SEAL

SET

A

RSAE/2024/E
Electrical Engineering

5 3 1 2 9 2 1

प्रश्न-पुस्तिका क्रम संख्या
Question Booklet No.

अनुक्रमांक
Roll No.

परीक्षार्थी अपना अनुक्रमांक दिए गए खानों में लिखें।
Candidate should write his/her Roll No. in the given boxes.

मुद्रित पृष्ठों की संख्या / No. of Printed Pages : 40
समय / Time : **03 घण्टे / 03 Hours**

कुल प्रश्नों की संख्या / Total No. of Questions : **150**
पूर्णांक / Total Marks : **450**

परीक्षार्थियों के लिए निर्देश

1. परीक्षा प्रारंभ होने के तुरन्त बाद, आप इस प्रश्न-पुस्तिका की पड़ताल अवश्य कर लें, कि इसमें कोई बिना छपा, फटा या छूटा हुआ पृष्ठ अथवा प्रश्नांश, आदि न हो। यदि ऐसा है, तो वीक्षक से तत्काल संपर्क कर प्रश्न-पुस्तिका बदल लेवें।
2. यह प्रश्न-पुस्तिका सम्मिलित रूप से दो खण्डों में विभाजित है, खण्ड – 'अ' तथा खण्ड – 'ब'।
3. खण्ड – 'अ' के प्रश्न **सामान्य अध्ययन** से संबंधित है, जिसमें कुल **50** प्रश्न हैं। सभी प्रश्न हिन्दी तथा अंग्रेज़ी भाषा में हैं। **सभी** प्रश्न अनिवार्य हैं।
4. खण्ड – 'ब' के प्रश्न **इलेक्ट्रीकल इंजीनियरींग** विषय से है, जिसमें कुल **100** प्रश्न हैं। सभी प्रश्न अंग्रेज़ी भाषा में हैं। **सभी** प्रश्न अनिवार्य हैं। अभ्यर्थी स्वयं यह सुनिश्चित कर लें कि जिस पद हेतु आवेदन किया है वही विषय का प्रश्न-पत्र प्राप्त हुआ है।
5. सभी प्रश्नों के अंक समान हैं। प्रत्येक **सही** उत्तर के लिए **03** अंक प्रदान किए जायेंगे। परीक्षा योजना नुसार ऋणात्मक मूल्यांकन का प्रावधान है। प्रत्येक गलत उत्तर के लिए **01** अंक काटा जायेगा।
6. प्रदत्त उत्तर-पत्र (ओ.एम.आर.) पर दिए गए निर्देशों को ध्यानपूर्वक पढ़ें तथा अपने उत्तर तदनुसार अंकित करें।
7. कृपया उत्तर-पत्र (ओ.एम.आर.) पर निर्धारित स्थानों पर आवश्यक प्रविष्टियाँ करें, अन्यत्र स्थानों पर नहीं।
8. परीक्षार्थी सभी रफ़ कार्य प्रश्न-पुस्तिका के अंतिम पृष्ठ पर निर्धारित स्थान पर ही करें, अन्यत्र कहीं नहीं तथा उत्तर-पत्र (ओ.एम.आर.) पर भी नहीं।
9. यदि किसी प्रश्न में किसी प्रकार की कोई मुद्रण या तथ्यात्मक प्रकार की त्रुटि हो, तो प्रश्न के हिन्दी तथा अंग्रेज़ी रूपांतरों में से हिन्दी रूपांतर को मानक माना जाएगा। (खण्ड-अ के सन्दर्भ में)

INSTRUCTIONS TO THE CANDIDATES

1. Immediately after the commencement of the examination, you should check that this Question Booklet ***does not*** have any unprinted or torn or missing pages or items etc. If so, immediately contact the Invigilator and get it replaced with Question Booklet.
2. This combined Question Booklet is divided in **two** Sections, Section-'A' and Section-'B'.
3. Section-'A' contains **50** questions of **General Studies.** All questions are in Hindi and English language. **All** questions are compulsory.
4. Section-'B' contains **100** questions of **Electrical Engineering** subject. All questions are in English language. **All** questions are compulsory. Candidates should ensure that he/she has got the question paper of the same post for which he/she had applied.
5. **All** questions carry equal marks. **Three (03)** marks will be given for each ***correct*** answer. There is provision of **Negative Markings** as per examination plan. For each wrong answer, **One (01)** mark will be deducted.
6. Read carefully the instructions given on the Answer Sheet (OMR) supplied and indicate your answers accordingly.
7. Kindly make necessary entries on the Answer Sheet (OMR) at the places indicated and nowhere else.
8. Examinee should do all rough work on the space meant for rough work on pages given at the end of the Question Booklet and nowhere else, not even on the Answer Sheet (OMR).
9. If there is any sort of mistake either of printing or of factual nature in any question, then out of the Hindi and English versions of the question, the Hindi version will be treated as standard (with ref. to Section-A).

SEAL

खण्ड-'अ' - सामान्य अध्ययन

1. निम्न में से किस स्थान से 'वन्या सामुदायिक रेडियो केन्द्र' का संचालन नहीं किया जा रहा है?
   A. मेघनगर (झाबुआ)
   B. खालवा (खण्डवा)
   C. सैलाना (रतलाम)
   D. बिजौरी (छिन्दवाड़ा)

2. निम्नलिखित में से कौन-सा क्लाउड कम्प्यूटिंग का एक प्रमुख लाभ है?
   A. बिजली की खपत में वृद्धि
   B. भौतिक संग्रहण पर निर्भरता
   C. वर्चुअलाइजेशन एवं बेहतर सर्वर उपयोगिता
   D. सीमित संसाधन पहुँच

3. कौन-सा युग्म सुमेलित नहीं है?
   A. फाजिल मुहम्मद - गढ़ा अम्बापानी
   B. राजा बखतबली - शाहगढ़
   C. रघुनाथ मण्डलोई - बडवानी
   D. फरजंद अली - धार

4. 'पेपर्स रिलेटिंग टु द एबोरीजनल ट्राइब्स ऑफ सेन्ट्रल प्रोविन्सेस' के लेखक कौन थे?
   A. जॉन मॉलकम
   B. स्टीफेन हिस्लॉप
   C. हीरालाल
   D. एलविन वेरियर

5. वर्ष 2023-24 में मध्य प्रदेश में प्राथमिक और माध्यमिक स्तर पर ड्रॉपआउट दर किसकी अधिक थी?
   A. दोनों स्तर पर लड़कों की
   B. प्राथमिक स्तर पर लड़कों की, माध्यमिक में लड़कियों की
   C. दोनों स्तर पर लड़कियों की
   D. प्राथमिक स्तर पर लड़कियों की व माध्यमिक स्तर पर लड़कों की

6. इनमें से कौन-सी नदी सतपुड़ा पर्वत से उत्पन्न होकर दक्षिण की ओर प्रवाहित होती है?
   A. जोहिला
   B. बंजार
   C. वैनगंगा
   D. तवा

7. कुंवरामठ एवं जालपादेवी मंदिर दोनों ही किस एक स्थान पर स्थित हैं?
   A. जसो, (सतना)
   B. उदयगिरी, (विदिशा)
   C. कर्दमेश्वरनाथ, (होशंगाबाद)
   D. रामवन, (बुरहानपुर)

8. मध्य प्रदेश उच्च न्यायालय के प्रथम मुख्य न्यायाधीश कौन हैं?
   A. माननीय न्यायमूर्ति पी. वी. दीक्षित
   B. माननीय न्यायमूर्ति जी. पी. भट्ट
   C. माननीय न्यायमूर्ति एम. हिदायतुल्ला
   D. माननीय न्यायमूर्ति बिशम्भर दयाल

Section-'A' - General Studies

1. Which of the following place is not broadcasting 'Vanya Community Radio Center'?
   A. Meghnagar (Jhabua)
   B. Khalwa (Khandwa)
   C. Sailana (Ratlam)
   D. Bijouri (Chhindwara)

2. Which of the following is a key advantage of cloud computing?
   A. Increased power consumption
   B. Physical storage dependency
   C. Virtualization and better server utilization
   D. Limited Resource access

3. Which pair is not correctly matched?
   A. Fazil Muhammad - Gada ambapani
   B. Raja Bakhatbali - Shahgarh
   C. Raghunath Mandloi - Badwani
   D. Farjand Ali - Dhar

4. Who was the author of the 'Papers Relating to the Aboriginal Tribes of Central Provinces'?
   A. John Malcolm
   B. Stephen Hislop
   C. Heeralal
   D. Elwin Verrier

5. In the year 2023-24, whose dropout rate was higher at both the primary and secondary levels in Madhya Pradesh?
   A. Boys at both levels
   B. Boys at primary, girls at secondary
   C. Girls at both levels
   D. Girls at primary, boys at secondary

6. Which of these rivers originating from Satpura mountains flows towards the south?
   A. Johilla
   B. Banjar
   C. Wainganga
   D. Tawa

7. In which one place are both Kunvaramath and Jalpa devi temple located?
   A. Jaso, (Satna)
   B. Udaigiri, (Vidisha)
   C. Kardameshwarnath (Hoshangabad)
   D. Ramvan (Burhanpur)

8. Who is the first Chief Justice of Madhya Pradesh High Court?
   A. Hon'ble Justice P. V. Dixit
   B. Hon'ble Justice G. P. Bhutt
   C. Hon'ble Justice M. Hidayatullah
   D. Hon'ble Justice Bishambhar Dayal

9. मध्य प्रदेश के किस जनजातीय क्रांतिकारी का निधन आजीवन कारावास की सजा के दौरान अण्डमान की जेल में हुआ?

A. क्रांतिकारी नवल शाह

B. क्रांतिकारी निजाम शाह

C. क्रांतिकारी भीमा नायक

D. क्रांतिकारी रघुवीर सिंह मण्डलोई

10. गुप्तसंवत 156 के खोह अभिलेख में उल्लेखित महाराजा हस्तिन का संबंध निम्न में से किस वंश से है?

A. उच्चकल्प

B. राजर्षितुल्य

C. परिव्राजक

D. नल

11. रामनगर शिलालेख के अनुसार गढ़ा के गोंड राज्य का संस्थापक कौन था?

A. यादवराय

B. हृदयशाह

C. सुमेर सिंह

D. वीर नारायण

12. भारतीय रेलवे रिपोर्ट 2023-24 के अनुसार रेलवे नेटवर्क की दृष्टि से मध्य प्रदेश का देश में कौन-सा स्थान था?

A. छठवां

B. तीसरा

C. पाँचवां

D. चौथा

13. व्यापक जनजातीय समाज में मनाया जाने वाला उत्सव 'करमा' का नामकरण किसके नाम पर किया गया है?

A. एक देवी के नाम पर

B. एक वृक्ष के नाम पर

C. एक नदी के नाम पर

D. उपरोक्त में से कोई नहीं

14. भारत के प्रधानमंत्री द्वारा दिनांक 19 जून 2025 को किस भारतीय शतरंज खिलाड़ी को लंदन में वर्ल्ड टीम ब्लिट्ज़ प्रतियोगिता के सेमीफाइनल के दूसरे चरण में विश्व की नंबर 01 खिलाड़ी होऊ यिफान को हराने पर बधाई दी?

A. आर. वैशाली

B. सौम्या स्वामीनाथन

C. दिव्या देशमुख

D. हरिका द्रोणावल्ली

15. पवन ऊर्जा क्षमता में (31 मई 2025 की स्थिति में) मध्य प्रदेश का देश में कौन-सा स्थान था?

A. आठवां

B. सातवां

C. छठवां

D. पाँचवां

9. Which tribal revolutionary of Madhya Pradesh died in Andaman Jail during his life sentence?

A. Revolutionary Naval Shah

B. Revolutionary Nizam Shah

C. Revolutionary Bhima Nayak

D. Revolutionary Raghuvir Singh Mandloi

10. Maharaja Hastin, mentioned in the Khoh inscription of Guptsanvat 156, belonged to which of the following dynasties?

A. Uchchakalpa

B. Rajarshitulya

C. Parivrajaka

D. Nal

11. According to the Ramnagar inscription who was the founder of Gond dynasty of Garha?

A. Yadavrai

B. Hridayshah

C. Sumer Singh

D. Veer Narayan

12. According to Indian Railways Report 2023-24 what was the position of Madhya Pradesh in the country in terms of Railway Network?

A. Sixth

B. Third

C. Fifth

D. Fourth

13. After whom is the 'Karma' festival celebrated widely in tribal society named?

A. In the name of Goddess

B. In the name of Tree

C. In the name of River

D. None of the above

14. The Prime Minister of India congratulated which Indian chess player on defeating world no. 01 Chess player Hou Yifan in the 2nd leg of Blitz semifinal at World Team Blitz Championship at London on 19th June 2025?

A. R. Vaishali

B. Soumya Swaminathan

C. Divya Deshmukh

D. Harika Dronavalli

15. What was the position of Madhya Pradesh in the country in wind energy capacity (on 31st May 2025)?

A. Eighth

B. Seventh

C. Sixth

D. Fifth

16. वर्ष 2024-25 में प्राथमिक क्षेत्र के अन्तर्गत मध्य प्रदेश के सकल राज्य मूल्य वर्धन (जी एस वी ए) में सबसे कम योगदान किस उपक्षेत्र का था?

A. पशुपालन

B. वानिकी

C. मत्स्यपालन एवं एक्वाकल्चर

D. फसल

17. मध्य प्रदेश की प्रियांशी प्रजापत ने किस विधा में जून 2025 में वियतनाम में आयोजित प्रतियोगिता में स्वर्ण पदक जीता?

A. तीरंदाजी

B. मुक्केबाजी

C. कुश्ती

D. निशानेबाजी

18. भारत में स्वदेशी डिज़ाइन से निर्मित प्रथम डाइविंग सपोर्ट वैसल का नाम क्या है, जिसे 18 जुलाई 2025 को भारतीय नौसेना को सौंपा गया?

A. आई एन एस नीलगिरि

B. आई एन एस निस्तार

C. आई एन एस उदयगिरि

D. आई एन एस सूरत

19. भोपाल राज्य पर स्वतंत्र भारत का पूर्ण प्रशासनिक नियंत्रण कब हुआ?

A. अगस्त 1947

B. जून 1949

C. जनवरी 1950

D. जनवरी 1949

20. बाबर ने चन्देरी पर आक्रमण किस शासक के विरुद्ध किया था?

A. मेदिनी राय

B. राव सिलहदी

C. राव विक्रम

D. मान सिंह

21. नीति आयोग द्वारा जारी SDG इंडिया इंडेक्स 2023-24 में लक्ष्य क्रमांक 4 (गुणवत्तापूर्ण शिक्षा) में मध्य प्रदेश का स्कोर क्या था?

A. 49

B. 50

C. 56

D. 62

22. मध्य प्रदेश में ज्ञान (GYAN) मिशन को शुरू करने का मुख्य उद्देश्य क्या है?

A. निर्यात को बढ़ावा देना

B. समावेशी और व्यापक विकास

C. शहरी सौंदर्यीकरण

D. प्रशासन में कटौती

23. मध्य प्रदेश में जनजातीय विकास खण्डों की संख्या कितनी है?

A. 86

B. 89

C. 84

D. 80

16. Which subsector had the lowest contribution to Madhya Pradesh's Gross State Value Added (GSVA) within the primary sector in the year 2024-25?

A. Livestock

B. Forestry

C. Fisheries and Aquaculture

D. Crops

17. In which event Priyanshi Prajapat of Madhya Pradesh won the gold medal at Vietnam in June 2025?

A. Archery

B. Boxing

C. Wrestling

D. Shooting

18. Name India's first indigenously designed and built diving support vessel which was given to Indian navy on 18th July 2025?

A. INS Nilgiri

B. INS Nistar

C. INS Udaygiri

D. INS Surat

19. When independent India got full administrative control on Bhopal State?

A. August 1947

B. June 1949

C. January 1950

D. January 1949

20. Against which ruler did Babar launch an attack on Chanderi?

A. Medini Rai

B. Rao Silhadi

C. Rao Vikram

D. Man Singh

21. What was Madhya Pradesh's score in Goal 4 (Quality Education), as per the NITI Aayog SDG India Index 2023-24?

A. 49

B. 50

C. 56

D. 62

22. What is the main goal of launching GYAN Mission in Madhya Pradesh?

A. Export promotion

B. Inclusive and comprehensive growth

C. Urban beautification

D. Administrative downsizing

23. How many tribal development Blocks are there in Madhya Pradesh?

A. 86

B. 89

C. 84

D. 80

24. मध्य प्रदेश में 'पेसा एक्ट' कब लागु किया गया?

A. नवंबर 2021

B. नवंबर 2022

C. नवंबर 2023

D. नवंबर 2024

25. वर्ष 2011 की जनगणना के अनुसार, जनसंख्या के आकार की दृष्टि से मध्य प्रदेश में प्रथम चार जिले कौन-से थे?

A. इंदौर, भोपाल, जबलपुर, ग्वालियर

B. इंदौर, भोपाल, जबलपुर, उज्जैन

C. इंदौर, जबलपुर, सागर, भोपाल

D. इंदौर, जबलपुर, भोपाल, रीवा

26. मध्य प्रदेश के जनजातीय क्षेत्र के विषय पर लिखित पुस्तक 'द हाईलैण्डस ऑफ सेण्ट्रल इण्डिया' के लेखक हैं-

A. वैरियर एल्विन

B. डब्ल्यू. बी. ग्रिगसन

C. केप्टन जे फोरसिथ

D. आर. वी. रसेल, हीरालाल

27. मध्य प्रदेश में कर्कराज मंदिर कहाँ स्थित है?

A. उज्जैन

B. ओंकारेश्वर

C. महेश्वर

D. अमरकंटक

28. वर्ष 2023-24 में मध्य प्रदेश में सिंचाई के सम्बन्ध में इनमें से कौन-सा कथन सही है?

A. राज्य में सिंचाई के साधनों में कुएँ एवं ट्यूबवेल शीर्ष पर है।

B. राज्य में सिंचाई के साधनों में तालाब दूसरे स्थान पर है।

C. राज्य में सिंचाई के साधनों में नहरों का चौथा स्थान है।

D. डिण्डोरी एवं अनूपपुर में शुद्ध सिंचित क्षेत्र राज्य के औसत से अधिक है।

29. 'डंढार' नामक लोक नृत्य किस जनजाति का लोक नृत्य है?

A. भील

B. गोंड

C. माँझी

D. कंवर

30. संशोधित राष्ट्रीय ग्राम स्वराज अभियान के विभिन्न उद्देश्यों में से एक उद्देश्य -------- है।

A. सतत विकास लक्ष्य को प्राप्त करने के लिए पंचायती राज संस्थाओं के शासन क्षमताओं का विकास करना।

B. बेहतर शासन के लिए महिलाओं और बच्चों के क्षमताओं का विकास करना।

C. शहरी-ग्रामीण आबादी की आर्थिक क्षमताओं में वृद्धि करना।

D. रोजगार के अवसरों के लिए शहरी स्थानों की ओर आप्रवासन सुनिश्चित करना।

24. When 'PESA Act' was implemented in Madhya Pradesh?

A. November 2021

B. November 2022

C. November 2023

D. November 2024

25. According to the 2011 census, which were the first four districts in Madhya Pradesh in terms of population size?

A. Indore, Bhopal, Jabalpur, Gwalior

B. Indore, Bhopal, Jabalpur, Ujjain

C. Indore, Jabalpur, Sagar, Bhopal

D. Indore, Jabalpur, Bhopal, Rewa

26. Who is the author of the book "The Highlands of Central India" written on the tribal area of Madhya Pradesh?

A. Variyar Elwin

B. W. B. Grigson

C. Captain J. Forsyth

D. R. V. Russell, Hiralal

27. 'Karkraj Temple' in Madhya Pradesh is located in-

A. Ujjain

B. Omkareshwar

C. Maheshwar

D. Amarkantak

28. Which of the following statements is correct regarding irrigation in Madhya Pradesh in the year 2023-24?

A. Wells and tubewells are at the top among the sources of irrigation.

B. Ponds are at the second place among the sources of irrigation.

C. Canals are at fourth position among the sources of irrigation.

D. The net irrigated area in Dindori and Anuppur is higher than the state average.

29. The folk dance called "Dandhar" is the folk dance of which tribe?

A. Bhil

B. Gond

C. Manjhi

D. Kanwar

30. One of the objectives of Revamped Rashtriya Gram Swaraj Abhiyan is-

A. Develop governance capabilities of Panchayati Raj Institutions to deliver on Sustainable Development Goals.

B. Develop capabilities of women and children towards better governance.

C. Enhance economic capabilities of urban-rural population.

D. Ensure immigration to urban places for employment opportunities.

31. एक ऑप्टिकल स्कैनर जो किसी चित्र को पढ़ने और उसमें से टेक्स्ट (पाठ) को पहचानने के लिए उपयोग किया जाता है, उसे क्या कहा जाता है?

A. ऑप्टिकल केरेक्टर रिकग्निशन (OCR)

B. ऑप्टिकल मार्क रिकग्निशन (OMR)

C. मेग्नेटिक इंक केरेक्टर रिकग्निशन (MICR)

D. बार कोड रीडर (BCR)

32. मध्य प्रदेश की 16 वीं विधानसभा में महिला एवं बाल विकास विभाग की मंत्री ------ हैं।

A. श्रीमती कृष्णा गौर

B. श्रीमती प्रतिमा बागड़ी

C. सुश्री निर्मला भूरिया

D. श्रीमती राधा सिंह

33. प्रिंटर का रेज़ोल्यूशन (Resolution) किस इकाई में मापा जाता है?

A. DPI

B. PPI

C. PPM

D. KBS

34. अनु.जाति, जनजाति (अत्याचार निवारण) अधिनियम 1989 की किस धारा के अन्तर्गत राज्य सरकार को विशेष न्यायालय स्थापित करने की शक्ति दी गई है?

A. धारा - 12

B. धारा - 14

C. धारा - 16

D. धारा - 18

35. चन्द्रगुप्त विक्रमादित्य के साँची अभिलेख में ----- का उल्लेख मिलता है।

A. सावंतर्दव

B. आम्रकार्दव

C. चेल्लकर्दव

D. बिल्हणर्दव

36. जब कोई वेब पेज सर्वर पर नहीं मिलता है, तो HTTP में कौन-सा स्टेटस कोड लौटाया जाता है?

A. 404

B. 403

C. 304

D. 303

37. वर्ष 2024 के लिए 59 वाँ ज्ञानपीठ पुरस्कार किसे मिला है?

A. जगद्गुरू रामभद्राचार्य

B. गुलज़ार

C. डॉ. विश्वनाथ प्रसाद तिवारी

D. विनोद कुमार शुक्ला

31. An optical scanner used to read an image and recognize text from it is known as-

A. Optical Character Recognition (OCR)

B. Optical Mark Recognition (OMR)

C. Magnetic Ink Character Recognition (MICR)

D. Bar Code Reader (BCR)

32. The Minister of Department of Women and Child Development in the 16th Legislative Assembly of Madhya Pradesh is ----------.

A. Smt. Krishna Gaur

B. Smt. Pratima Bagri

C. Sushri Nirmala Bhuria

D. Smt. Radha Singh

33. The resolution of a printer is measured in which unit?

A. DPI

B. PPI

C. PPM

D. KBS

34. Under which section of the Scheduled Caste and Schedule Tribes (Prevention of Atrocities) Act 1989 the State Government has been given the power to establish special courts?

A. Section - 12

B. Section - 14

C. Section - 16

D. Section - 18

35. The inscription of Chandragupta Vikramaditya at Sanchi mentions----.

A. Sawantardav

B. Amrakardav

C. Chellakardav

D. Bilahanardav

36. What is the HTTP status code returned by the server, when a web page is not found on the server?

A. 404

B. 403

C. 304

D. 303

37. Who is the recipient of the 59th Jnanpith Award for the year 2024?

A. Jagadguru Rambhadracharya

B. Gulzar

C. Dr. Vishwanath Prasad Tiwari

D. Vinod Kumar Shukla

38. सतपुड़ा पर्वत श्रेणी के सम्बन्ध में निम्नलिखित कथनों के आधार पर, नीचे दिए गए कूट से सही उत्तर चुनिए-

(1) सतपुड़ा के पश्चिमी भाग को राजपीपला पहाड़ियाँ भी कहा जाता है।

(2) यहाँ के अधिकांश पहाड़ी क्षेत्र लगभग 900 मी. ऊँचे हैं।

(3) पश्चिमी सतपुड़ा की अधिकतम ऊँचाई 1325 मी. है।

(4) मैकल श्रेणी विंध्य और सतपुड़ा को जोड़ने वाली कड़ी है।

कूट:

A. केवल 1, 2 एवं 3 सही हैं।

B. केवल 1, 2 एवं 4 सही हैं।

C. केवल 2, 3 एवं 4 सही हैं।

D. सभी 1, 2, 3 एवं 4 सही हैं।

39. अनुसूचित जाति और अनुसूचित जनजाति (अत्याचार निवारण) अधिनियम वर्ष 1989 किस माह में अधिनियमित किया गया था?

A. अगस्त

B. सितंबर

C. अक्टुबर

D. नवंबर

40. भारत वन स्थिति रिपोर्ट 2023 के अनुसार, मध्य प्रदेश में वनों के अन्तर्गत क्षेत्रफल (प्रतिशत में) की दृष्टि से प्रथम तीन जिले कौन-से हैं?

A. बालाघाट, मण्डला, डिण्डोरी

B. उमरिया, बालाघाट, श्योपुर

C. श्योपुर, मण्डला, बालाघाट

D. डिण्डोरी, उमरिया, बालाघाट

41. कौन से दो सेंसर मोबाइल की डिस्प्ले को हमारे फोन पकड़ने के तरीके के अनुसार खड़ा (वर्टिकल) या लेटा (हारिजॉन्टल) करने में मदद करते हैं?

A. एक्सेलेरोमीटर और जाइरोस्कोप

B. एक्सेलेरोमीटर और प्रॉक्सिमिटी सेंसर

C. मैग्नेटोमीटर और माइक्रोटेलेस्कोप

D. बैरोमीटर और जाइरोस्कोप

42. सुमेलित कीजिए-

जिला	प्रस्तावित औद्योगीक क्षेत्र
(a) ग्वालियर	(1) सेमली कांकड
(b) मन्दसौर	(2) मोहना
(c) मुरैना	(3) मवाई
(d) धार	(4) लालबाघ

A. a-1, b-2, c-3, d-4

B. a-4, b-3, c-2, d-1

C. a-2, b-1, c-3, d-4

D. a-2, b-3, c-1, d-4

38. On the basis of the following statements regarding Satpura, select the correct answer from the code given below-

(1) The Western part of Satpura is also called Rajpipla hills.

(2) Most of the hilly areas here are 900 m. high.

(3) The maximum height of western Satpura is 1325 m.

(4) Maikal range is a connecting link between the Vindhyas and Satpuras.

Code:

A. Only 1, 2 and 3 are correct.

B. Only 1, 2 and 4 are correct.

C. Only 2, 3 and 4 are correct.

D. All 1, 2, 3 and 4 are correct.

39. The Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act was enacted in the which month of year 1989?

A. August

B. September

C. October

D. November

40. According to India State of Forest Report 2023, which are the first three districts in terms of area (%) under forests in Madhya Pradesh?

A. Balaghat, Mandla, Dindori

B. Umaria, Balaghat, Sheopur

C. Sheopur, Mandla, Balaghat

D. Dindori, Umaria, Balaghat

41. Which of the two sensors help the mobile display change between vertical and horizontal orientations based on how we hold the mobile phone?

A. Accelerometer and Gyroscope

B. Accelerometer and proximity sensor

C. Magnetometer and Micro telescope

D. Barometer and Gyroscope

42. Match the column-

District	Proposed Industrial Area
(a) Gwalior	(1) Semlikankad
(b) Mandsaur	(2) Mohna
(c) Morena	(3) Mawai
(d) Dhar	(4) Lalbagh

A. a-1, b-2, c-3, d-4

B. a-4, b-3, c-2, d-1

C. a-2, b-1, c-3, d-4

D. a-2, b-3, c-1, d-4

43. वर्ष 2020-21 में मध्य प्रदेश में ज्वार उत्पादन के सम्बन्ध में निम्नलिखित में से कौन-सा कथन सही है?

A. प्रदेश का ज्वार के उत्पादन में देश में तीसरा स्थान था।

B. प्रदेश का ज्वार के उत्पादन में देश में पाँचवां स्थान था।

C. राज्य में सबसे अधिक उत्पादन डिण्डोरी जिले में हुआ था।

D. राज्य में भिण्ड एवं ग्वालियर प्रमुख उत्पादक जिलों में से थे।

44. गोंड जनजाति द्वारा मनाया जाने वाला 'मेघनाद पर्व' किस हिन्दी माह में मनाया जाता है?

A. क्वॉर

B. ज्येष्ठ

C. सावन

D. फाल्गुन

45. मध्य प्रदेश में शीत ऋतु के सम्बन्ध में इनमें से कौन-सा कथन सही है?

A. जनवरी में निम्न वायुदाब होता है।

B. दिसम्बर में निम्न वायुदाब होता है।

C. जनवरी में उच्च वायुदाब होता है।

D. इस ऋतु में रातें छोटी होती हैं।

46. कुंवर चैन सिंह का सम्बन्ध मध्य प्रदेश की किस रियासत से था?

A. धार

B. नरसिंहगढ़

C. राघोगढ़

D. राजगढ़

43. Which of the following statements is correct regarding the production of Jowar in Madhya Pradesh in the year 2020-21?

A. The State was third in the country in the production of Jowar.

B. The State was fifth in the country in the production of Jowar.

C. The highest production in the State was in Dindori district.

D. Bhind and Gwalior were among the major producing districts in the State.

44. In which Hindi month is the Meghnad festival celebrated by the Gond tribe?

A. Kwanr

B. Jyeshtha

C. Sawan

D. Falgun

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45. Which of the following statements is correct regarding the winter season in the State of Madhya Pradesh?

A. There is low pressure in January.

B. There is low pressure in December.

C. There is high pressure in January.

D. The nights are shorter in this season.

46. Kunwar Chain Singh was associated with which Princely State of Madhya Pradesh?

A. Dhar

B. Narsinghgarh

C. Raghogarh

D. Rajgarh

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47. चतुर्भुज नाला प्रागैतिहासिक शैल चित्र स्थल किस जिले में स्थित है?

A. धार

B. बैतूल

C. मन्दसौर

D. अनूपपुर

48. गोंडवाना की रानी दुर्गावती ने मुगल सेनापति आसफ खॉ से युद्ध करते हुए कब आत्म-बलिदान किया था?

A. सन 1560

B. सन 1562

C. सन 1564

D. सन 1566

49. "विभिन्न स्त्रोंत से पर्यावरण प्रदूषकों के उत्सर्जन या निर्वहन के लिए मानक निर्धारित करना" यह पर्यावरण संरक्षण अधिनियम, 1986 के तहत ---- की सामान्य शक्तियों के अंतर्गत है।

A. राज्य सरकार

B. केन्द्र सरकार

C. स्थानीय सरकार

D. राष्ट्रीय हरित न्यायाधिकरण

50. पद्मश्री पुरस्कार से 2025 में सम्मानित मध्य प्रदेश के किस साहित्यकार ने निमाड़ी शब्दकोश और व्याकरण तैयार किया है?

A. श्री भेरू सिंह चौहान

B. श्री जगदीश जोशीला

C. श्री हरचंदन सिंह भट्टी

D. श्री बुधेंद्र कुमार जैन

47. In which district is the prehistoric rock art site of Chaturbhuj Nala located?

A. Dhar

B. Betul

C. Mandsaur

D. Anuppur

48. When did Gondwana's queen Durgawati sacrifice herself while fighting with Mughal Commander Asaf Khan?

A. Year 1560

B. Year 1562

C. Year 1564

D. Year 1566

49. "Laying down standards for emission or discharge of environmental pollutants from various sources whatsoever" comes within the general powers of ------ under Environment Protection Act, 1986.

A. State Government

B. Central Government

C. Local Self Government

D. National Green Tribunal

50. Which Padma Shri Award recipient in 2025, of Madhya Pradesh has prepared a Nimadi dictionary and grammar book?

A. Shri Bheru Singh Chouhan

B. Shri Jagdish Joshila

C. Shri Harchandan Singh Bhatti

D. Shri Budhendra Kumar Jain

Section-'B' - Electrical Engineering

51. The inverse Laplace transform of $\frac{s+a}{(s+a)^2+\omega_0^2}$ is-

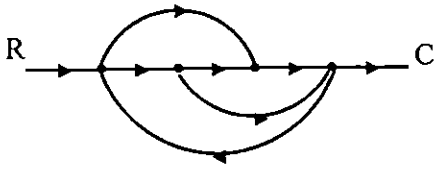
A. $e^{-at}\cos\omega_0 t\,\mu(t)$

B. $e^{-at}\sin\omega_0 t\,\mu(t)$

C. $e^{at}\cos\omega_0 t\,\mu(t)$

D. $e^{at}\sin\omega_0 t\,\mu(t)$

52. A linear time invariant system is represented by the signal flow graph shown below. The number of forward path in the system is --------.



A. 1

B. 2

C. 3

D. 4

53. What does creeping error in an energy meter signify?

A. It shows errors due to heavy loads

B. It indicates errors caused by low power factor

C. It indicates slow rotation of the disc under no load and only voltage circuit is excited

D. It indicates change in disc resistance

54. A cylindrical-rotor synchronous generator will deliver maximum power output when-

A. Load angle = internal power – factor angle

B. Load angle = 90°

C. Input power factor is unity

D. Load angle = Impedance angle

55. The flux density D is called the electric displacement, in an isotropic medium D and Electric field intensity E are in the -------- direction.

A. Same direction

B. Opposite direction

C. Perpendicular

D. None of the above

56. In single phase full wave rectifier the presence of filter circuit degrades,-

A. Input ac voltage

B. Output dc voltage

C. Input ac current

D. Output dc current

57. The fundamental frequency of the waveform shown in fig. 1.1 in rad/sec is-

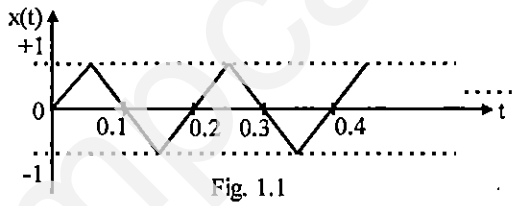


Fig. 1.1

A. 21.4

B. 31.4

C. 12.4

D. 33.4

58. Ferranti effect on long overhead lines is experienced when it is ----------.

A. Lightly loaded

B. On full load at unity p.f.

C. On full load at 0.8 p.f. lag

D. None of the above

59. IGBT are more like the ------- during turn off and like the ------- during turn on.

A. BJT, MOSFET

B. MOSFET, BJT

C. Diode, MOSFET

D. MOSFET, Diode

60. Convolution of two sequences $x_1[n]$ and $x_2[n]$ is-

A. $X_1(z) * X_2(z)$

B. $X_1(z) / X_2(z)$

C. $X_1(z) + X_2(z)$

D. $X_1(z) X_2(z)$

61. In a thyristor converters, different potential exist at various terminals. The power circuit is subjected to a high voltage whereas the gate circuit is held at a low voltage.

Check the correctness of the following statements in connection with the fact mentioned above.

(1) An isolation circuit is required between an individual thyristor and its gate pulse generating circuit.

(2) The isolation needs a power transformer.

A. Statement '1' is correct and '2' is wrong.

B. Both the statements are correct.

C. Both the statements are wrong.

D. Statement '2' is correct and '1' is wrong.

62. Which type of digital voltmeter incorporates a digital-to-analog converter in its operation?

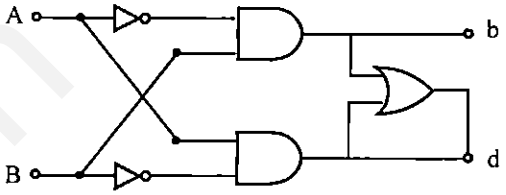
A. Successive-approximation type

B. Ramp-type

C. Dual-slope integrating type

D. Integrating type

63. The circuit shown below is a-



A. Half Adder

B. Half Subtractor

C. Full Adder

D. Full Subtractor

64. Duality property of a Fourier transform is-

A. $X(t) \leftrightarrow 2\pi x(-\omega)$

B. $x(-t) \leftrightarrow X(-\omega)$

C. $x(at) \leftrightarrow \frac{1}{|a|} X(\omega / a)$

D. $(jt)x(t) \leftrightarrow \frac{dx(\omega)}{d\omega}$

65. Identify the systematic error in the following-

A. Random Error

B. Gross Error

C. Instrumental Error

D. Quantization Error

66. Which of following is not a type of resistance welding?

A. Spot welding

B. Projection welding

C. Seam welding

D. Atomic Hydrogen Welding

67. A resistor of 4Ω has a current $i = 2.5 \sin 500\pi t(A)$. It's instantaneous voltage and the instantaneous power are respectively as-

A. $10 \sin 500\pi t(V)$ and $25\sin^2 500\pi t(W)$

B. $6.25\sin 500\pi t(V)$ and $10\sin^2 500\pi t(W)$

C. $10\sin 500\pi t(V)$ and $25\cos^2 500\pi t(W)$

D. $40\sin 500\pi t(V)$ and $25\sin^2 500\pi t(W)$

68. The characteristics equation of a system, obtained from closed loop transfer function is given as $s^5 + 4s^4 + 16s^3 + 24s^2 - 16s - 32 = 0$. How many closed loop poles are located in the right-half of the s-plane?

A. 3

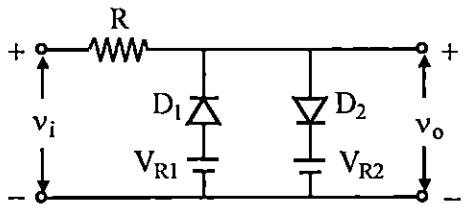
B. 2

C. 1

D. 0

69. In the circuit shown below-

When a sufficiently large sinusoidal signal is applied at the input to have a symmetrical square wave at the output of the circuit V_{R1} and V_{R2} are adjusted as-



A. $V_{R1} > V_{R2}$

B. $V_{R1} < V_{R2}$

C. $V_{R1} = V_{R2}$

D. $V_{R1} = -V_{R2}$

70. The ratio of the magnetic flux to the current is called --------- of the circuit.

A. Conductance

B. Self-Inductance

C. Mutual-Inductance

D. Permeability

71. Identify the correct statements about Junction Field Effect Transistor (JFET)-

(1) JFET exhibits low input resistance.

(2) JFET makes an excellent signal chopper.

(3) It is a unipolar device.

(4) It is more noisy than a bipolar transistor.

A. 1 and 2

B. 2 and 3

C. 1, 2 and 3

D. 1, 2 and 4

72. The zero sequence current of a generator for line to ground fault is j 2.5 P.U. Then the Approximate Value of current through the neutral during the fault is-

A. j 2.4 P.U.

B. j 0.8 P.U.

C. j 7.2 P.U.

D. j 0.24 P.U.

73. Fusing factor is-

(a) Fuse rating

(b) Maximum fusing current

(c) Zero sequence current

(d) Positive sequence current

(e) Negative sequence current

(f) Prospective current

(g) Minimum fusing current

(h) Instantaneous current

A. Ratio of (a) and (e)

B. Ratio of (g) and (a)

C. Ratio of (f) and (a)

D. Ratio of (b) and (g)

74. ROC of unilateral z-transform is always-

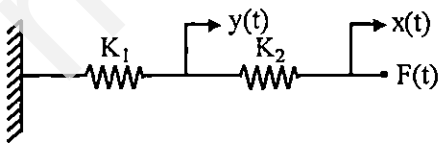
A. Inside the circle in the z-plane

B. Outside the circle in the z-plane

C. Both A & B

D. On the circle

75. What is the transfer function representation of the given mechanical system, where the controlled output is the displacement 'x', and the system is subjected to an applied input force 'F'?



A. $K_1 + K_2$

B. $\frac{1}{K_1 + K_2}$

C. $\frac{K_1 K_2}{K_1 + K_2}$

D. $\frac{K_1 + K_2}{K_1 K_2}$

76. The loop transfer function of a system is

$$G(s)H(s) = \frac{K}{(s+2)(s^2+6s+13)}$$

The centroid of the root-locus plot will be placed at s = --------, considering the system having unity negative feedback.

A. –2

B. –3

C. –2.66

D. –1.66

77. A D.C. potentiometer is designed to measure voltage upto 2 V with a sliding wire of 200 c.m. and has a resistance of 200Ω. A standard cell of emf 1.0186V obtains a balance at 101.86 c.m. A test cell is seen to obtain a balance at 153.6 c.m. What is the emf of test cell?

A. 1.536 V

B. 15.36 V

C. 0.1536 V

D. 1.0186 V

78. The step angle for a 3-phase, 48-pole permanent magnet stepper motor is-

A. 5°

B. 10°

C. 15°

D. 2.5°

79. Shunt compensation in transmission system is used to-

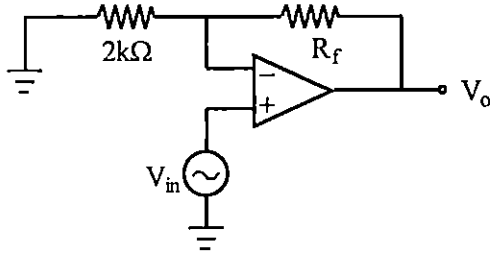
A. Reduce line losses

B. Reduce the fault level

C. Improve the power factor

D. Improve the voltage profile

80. The value of R_f required to have a gain of 50 in the below shown op-amp configuration is-



A. 51 KΩ

B. 98 KΩ

C. 101 KΩ

D. 102 KΩ

81. In the forward generation mode of a dc motor drive-

A. The power flows from DC source to the motor shaft.

B. Back emf act as a sink or a load.

C. Armature voltage is positive but the armature current is negative.

D. None of the above

82. Motors widely used in the fields of Aerospace and Biomedical are-

A. Induction motors

B. Synchronous motors

C. Brushless d.c. motors

D. Single phase motors

83. A voltage-controlled bus is treated as a load bus, if its-

A. Voltage limit is violated.

B. Active power limit is violated.

C. Reactive power limit is violated.

D. Phase angle limit is violated.

84. The typical non linear applications of operational amplifiers (Op-Amp) is / are-

(1) Schmitt Trigger
(2) Comparator
(3) Log Amplifier
(4) Differentiator

A. 1 and 2
B. 3 and 4
C. 1, 2 and 3
D. 4 only

85. Probable error is defined as-

A. ± 0.6745 times the standard deviation of the observed data.
B. ± 0.5 times the standard deviation of the observed data.
C. ± 3 times the standard deviation of the observed data.
D. ± 0.75 times the standard deviation of the observed data.

86. The frequency response characteristics of a Lead compensator acts as ------- type of filter.

A. High-Pass
B. Band-Pass
C. Band-Reject
D. Low-Pass

87. Which of the following is an example of discrete-time signal?

A. Blood pressure reading of a patient at an interval of time.
B. Voltage across a capacitor
C. Sound waves in air
D. None of the above

88. In a three-phase full bridge controlled rectifier, the power flows from dc load into the 3-phase ac system when the firing angle (α) is-

A. Less than 30°
B. $30° < \alpha < 60°$
C. $\alpha > 90°$
D. $\alpha \approx 0°$

89. In a circuit having 90 ohms resistance in series with 90 ohms capacitive reactance, driven by a sine wave, the angle of phase difference between the applied voltage and the current is determined considering current reference be-

A. $-90°$
B. $-45°$
C. 90°
D. 45°

90. The transferred power by an auto-transformer of 0.8 transformation ratio to a 10 kW load, connected on the secondary will be-

A. 10 kW

B. 8 kW

C. 2 kW

D. Zero

91. In electrical braking, in the motor connections, two phases are interchanged in such a way that the motor develops torque in the reverse direction. This method of braking a motor is called-

A. Reconnection braking

B. Plugging

C. Regenerative braking

D. Fast braking

92. Magnetic core of a power transformer is made up of ---------- to keep the iron losses down.

A. Powdered Alloy

B. Cast Iron

C. High-Grade silicon steel

D. Ferrite

93. Which system is non-linear in nature?

A. $y(t) = cx(t)$

B. $y(t) = x^2(t) + 5x(t) + c$

C. $y(t) = x(t) + x(t-1) + x(t-2)$

D. $y(t) = x(t) - x(t-1) - x(t-2)$

94. For performing the short-circuit test on a single phase transformer, following statements are made-

(1) High Voltage side is short-circuited.

(2) Low voltage side is short-circuited.

(3) It is performed at rated current.

(4) It is performed at rated voltage

(5) It gives core losses.

From these correct answer is-

A. 1, 4, 5

B. 2, 3, 5

C. 1, 3

D. 2, 3

95. The ratio of total lumens reaching the working plane to the total lumens given out by the lamp is called-

A. Maintenance factor

B. Depreciation factor

C. Utilization factor

D. Space-height factor.

96. A digital sequence "1101011" needs to be generated using shift registers based sequence generator. What is the minimum number of flip flops required?

A. 2

B. 3

C. 4

D. 5

97. Which type of controller implementation increases the order of closed loop transfer function of the system?

A. PI only

B. PI and PD

C. PD and PID

D. PI and PID

98. An unbalanced delta connected load is fed from a three-phase supply. The line currents will be-

A. Unbalanced

B. Balanced

C. Balanced or Unbalanced

D. Equal in magnitude but differ in phase

99. A two-port network is reciprocal if and only if-

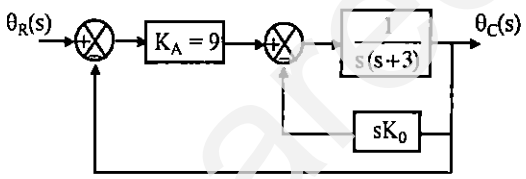
A. $Z_{11} = Z_{22}$

B. $BC - AD = -1$

C. $Y_{12} = -Y_{21}$

D. $h_{12} = h_{21}$

100. For a feedback system employing output-rate damping is shown in the figure below. In the absence of derivative feedback $(K_0 = 0)$, the damping ratio and steady-state error resulting from unit ramp input are----



A. 2, 0.33

B. 0.5, 0.33

C. 0.5, 3

D. 2, 3

101. The apparent power absorbed by a factory is 300 KVA at 65% (lagging) power factor. The reactive power absorbed by the same is-

A. 218 KVAR Approx

B. 228 KVAR Approx

C. 250 KVAR Approx

D. 200 KVAR Approx

102. For a moving charge 'Q' in presence of both electric and magnetic fields, the total force 'F' on the charge is given by-

A. $F = QE + QB$

B. $F = Q(E + v \cdot B)$

C. $F = Q(E + v \times B)$

D. $F = Q(E + v(\nabla \times B))$

103. Which of the following sentence is false?

A. Reverse recovery time of a Schottky diode is less than 30ns.

B. Reverse recovery time of rectifier diodes is in the range of microseconds.

C. Rectifier diodes are used for high frequency application.

D. Reverse recovery time is a measure of speed at which the diode can be turned off.

104. The Heat produced in dielectric heating is directly proportional to-

A. Frequency and Apparent power

B. Current and square of frequency

C. Voltage and square of frequency

D. Frequency and square of voltage

105. Which one of the following transfer function can act as a Lag compensator?

A. $\frac{2s+3}{s+2}$

B. $\frac{s+2}{2s+5}$

C. $\frac{s+2}{s+3}$

D. $\frac{s+3}{s+2}$

106. The closed-loop transfer function of a system is $\frac{C(s)}{R(s)} = \frac{5}{s^2+2s+10}$.

If an unit step input is applied to this system, the steady-state output of the system will be -------.

A. 0.1

B. 0.5

C. 2.5

D. 5

107. A solid cylindrical conductor of radius 'a' is surrounded by a coaxial cylindrical shell of inner radius 'b'. The length of both cylinders is 'L'. It is filled with dielectric material whose permittivity is 'ε_0'. The capacitance of cylindrical capacitor is-

A. $2\pi\varepsilon_0 L/(b-a)$

B. $2\pi\varepsilon_0 L/(\ell_n(b-a))$

C. $2\pi\varepsilon_0 L/(b+a)$

D. $2\pi\varepsilon_0 L/(\ell_n(b/a))$

108. In the interval $0 \le t \le (\pi/50)$s an inductance of 30 mH has a current i = 10 sin 50t (A). At all other times the current is zero. It's instantaneous voltage and power are respectively as-

A. 0.30 sin 50t (V) and $3\sin^2 50t$(W)

B. 0.30 sin 50t (V) and 75 sin 100t (W)

C. 15 cos 50t (V) and 75 sin 100t (W)

D. 15 cos 50t (V) and $3\sin^2 50t$(W)

109. In current source inverter the primary function of the large dc link inductor is to,-

A. Store charge for filtering purpose

B. Maintain a nearly constant DC voltage

C. Maintain a nearly constant DC current

D. Reduce switching losses

110. A resistance and an inductance are connected in parallel. Each branch takes a current of 10A. The current from the supply is-

A. 20A

B. 14.14A

C. 10A

D. 5A

111. The respective values of A, B, C and D constants for a short transmission line are-

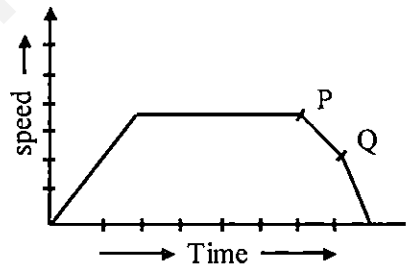
A. Z, 0, 1 and 1

B. 1, Z, 0 and 1

C. 0, 1, 1 and 1

D. 1, 1, Z and 0

112. The speed time curve for a main line service train is shown in fig. below. In this speed time curve, period PQ represents-



A. Free running period

B. Acceleration period

C. Coasting period

D. Braking period

113. The diagonal elements of a nodal admittance matrix are strengthened by adding-

A. Shunt inductances

B. Shunt capacitances

C. Loads

D. Generators

114. The capacitance per unit length of a capacitor cell equals the ------- of the medium.

A. Susceptibility

B. Permittivity

C. Permeability

D. Elasticity

115. Inverse Laplace transform of $\frac{1}{(s+a)^2}$ is-

A. $t\mu(t)$

B. $te^{-at}\mu(t)$

C. $e^{-at}\mu(t)$

D. $ae^{-at}\mu(t)$

116. The parameter A of a two-port network is equal to-

A. V_2 / V_1 with $I_1 = 0$

B. V_1 / I_2 with $V_2 = 0$

C. I_1 / I_2 with $V_2 = 0$

D. V_1 / V_2 with $I_2 = 0$

117. In a synchronous machine, the induced emf-

A. leads the flux by 90°

B. is in phase with flux

C. lags behind the flux by 90°

D. is in phase opposite to the flux

118. Measurements conducted on a servo-mechanism show the system response to be $C(t) = 1 + 0.2e^{-50t} - 1.2e^{-20t}$

What is the closed loop transfer function of the system which is subjected to unit step input?

A. $\frac{1000}{s^2 + 70s + 1000}$

B. $\frac{14s}{s^2 + 70s + 1000}$

C. $\frac{14s + 1000}{s^2 + 70s + 1000}$

D. $\frac{14s + 1000}{s(s^2 + 70s + 1000)}$

119. A 5 bit Digital to Analog DAC converter has a full scale output voltage (V_{OFS}) of 10 V. If the digital input is "01110", what will be the final output voltage of the DAC?

A. 5.0 V

B. 6.0 V

C. 4.5 V

D. 5.5 V

120. A memory chip is labelled as 16K×4. This indicates that the chip has ----- address lines, ----- data output lines and ----- capacity.

A. 14, 4, 65536 bytes

B. 16, 4, 65536 bytes

C. 14, 8, 8192 bytes

D. 16, 8, 8192 bytes

121. Match the following

Drive	Speed
(a) Induction motor drive (motoring mode)	(i) Synchronous speed
(b) Induction motor drive (generating mode)	(ii) Below synchronous speed
(c) Synchronous motor drive	(iii) Above synchronous speed

A. a-i, b-ii, c-iii

B. a-ii, b-iii, c-i

C. a-iii, b-i, c-ii

D. a-i, b-iii, c-ii

122. The electric field intensity is the ----- of V.

A. Curl

B. Divergence

C. Gradient

D. None of the above

123. Consider a 500/5 A current transformer with loss component equal to 0.5 percent of primary winding current. The nominal ratio and loss components are respectively-

A. 500, 5A

B. 100, 5A

C. 100, 2.5A

D. 200, 2.5A

124. A dc shunt motor rotating at 1200 r/min is fed by a 140 V source. The line current is 42 A and the shunt-field resistance is 70Ω. If the armature resistance is 0.15Ω, the counter e.m.f. generated by the armature is-

A. 134 V

B. 125 V

C. 120 V

D. 115 V

125. Reluctance in a magnetic circuit is analogous to ------ in an electrical circuit.

A. Conductance

B. Current density

C. Conductivity

D. Resistance

126. Which of the following statement is / are correct in nature?

(1) GTO has higher ON state drop as compared to the SCR.

(2) The latching and holding current of GTO are higher than SCR.

(3) The reverse blocking capability of GTO is very high.

(4) GTOs are widely used in rectifier application.

A. 1 only

B. 1 & 2 only

C. 2 only

D. 3 & 4 only

127. Which of the following method is not used for speed control of squirrel cage based induction motor drive?

A. Pole changing

B. Stator voltage control

C. Supply frequency control

D. Rotor resistance control

128. Mho relay is normally used for the protection of --------

A. Long Transmission Lines

B. Medium Length Transmission Lines

C. Short Length Transmission Lines

D. For all types of Transmission Lines

129. The intersection of load line and ----- gives the quiescent point of the transfer.

A. Input signal

B. Bias curve

C. Transfer curve

D. Output line

130. The ratio of the luminous flux to the power input is known as-

A. Light

B. Candle light

C. Lamp Efficiency

D. Lumen

131. What principle does an electrodynamometer wattmeter work on?

A. Heating effect of current

B. Electrostatic field generation

C. Mutual interaction of magnetic fields from fixed and moving coils

D. Seebeck effect

132. The most common use of a 3-phase induction generator is in-

A. Steam power generation plant

B. Nuclear power generation plant

C. Wind power generation plant

D. None of the above

133. The point form of Ampere's law for static magnetic fields is given by-

A. $\nabla \times H = -\rho_V$

B. $\nabla \times H = -J_V$

C. $\nabla \times E = \rho_V$

D. $\nabla \times H = J_V$

134. Identify the wrong statement in the case of diffusion capacitance in a forward biased diode.

A. It is related to the charge stored in the junction.

B. It is directly proportional to current.

C. It is much larger than the transition capacitance.

D. It is directly proportional to the square of the current.

135. The output of an LTI system for an input $x(t) = \mu(t) - \mu(t-2)$ and impulse response $h(t) = \mu(t) - \mu(t-2)$ for the interval $0 \le t \le 2$ is-

A. t

B. 0

C. t^2

D. 2t

136. A star-connected load is converted into a delta-connected load as shown in Figures (a) & (b), the impedances of delta-connected load Z_{ab}, Z_{bc} and Z_{ca} respectively are-

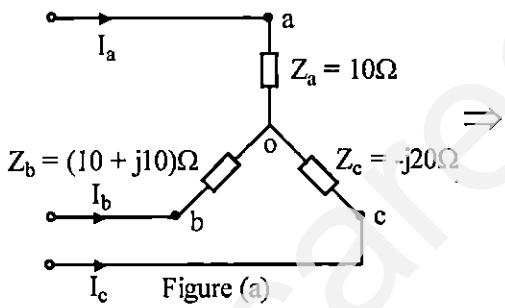


Figure (a)

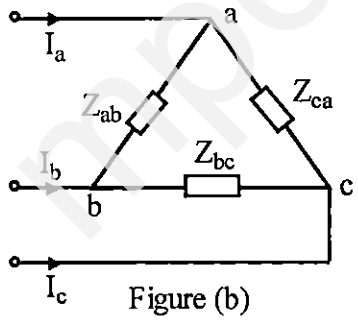


Figure (b)

A. $30\angle -45°\Omega$, $21.2\angle -90°\Omega$, $42.4\angle 45°\Omega$

B. $42.4\angle 45°\Omega$, $21.2\angle -45°\Omega$, $30\angle 90°\Omega$

C. $21.2\angle 45°\Omega$, $42.4\angle -45°\Omega$, $30\angle -90°\Omega$

D. $21.2\angle -90°\Omega$, $42.4\angle 45°\Omega$, $30\angle 90°\Omega$

137. The electromagnetic force developed in any physical system, acts in such a direction as to tend to-

A. Decrease the co-energy at constant mmf

B. Increase the co-energy at constant flux

C. Decrease the co-energy at constant flux

D. Increase the co-energy at constant mmf

138. The Hay's bridge is suited for the measurement of inductance of coils having-

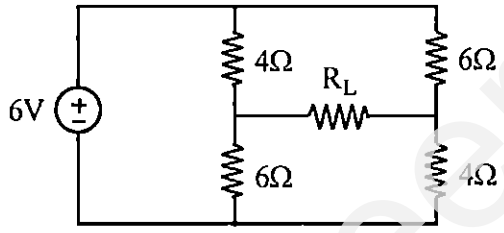
A. $Q < 1$

B. $1 < Q < 10$

C. $Q > 10$

D. For any 'Q' value

139. For a maximum power transfer to R_L in Figure, the values of R_L and it's power are respectively as-



Figure

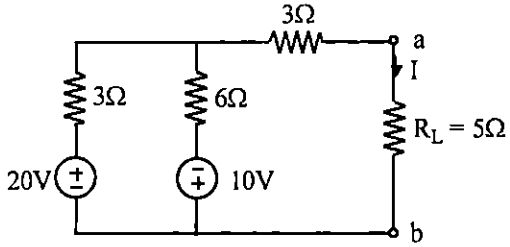
A. 5Ω and 1.8 W

B. 4.8Ω and 1.728W

C. 5Ω and 1.728W

D. 4.8Ω and 0.075W

140. For the active network shown in Figure the Thevenin voltage across a-b, equivalent resistance, and the load current I are respectively as-



Figure

A. 10V, 5Ω, 1A

B. 30V, 5Ω, 3A

C. 10V, 10Ω, 1A

D. 30V, 10Ω, 2A

141. The frequency of the carrier in the case of carrier current protection scheme is in the range of-

A. 1 kHz to 5 kHz

B. 10 kHz to 25 kHz

C. 25 kHz to 45 kHz

D. 50 kHz to 500 kHz

142. To achieve a multiplying power of 50 using a galvanometer with a resistance of 1000Ω, the required shunt resistance would be-

A. 200Ω

B. 20.4Ω

C. 50Ω

D. 100Ω

143. When there is a change in load in power station having a number of generator units operating in parallel, the system frequency is controlled by-

A. Adjusting the steam input to the units.

B. Adjusting the field-excitation of the generators.

C. Changing the load divisions between the units

D. Injecting reactive power at the station bus bar.

144. Determine the divergence of the vector field $P = X^3YZ\hat{a}x + XYZ\,\hat{a}z$

A. $3XYZ + YZ$

B. $3X^2YZ + XY$

C. $3XYZ + XY$

D. $3X^2YZ + XZ$

145. The ratio and phase angle errors in instrument transformers can be reduced by-

A. Decreasing magnetizing and iron loss components of exciting current

B. Increasing the resistance and leakage reactance in the transformer

C. Increasing magnetizing and iron loss components of exciting current

D. Making trims ratio equal to the nominal ratio

146. Frequency convolution can be stated as-

A. $x_1(t) * x_2(t)$

B. $x_1(\omega) * x_2(\omega)$

C. $x_1(\omega)x_2(\omega)$

D. $x_1(\omega) / x_2(\omega)$

147. The self inductance of Toroid of circular cross section with 'N' closely spaced turns, mean radius of toroid 'r' and radius of the coil 'S' is given by-

A. $L = \frac{\mu_0 N^2 S}{2\pi} \ell_n \left(\frac{r}{h}\right)$

B. $L = \frac{\mu N^2 S^2}{2r}$

C. $L = \frac{\mu N I S^2}{2r}$

D. $L = \frac{\mu S N}{2\pi r}$

148. In three-phase transformers, for stepping down the voltage from a high level to a medium level, commonly used connection is-

A. Delta-Delta

B. Star-Star

C. Star-Delta

D. Delta-Star

149. In single-phase motors, the magnetizing current is typically large which ranges between-

A. 5-10% of full-load current

B. 20-30% of full-load current

C. 40-60% of full-load current

D. 70-90% of full-load current

150. A = Charge per kW of max. demand.

B = Charge per kWh of energy consumed

x = Max. demand during the period

y = Total energy consumed during the period

D = Fixed charges.

The expression of three part Tariff 'C' is-

A. $C = Ay + Bx + D$

B. $C = A + By + Dx$

C. $C = Ay + Bx + D$

D. $C = Ax + By + D$

Space For Rough Work / रफ कार्य के लिये जगह

Space For Rough Work / रफ कार्य के लिये जगह