paper – 1)**

Day & Date: Monday, 22-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 80

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20**
- अ) संशोधनाचा अर्थ आणि महत्त्व लिहा आणि तुम्ही संशोधन समस्या कशी निवडाल आणि तयार कराल ते स्पष्ट करा.
- ब) समस्या परिभाषित करण्यासाठी साहित्य समीक्षेचे महत्त्व लिहा आणि समीक्षेचे प्राथमिक आणि दुय्यम स्रोत स्पष्ट करा.
- प्र.2 खालीलपैकी कोणत्याही एका प्रश्नाचे उत्तर लिहा. (दीर्घ उत्तर प्रश्न) 20**
- अ) संशोधनाच्या कोणत्याही एका पारंपारिक पद्धतीचे तपशीलवार वर्णन करा.
- ब) संशोधनाच्या आधुनिक पद्धतींच्या केसस्टडीच्या चरणांचे तपशीलवार वर्णन करा.
- प्र.3 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20**
- अ) संशोधन रचनेची गरज आणि संकल्पना लिहा, प्रायोगिक संशोधनाची कोणतीही एक संशोधन रचना स्पष्ट करा.
- ब) संशोधनातील प्रायोगिक अभ्यासाचे महत्त्व आणि पायऱ्या लिहा.
- क) परिकल्पना चाचणीचे वर्णन करा आणि आकडेवारीमध्ये निरीक्षणात्मक आणि प्रायोगिक डेटा स्पष्ट करा.
- प्र.4 खालीलपैकी कोणत्याही दोन प्रश्नांची उत्तरे लिहा. (लहान उत्तर प्रश्न) 20**
- अ) अहवाल लेखनाचे आवश्यक घटक लिहा आणि उदाहरणांसह संदर्भ सूची आणि संदर्भ यांच्यातील फरक स्पष्ट करा.
- ब) तीन मुख्य उद्धरण शैली काय आहेत? योग्य उदाहरणांसह कोणतेही स्पष्ट करा.
- क) संशोधनातील पॅरामेट्रिक आणि नॉन पॅरामेट्रिक चाचण्या स्पष्ट करा.

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**Ph.D. Course Work (New) Examination: July-2024
Research Methodology (Paper – 1)**

Day & Date: Monday, 22-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 80

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) Write the Meaning and importance of Research and explain how you will Select and formulate the Research Problem.
 - b) Write the importance of literature review in defining a problem and explain Primary and secondary sources of review.
- Q.2 Answer any one of the following. (Long Answer Question) 20**
- a) Explain in detail any one traditional method of research.
 - b) Explain in detail the steps of Case study of modern methods of research.
- Q.3 Answer any two of the following. (Short Answer Question) 20**
- a) Write the need and concept of research design, explain any one research design of experimental research.
 - b) Write the importance and steps of pilot study in research.
 - c) Describe Hypothesis Testing and explain observational and experimental data in statistics.
- Q.4 Answer any two of the following. (Short Answer Question) 20**
- a) Write the essential elements of Report Writing and explain the difference between bibliography and references with examples.
 - b) What are the three main citation styles? Explain any one with suitable examples.
 - c) Explain the parametric and nonparametric tests in research.

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**Ph.D. Course Work (New) Examination: July -2024
Information and Computer Technology (Paper – 2) (A)**

Day & Date: Wednesday, 24-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 40

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 दीर्घोत्तरी प्रश्न (कोणताही एक) 20**
- अ) एच – इंडेक्स म्हणजे काय? एखादया विशिष्ट लेखकासाठी एच-इंडेक्स कसा शोधायचा?
- ब) सर्वेक्षण करताना गुगल फॉर्मस चा उपयोग कसा होतो ते स्पष्ट करा.
- प्र.2 लघुत्तरी प्रश्न (कोणतेही दोन) 20**
- अ) ICT साधनांचे उपयोग स्पष्ट करा.
- ब) वर्डमध्ये तक्ते आणि चिन्हे कसे तयार केले जातात ते स्पष्ट करा.
- क) ICT चा शैक्षणिक विकासावर झालेला प्रभाव स्पष्ट करा.

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Set P

**Ph.D. Course Work (New) Examination: July -2024
Information and Computer Technology (Paper – 2) (A)**

Day & Date: Wednesday, 24-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Support the answers by neat sketches wherever necessary.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) What is H-Index? How to find h-index for a particular author?
 - b) Explain -how google forms are used in conducting survey.
- Q.2 Answer any two of the following. (Short Answer Question) 20**
- a) Explain the uses of ICT tools.
 - b) Explain How to create tables and symbols in word.
 - c) Explain the impact of ICT on Educational development.

Seat No.	
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Set P

**Ph.D. Course Work (New) Examination: July-2024
Research and Publication Ethics (Paper – 2) (B)**

Day & Date: Wednesday, 24-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 40

सूचना : 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र.1 दीर्घोत्तरी प्रश्न (कोणताही एक) 20**
- अ) संशोधन नैतिकता म्हणजे काय? संशोधन नैतिकतेची महत्त्वाची क्षेत्रे विशद करा.
ब) संशोधनाची सात नीतितत्त्वे सांगून त्याचे संशोधनातील महत्त्व सविस्तर लिहा.
- प्र.2 लघुत्तरी प्रश्न (कोणतेही दोन) 20**
- अ) नैतिक तत्त्वज्ञान म्हणजे काय ते सांगून त्याचे स्वरूप व व्याप्ती स्पष्ट करा.
ब) संशोधक संशोधन क्षेत्रातील गैरप्रकार कसे टाळू शकतात याची उदाहरणांसह मांडणी करा.
क) संशोधन प्रकाशन क्षेत्रातील नीतित्वाचे उल्लंघन करणाऱ्या बाबींचे सविस्तर विवेचन करा.

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Set P

**Ph.D. Course Work (New) Examination: July-2024
Research and Publication Ethics (Paper – 2) (B)**

Day & Date: Wednesday, 24-07-2024
Time: 11:00 AM To 02:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Support the answers by neat sketches wherever necessary.

- Q. 1 Answer any one of the following. (Long Answer Question) 20**
- a) What is research ethics? Explain the important areas in research ethics.
 - b) Explain the seven principles of research ethics and its importance in detail.
- Q.2 Answer any two of the following. (Short Answer Question) 20**
- a) Define philosophy of ethics. Explain in detail its nature and scope.
 - b) Illustrate how can researcher avoid malpractices in their research work.
 - c) Explain in detail what constitutes a breach of ethics in the field of research publication.