

TSE/2025

Series

A

General Studies & Automobile/Mechanical Engineering

प्रश्न-पुस्तिका क्रम संख्या
Question Booklet Sl. No.

5201841

A

अनुक्रमांक
Roll No.

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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 : 32

कुल प्रश्नों की संख्या/Total No. of Questions : 150

समय/Time : 3 घण्टे/Hours

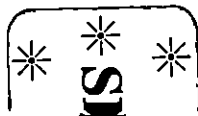
पूर्णांक/Total Marks : 450

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 छुटा 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 खंडों में विभाजित है। खंड - 'अ' तथा खंड - 'ब'।
3. खंड - 'अ' के प्रश्न सामान्य अध्ययन से संबंधित है, जिसमें कुल 50 प्रश्न है, सभी प्रश्न हिन्दी तथा अंग्रेजी भाषा में है। सभी प्रश्न अनिवार्य हैं।
4. खंड - 'ब' संबंधित विषय से है। जिसमें कुल 100 प्रश्न है। सभी प्रश्न केवल अंग्रेजी भाषा में है। सभी प्रश्न अनिवार्य हैं।
5. सभी प्रश्नों के अंक समान हैं। प्रत्येक सही उत्तर के लिए 03 अंक प्रदान किए जायेंगे। 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 रफ कार्य प्रश्न-पुस्तिका के अंतिम पृष्ठों पर निर्धारित स्थान पर ही करें, अन्यत्र कहीं नहीं तथा उत्तर-पत्र (ओ.एम.आर.) पर भी नहीं।
9. यदि खंड - 'अ' के किसी प्रश्न में किसी प्रकार की कोई मुद्रण या तथ्यात्मक प्रकार की त्रुटि हो, तो प्रश्न के हिन्दी तथा अंग्रेजी रूपांतरों में से हिन्दी रूपांतर को मानक माना जाएगा।

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 another 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 Concerned Subject. All Questions are only in English Language. All questions are compulsory.
5. All questions carry equal marks. Three marks for each correct answer. There is provision of Negative Markings. For each wrong answer, one 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, of Section - 'A' then out of the Hindi and English versions of the question, the Hindi version will be treated as standard.





खंड - अ
(सामान्य अध्ययन)

1. सारणी ताप विद्युत केन्द्र _____ जिले में स्थित है ।
(A) होशंगाबाद
(B) सागर
(C) बैतूल
(D) सीधी
2. मध्य प्रदेश का सबसे बड़ा कोयला क्षेत्र है
(A) अनूपपुर
(B) रानीगंज
(C) सिंगरौली
(D) पेंच
3. मध्य प्रदेश में मैंगनीज उत्पादक तिरोड़ी क्षेत्र किस जिले में आता है ?
(A) झाबुआ
(B) छिंदवाड़ा
(C) जबलपुर
(D) बालाघाट
4. मध्य प्रदेश ऊर्जा विकास निगम लिमिटेड की स्थापना वर्ष है
(A) 25 अगस्त 1982
(B) 20 अगस्त 1980
(C) 25 सितम्बर 1982
(D) 20 सितम्बर 1980
5. निम्नलिखित में से मध्य प्रदेश का सबसे छोटा राष्ट्रीय राजमार्ग कौन-सा है (2018 के अनुसार) ?
(A) 135 B
(B) 135 BB
(C) 135 BD
(D) 135 BG
6. निम्नलिखित में से कौन-सी नेटवर्क टोपोलॉजी में सभी नोड एक केंद्रीय डिवाइस (जैसे स्विच या हब) से जुड़े होते हैं ?
(A) बस (Bus) टोपोलॉजी
(B) स्टार (Star) टोपोलॉजी
(C) रिंग (Ring) टोपोलॉजी
(D) मेश (Mesh) टोपोलॉजी
7. कौन-कौन से फाइल एक्सटेंशन मात्र ग्राफिक्स फाइलों को दर्शाते हैं ?
(A) BMP एवं DOC
(B) JPEG एवं TXT
(C) TXT एवं STK
(D) BMP एवं GIF
8. निम्नलिखित में से कौन-सी पायथान (Python) लाइब्रेरी उच्च-प्रदर्शन डेटा संरचनाएँ एवं डेटा विश्लेषण टूल्स प्रदान करती है ?
(A) Numpy
(B) Pandas
(C) Tensorflow
(D) Matplotlib





SECTION – A
(General Studies)

1. Sarnee Thermal Electricity centre is located in the district
(A) Hoshangabad
(B) Sagar
(C) Baitul
(D) Sidhi
2. The Biggest coal field of Madhya Pradesh is
(A) Anuppur
(B) Raniganj
(C) Singroli
(D) Painch
3. In which district of Madhya Pradesh is the manganese producing Tirodi region located ?
(A) Jhabua
(B) Chhindwara
(C) Jabalpur
(D) Balaghat
4. Establishment year of Madhya Pradesh Urja Vikas Nigam Ltd. (Energy Development Corporation Ltd.) is
(A) 25th August 1982
(B) 20th August 1980
(C) 25th September 1982
(D) 20th September 1980
5. Which one is the smallest national highway of Madhya Pradesh amongst the following (As of 2018) ?
(A) 135 B
(B) 135 BB
(C) 135 BD
(D) 135 BG
6. In which of the following network topology, all nodes are connected to a central device like a switch or hub ?
(A) Bus topology
(B) Star topology
(C) Ring topology
(D) Mesh topology
7. Which file extensions indicate only graphics files ?
(A) BMP and DOC
(B) JPEG and TXT
(C) TXT and STK
(D) BMP and GIF
8. Which of the following Python libraries provides high performance data structures and data analysis tools ?
(A) Numpy
(B) Pandas
(C) Tensorflow
(D) Matplotlib





9. जब CPU को कंप्यूटर में मेमोरी एक्सेस करने की आवश्यकता होती है, तो वह सबसे पहले जाँचता है
- (A) RAM
(B) हार्ड डिस्क
(C) पेन ड्राइव
(D) कैश (Cache)
10. निम्नलिखित में से कौन-सा मशीन लर्निंग में एक क्लासिफिकेशन समस्या का सबसे अच्छा उदाहरण है ?
- (A) किसी समाचार लेख को राजनीति, खेल या व्यवसाय जैसी श्रेणियों में वर्गीकृत करना
(B) अगले सप्ताह के लिए तापमान का पूर्वानुमान लगाना
(C) किसी व्यक्ति की फोटो के आधार पर उसकी उम्र का अनुमान लगाना
(D) किसी कंपनी के शेयर मूल्य का पूर्वानुमान लगाना
11. निम्नलिखित में से कौन-सा विशेष रूप से कमजोर जनजातीय समूह (PVTG's) पीएम - जनमन योजना के लक्षित समूह में शामिल नहीं है ?
- (A) बैगा
(B) भारिया
(C) सहारिया
(D) कोरकू
12. सूक्ष्म, लघु एवं मध्यम उद्यम (MSME) विभाग द्वारा मध्य प्रदेश में कितने औद्योगिक क्षेत्र अधिसूचित किये गये हैं (फरवरी 2024 तक) ?
- (A) 194
(B) 150
(C) 300
(D) 211
13. मध्य प्रदेश के किस जिले में श्री सिंगाजी थर्मल पावर प्रोजेक्ट स्थित है ?
- (A) अनूपपुर
(B) उमरिया
(C) रायसेन
(D) खंडवा
14. राज्य व्यापार सुधार कार्य योजना-2022 के अनुसार "उत्कृष्ट नागरिक केंद्रित सुधार" के लिये मध्य प्रदेश को कौन-सी रैंकिंग मिली ?
- (A) अचीवर
(B) परफार्मर
(C) आकांक्षी (एस्पिरेंट)
(D) फ्रन्ट रनर
15. बहुआयामी गरीबी सूचकांक (MPI) के तीन मुख्य आयाम क्या हैं ?
- (A) आय, शिक्षा और कौशल
(B) स्वास्थ्य, शिक्षा और जीवन स्तर
(C) कृषि, व्यापार और सेवा
(D) ग्रामीण, शहरी और अर्धशहरी क्षेत्र





9. When the CPU needs to access memory in a computer, it first examines
- (A) RAM
(B) Hard Disk
(C) Pen Drive
(D) Cache
10. Which of the following is the best example of a classification problem in machine learning ?
- (A) Assigning a news article to categories like : politics, sports or business
(B) Predicting the temperature for the next week
(C) Estimating the age of a person based on their photo
(D) Predicting the stock price of a company
11. Which of the following Particularly Vulnerable Tribal Group (PVTG's) is not included in target group of PM – JANMAN Scheme ?
- (A) Baiga
(B) Bharia
(C) Sahariya
(D) Korku
12. How many industrial areas have been notified in Madhya Pradesh by the Micro, Small and Medium Enterprises (MSME) department (As of February 2024) ?
- (A) 194
(B) 150
(C) 300
(D) 211
13. In which district of Madhya Pradesh Shri Singaji Thermal Power Project is located ?
- (A) Anuppur
(B) Umaria
(C) Raisen
(D) Khandwa
14. As per State Business Reform Action Plan-2022, what ranking did Madhya Pradesh receive for "Outstanding Citizen Centric Reform" ?
- (A) Achiever
(B) Performer
(C) Aspirant
(D) Front runner
15. What are the three main dimension of the Multidimensional Poverty Index (MPI) ?
- (A) Income, Education and Skill
(B) Health, Education and Standard of Living
(C) Agriculture, Trade and Service
(D) Rural, Urban and Semi Urban Area





16. दतिया राज्य की स्थापना किसने की ?

- (A) इन्द्रजीत
- (B) रामचन्द्र
- (C) भगवान राव
- (D) जूझार सिंह

17. 'रतौना आन्दोलन' मध्य प्रदेश के किस जिले में हुई ?

- (A) बालाघाट
- (B) सागर
- (C) खरगोन
- (D) धार

18. भारत छोड़ो आन्दोलन के समय ब्रिटिश सरकार ने रीवा के किस राजा पर हत्या का आरोप लगाकर उसे रीवा से बाहर भेज दिया था ?

- (A) गुलाब सिंह
- (B) विक्रमादित्य सिंह
- (C) रघुराज सिंह
- (D) मार्तण्ड सिंह

19. जनजातीय योद्धा ख्वाजा नायक की हत्या किसने की थी ?

- (A) अलीउद्दीन
- (B) सिराजुद्दीन
- (C) रोहिदीन
- (D) कालीदीन

20. गोंड शासक हृदयशाह द्वारा रचित पुस्तक 'हृदयकौतुक' एवं 'हृदयप्रकाश' किस विधा से सम्बन्धित है ?

- (A) चित्रकला
- (B) संगीत
- (C) नृत्य
- (D) नाटक

21. मध्य प्रदेश की बैगा जनजाति किन तीन प्रमुख जिलों में निवास करती है ?

- (A) खण्डवा, खरगोन, मंडला
- (B) मंडला, शहडोल, बालाघाट
- (C) मंडला, शहडोल, शिवपुरी
- (D) धार, मंडला, शहडोल

22. मध्य प्रदेश की दूसरी सबसे बड़ी जनजाति कौन-सी है ?

- (A) भील
- (B) कोरकू
- (C) गोंड
- (D) सहारिया

23. थापटी नृत्य किस जनजाति में किया जाता है ?

- (A) भारिया
- (B) गोंड
- (C) कोरकू
- (D) भील





16. Who founded the Datia State ?

- (A) Indrajeet
- (B) Ramchandra
- (C) Bhagwan Rao
- (D) Jujhar Singh

17. In which district of Madhya Pradesh did the 'Ratauna Movement' take place ?

- (A) Balaghat
- (B) Sagar
- (C) Khargone
- (D) Dhar

18. During the Quit India Movement, which ruler of Rewa was accused of murder by the British government and sent out of Rewa ?

- (A) Gulab Singh
- (B) Vikramaditya Singh
- (C) Raghuraj Singh
- (D) Martand Singh

19. Who murdered the tribal warrior Khwaja Nayak ?

- (A) Aliuddin
- (B) Sirajuddin
- (C) Rohiddin
- (D) Kalideen

20. 'Hriday Kautuk' and 'Hriday Prakash' books written by Gond ruler Hriday Shah were related to which subject ?

- (A) Painting
- (B) Music
- (C) Dance
- (D) Drama

21. In which three major districts does the Baiga tribe of Madhya Pradesh live ?

- (A) Khandwa, Khargoun, Mandla
- (B) Mandla, Shahdol, Balaghat
- (C) Mandla, Shahdol, Shivpuri
- (D) Dhar, Mandla, Shahdol

22. Which is the second largest tribe of Madhya Pradesh ?

- (A) Bhil
- (B) Korku
- (C) Gond
- (D) Sahariya

23. In which tribe is Thapati dance performed ?

- (A) Bheria
- (B) Gond
- (C) Korku
- (D) Bhil



24. "प्रधानमंत्री वनबंधु कल्याण योजना" संबंधित है

- (A) नगरीय गरीबों से
- (B) महिला सशक्तिकरण से
- (C) जनजातीय समग्र विकास से
- (D) वृद्ध जन पेंशन से

25. गायन किस जनजाति में होता है ?

- (A) भील
- (B) सहारिया
- (C) बैगा
- (D) कोल

26. मध्य प्रदेश को विभाजित कर छत्तीसगढ़ राज्य कब बना ?

- (A) 01 नवम्बर 2002
- (B) 01 नवम्बर 2000
- (C) 01 अक्टूबर 2002
- (D) 01 अक्टूबर 2000

27. ताप्ती नदी का कुल अपवाह क्षेत्र कितना है ?

- (A) 65,145 वर्ग कि.मी.
- (B) 98,795 वर्ग कि.मी.
- (C) 21,895 वर्ग कि.मी.
- (D) 1,41,589 वर्ग कि.मी.

28. हवाएँ, "सूखी मानसूनी हवाएँ" कहलाती है यदि हवा की दिशा _____ हो ।

- (A) उत्तर पूर्व से दक्षिण पश्चिम
- (B) उत्तर पूर्व से उत्तर पश्चिम
- (C) दक्षिण पूर्व से उत्तर पूर्व
- (D) उत्तर पूर्व से दक्षिण पूर्व

29. सूची – I को सूची – II से सुमेलित कीजिए तथा नीचे दिए हुए कूटों की सहायता से सही उत्तर चुनिये ।



म.प्र. फसल उत्पादन 2023-24

फसल	उत्पादन % वृद्धि/कमी
I. मक्का	a. 4.41
II. धान	b. 6.08
III. गेहूँ	c. 1.76
IV. सोयाबीन	d. 5.84

I II III IV

- (A) b a d c
- (B) c d a b
- (C) d c b a
- (D) b c d a

30. जनवरी 2020 की स्थिति में सतपुड़ा ताप विद्युत केन्द्र की कुल स्थापित क्षमता कितनी है ?

- (A) 1200 से 1250
- (B) 1250 से 1300
- (C) 1300 से 1350
- (D) 1350 से 1400

31. गातला प्रथा किस जनजाति में प्रचलित है ?

- (A) भील
- (B) बैगा
- (C) कोल
- (D) गोंड



24. "Pradhanmantri Vanbandhu Welfare Yojana" is related to
(A) The urban poor
(B) Women empowerment
(C) Holistic development of tribe
(D) Old age pension

25. In which tribe does Gayan take place ?
(A) Bhil
(B) Sahariya
(C) Baiga
(D) Kol

26. When was Chhattisgarh state formed by dividing Madhya Pradesh ?
(A) 01 November 2002
(B) 01 November 2000
(C) 01 October 2002
(D) 01 October 2000

27. What is the total drainage area of Tapi River ?
(A) 65,145 square kilometers
(B) 98,795 square kilometers
(C) 21,895 square kilometers
(D) 1,41,589 square kilometers

28. If the wind direction is _____ the winds are called "Dry Monsoon Winds".
(A) North east to South west
(B) North east to North west
(C) South east to North east
(D) North east to South east

29. Match List – I with List – II and select the correct answer from the codes given below.

Madhya Pradesh crop production 2023-24

Crop	Production percentage Increase/ Decrease
I. Maize	a. 4.41
II. Rice	b. 6.08
III. Wheat	c. 1.76
IV. Soyabean	d. 5.84

	I	II	III	IV
(A)	b	a	d	c
(B)	c	d	a	b
(C)	d	c	b	a
(D)	b	c	d	a

30. What is the total installed capacity of Satpura Thermal Power station as of January 2020 ?
(A) From 1200 to 1250
(B) From 1250 to 1300
(C) From 1300 to 1350
(D) From 1350 to 1400

31. In which tribe does the Gaatla tradition belong ?
(A) Bhil
(B) Baiga
(C) Kol
(D) Gond



32. जनजाति योद्धा भीमा नायक किस क्षेत्र से संबंधित है ?

- (A) मालवा
- (B) निमाड़
- (C) बुन्देलखण्ड
- (D) बघेलखण्ड

33. भीमसेन देव किस जनजाति के आराध्य देव है ?

- (A) कोल
- (B) भील
- (C) बैगा
- (D) भारिया

34. बैगा जनजाति के कुलदेवता कौन है ?

- (A) नारायण देव
- (B) बाबा देव
- (C) भीमसेन देव
- (D) उपरोक्त में से कोई नहीं

35. वन अधिकार अधिनियम, 2006 मुख्यतः किस उद्देश्य के लिये बना है ?

- (A) जंगल की अंधाधुंध कटाई की अनुमति देने हेतु
- (B) वन क्षेत्र में खनन बढ़ाने हेतु
- (C) अनुसूचित जनजाति और अन्य परंपरागत वन निवासियों के अधिकारों को मान्यता देने हेतु
- (D) केवल वन विभाग को शक्तिशाली बनाने हेतु

36. 'आभीर संवत' किसने प्रारंभ किया ?

- (A) प्रवरसेन
- (B) ईश्वरसेन
- (C) लक्ष्मणसेन
- (D) वीरसेन

37. पाणिनी की अष्टाध्यायी में निम्नलिखित में से किसका उल्लेख "आयुधजीवी" के रूप में किया गया है ?

- (A) गुप्त वंश
- (B) कौल वंश
- (C) ऋषितुल्य वंश
- (D) मालवा वंश

38. 'बुन्देलखण्ड' का प्राचीन नाम क्या था ?

- (A) तीरभुक्ति
- (B) एरणभुक्ति
- (C) जेजाकभुक्ति
- (D) पुण्ड्रवर्धनभुक्ति

39. प्रसिद्ध क्रान्तिकारी राजा बख्तावर सिंह किस रियासत के शासक थे ?

- (A) रीवा
- (B) मैहर
- (C) अमझोरा
- (D) झाबुआ





32. Tribal warrior Bhima Nayak belongs to which region ?

- (A) Malwa
- (B) Nimar
- (C) Bundelkhand
- (D) Baghelkhand

33. Bhimsen Dev is the worshiped deity of which tribe ?

- (A) Kol
- (B) Bhil
- (C) Baiga
- (D) Bharia

34. Who is the Kuldevta of Baiga tribe ?

- (A) Narayan Dev
- (B) Baba Dev
- (C) Bhimsen Dev
- (D) None of the above

35. What is the main objective of the Forest Rights Act, 2006 ?

- (A) To permit indiscriminate cutting of forest
- (B) To promote mining of forest areas
- (C) To recognize the rights of Scheduled Tribes and other traditional forest dwellers
- (D) To strengthen only the forest department

36. Who started 'Abheer Samvat' ?

- (A) Prawarsen
- (B) Ishwarsen
- (C) Lakshmansen
- (D) Veersen

37. Which among the following were mentioned as "Ayudhjeevi" in Panini's Ashtadhyayi ?

- (A) Gupt dynasty
- (B) Kaul dynasty
- (C) Rishitulya dynasty
- (D) Malva dynasty

38. What was the ancient name of 'Bundelkhand' ?

- (A) Teerbhukti
- (B) Eranbhukti
- (C) Jejakbhukti
- (D) Pundrawardhanbhukti

39. The famous revolutionary Raja Bakhtawar Singh was the ruler of which State ?

- (A) Rewa
- (B) Maiher
- (C) Amjhera
- (D) Jhabua



40. भोपाल रियासत का भारतीय संघ में पूर्ण विलय कब हो गया ?

- (A) 10 जून 1948
(B) 7 जनवरी 1948
(C) 10 जनवरी 1949
(D) 1 जून 1949

41. मध्य प्रदेश विधानसभा के संदर्भ में निम्नलिखित में से कौन-सा विकल्प सही नहीं है ?

विधानसभा गठन दिनांक विघटन दिनांक

- (A) प्रथम 01/11/1956 05/03/1957
विधानसभा
(B) द्वितीय 06/03/1957 06/03/1962
विधानसभा
(C) तृतीय 07/03/1962 01/03/1967
विधानसभा
(D) चतुर्थ 01/03/1967 17/03/1972
विधानसभा

42. मध्य प्रदेश के मुख्य सचिव से सम्बन्धित निम्न कथनों पर विचार कीजिए ।

1. मध्य प्रदेश की पूर्व मुख्य सचिव रहीं श्रीमती वीरा राणा राज्य की _____ महिला मुख्य सचिव रही हैं ।
2. उन्हें _____ माह की सेवा वृद्धि मिली थी ।

1- सेवा क्रम 2- सेवा वृद्धि

- (A) प्रथम 3 माह
(B) तृतीय 9 माह
(C) द्वितीय 6 माह
(D) चतुर्थ 12 माह

43. मध्य प्रदेश ने जनजातीय क्षेत्रों की पंचायती राज व्यवस्था के अन्तर्गत नवम्बर 2022 में जनजातीय गौरव दिवस के अवसर पर अपने पेसा (PESA) नियमों को _____ की उपस्थिति में अधिसूचित किया ।

- (A) राष्ट्रपति और राज्यपाल
(B) प्रधानमंत्री और मुख्यमंत्री
(C) राष्ट्रपति, राज्यपाल और मुख्यमंत्री
(D) प्रधानमंत्री, राज्यपाल और मुख्यमंत्री

44. पिछड़ा वर्ग आयोग से सम्बन्धित निम्नलिखित कथनों पर विचार कीजिए ।

1. भारतीय संविधान के अनुच्छेद 340 में पिछड़े वर्ग की दशाओं के अन्वेषण के लिए आयोग की नियुक्ति का प्रावधान है ।



2. जनवरी 1953 के राष्ट्रपति के आदेश द्वारा काका कालेलकर की अध्यक्षता में प्रथम पिछड़ा वर्ग आयोग का गठन किया गया था ।

कूट :

- (A) केवल 1 सही है
(B) केवल 2 सही है
(C) 1 और 2 दोनों सही हैं
(D) 1 और 2 दोनों गलत हैं



40. When did the Bhopal State completely merge with the Indian Union ?
- (A) 10 June 1948
(B) 7 January 1948
(C) 10 January 1949
(D) 1 June 1949

41. Which of the following options is **not** correct with reference to Madhya Pradesh Legislative Assembly ?

Legislative Assembly	Date of constitution	Date of dissolution
----------------------	----------------------	---------------------

- | | | |
|-------------------------|------------|------------|
| (A) First Vidhan Sabha | 01/11/1956 | 05/03/1957 |
| (B) Second Vidhan Sabha | 06/03/1957 | 06/03/1962 |
| (C) Third Vidhan Sabha | 07/03/1962 | 01/03/1967 |
| (D) Fourth Vidhan Sabha | 01/03/1967 | 17/03/1972 |

42. Consider the following statements related to Chief Secretary of Madhya Pradesh.

1. Mrs. Veera Rana former Chief Secretary of Madhya Pradesh has been the _____ woman Chief Secretary of the State.
2. She got a service extension of _____ months.

1 - Service schedule	2 - Service extension
----------------------	-----------------------

- | | |
|------------|-----------|
| (A) First | 3 months |
| (B) Third | 9 months |
| (C) Second | 6 months |
| (D) Fourth | 12 months |

43. Madhya Pradesh notified its PESA rules under the Panchayati Raj System of tribal regions on the occasion of Janjatiya Gaurav Diwas in November 2022 in the presence of



- (A) President and Governor
(B) Prime Minister and Chief Minister
(C) President, Governor and Chief Minister
(D) Prime Minister, Governor and Chief Minister

44. Consider the following statements related to Backward Class Commission.

1. Article 340 of the Indian Constitution provides for the appointment of a commission to investigate the condition of the backward classes.
2. The first Backward Classes Commission was constituted under the Chairmanship of Kaka Kalelkar by the order of the President in January 1953.

Code :

- (A) Only 1 is correct
(B) Only 2 is correct
(C) Both 1 and 2 are correct
(D) Both 1 and 2 are wrong



45. पर्यावरण संरक्षण अधिनियम, 1986 पूरे भारत में कब लागू हुआ और इसके भारत के राजपत्र में प्रकाशित होने की तिथि क्या है ?

भारत में लागू होने की तिथि भारत के राजपत्र में प्रकाशित होने की तिथि

- (A) 19 अगस्त 1986 – 19 अगस्त 1986
(B) 19 सितम्बर 1986 – 19 सितम्बर 1986
(C) 19 अक्टूबर 1986 – 12 अक्टूबर 1986
(D) 19 नवम्बर 1986 – 12 नवम्बर 1986

46. मध्य प्रदेश शासन द्वारा देवी अहिल्या नारी सशक्तिकरण मिशन को सैदान्तिक मंजूरी कब प्रदान की गई ?

- (A) मई, 2025
(B) अप्रैल, 2025
(C) फरवरी, 2025
(D) जनवरी, 2025



47. मध्य प्रदेश के श्री बुधेन्द्र कुमार जैन को _____ के क्षेत्र के लिए वर्ष 2025 का पद्मश्री से सम्मानित किया गया ।

- (A) सामाजिक कार्य
(B) कला
(C) दवा
(D) साहित्य और शिक्षा

48. प्राचीन काल में तपस्या और शांति का स्थल _____ ब्रह्मा, विष्णु, महेश्वर के बाल अवतार का स्थान माना जाता है ।

- (A) अमरकंटक
(B) पचमढ़ी
(C) चित्रकूट
(D) उज्जैन

49. ग्लोबल इन्वेस्टर्स समिट (GIS) – 2025 मध्य प्रदेश में कब आयोजित की गई थी ?

- (A) 24 एवं 25 जनवरी, 2025
(B) 24 एवं 25 फरवरी, 2025
(C) 24 एवं 25 अप्रैल, 2025
(D) 24 एवं 25 मई, 2025

50. मध्य प्रदेश शासन की मुख्यमंत्री कृषक मित्र योजना का संबंध किस विभाग से है ?

- (A) किसान कल्याण एवं कृषि विकास विभाग
(B) सहकारिता विभाग
(C) पंचायत एवं ग्रामीण विकास विभाग
(D) ऊर्जा विभाग



45. When did the Environmental Protection Act, 1986 come into force in the whole of India and what was the date of its publication in the Gazette of India ?

- | Date of implementation in India | Date of Publication in the Gazette of India |
|--|--|
| (A) 19 th August 1986 | – 19 th August 1986 |
| (B) 19 th September 1986 | – 19 th September 1986 |
| (C) 19 th October 1986 | – 12 th October 1986 |
| (D) 19 th November 1986 | – 12 th November 1986 |

46. When the Madhya Pradesh Government approved in principle and implemented Devi Ahilya Nari Sashktikaran Mission ?

- (A) May, 2025
(B) April, 2025
(C) February, 2025
(D) January, 2025

47. Shri Budhendra Kumar Jain of Madhya Pradesh was awarded Padma Shri in the year 2025 for the field of

- (A) Social work
(B) Art
(C) Medicine
(D) Literature and Education

48. A place of penance and peace in ancient time _____, it is believed to be the place of child incarnation of Brahma, Vishnu, Maheshwar.

- (A) Amarkantak
(B) Pachmarhi
(C) Chitrakoot
(D) Ujjain

49. When was the Global Investors Summit (GIS) – 2025 organized in Madhya Pradesh ?

- (A) 24 and 25 January, 2025
(B) 24 and 25 February, 2025
(C) 24 and 25 April, 2025
(D) 24 and 25 May, 2025

50. The Chief Minister Krishak Mitra Yojana related to which department of Madhya Pradesh Government ?

- (A) Farmer welfare and agricultural development department
(B) Cooperative department
(C) Panchayat and rural development department
(D) Energy department





खंड - ब/SECTION - B

(ऑटोमोबाइल/मेकेनिकल इंजीनियरिंग/Automobile/Mechanical Engineering)

51. What is **not** correct about Wide Area Networks (WAN) ?
- (A) WAN connects diverse geographical locations
(B) The fault tolerance of WAN is high
(C) WAN tends to have more errors and noise during transmission
(D) WAN is very costly to maintain
52. Formulas in "MS Excel" starts with following sign
- (A) #
(B) &
(C) =
(D) @
53. In MS Word which of the following indentation is **not** possible ?
- (A) Positive indent
(B) Negative indent
(C) Hanging indent
(D) Swinging indent
54. The Slide Sorter view in MS PowerPoint
- (A) Displays the slide that fits within the window
(B) Displays entire set of slides on-screen
(C) Displays three panes that show the outline
(D) Displays the speaker notes with slide
55. The On-Board Diagnosis – II regulations require
- (A) A real time monitoring of the health of emission control
(B) A misfire detection system
(C) Both (A) and (B)
(D) None of the above
56. What is the full form of BIOS under Computer Fundamentals ?
- (A) Binary Input Output System
(B) Binary Input Output Switch
(C) Basic Input Output System
(D) Basic Input Output Switch
57. Following is **not** a function of an operating system
- (A) Command processing
(B) Data processing
(C) Error detection
(D) Managing files
58. What is **not** correct about BIOS ?
- (A) BIOS is a software
(B) BIOS is stored in a ROM
(C) BIOS is a small program to start and control a computer
(D) BIOS is a firmware





59. Following is **not** an operating system for a server
- (A) Windows NT
 - (B) Windows CE
 - (C) Linux
 - (D) Unix
60. Which of the following operating system is machine independent ?
- (A) Linux
 - (B) MS Windows
 - (C) Sun Solaris
 - (D) IBM AZ/VM
61. The National Road Safety Board Rules 2021, in India were given by
- (A) The Automotive Research Association of India (ARAI)
 - (B) Ministry of Road Transport and Highways (MoRTH)
 - (C) International Council on Clean Transportation (ICCT)
 - (D) Ministry of Health and Family Welfare
62. Section 9 of Chapter 2 of the Madhya Pradesh Motor Vehicles Rules – 1994 describes about
- (A) Display of Name Plate
 - (B) Medical Practitioner/Medical Examination Fee
 - (C) Issue of Duplicate Driving Licence
 - (D) Uniform for Driver of Public Service Vehicle
63. Which of the following is an essential qualification for Grant of Conductor's Licence under the Madhya Pradesh Motor Vehicles Rules – 1994 ?
- (A) He has passed VIII standard examination or above
 - (B) He has passed X standard examination or above
 - (C) He has passed XII standard examination or above
 - (D) He has passed V standard examination or above
64. Section – 81 of Chapter V of the MP Motor Vehicles Rules – 1994 describes about
- (A) Carriage of personal luggage in state carriage
 - (B) Carriage of animals in goods carriages
 - (C) Forms of permits
 - (D) Issue of duplicate permits
65. As per the Section 2A of the M.P. Motoryan Karadhan Rules – 1991, "e-cart or e-rickshaw" means a special purpose battery powered vehicle of power not exceeding _____ having three wheels for carrying goods or passengers.
- (A) 4000 watts
 - (B) 2000 watts
 - (C) 1500 watts
 - (D) 2500 watts





66. As per the Automated Fitness Management System (AFMS), under ministry of road transport and highways, Govt. of India, which of the following statement is **not** correct ?
- (A) Fitness testing for commercial vehicles (transport) is done every two years upto eight years and every year for vehicles older than eight years.
- (B) An Automated Testing Station (ATS) uses mechanical equipment to automate the various tests required to check the fitness of a vehicle.
- (C) Fitness testing for personal vehicle (non-transport) is done at the time of renewal of registration (after 15 years) and repeated every year.
- (D) Fitness testing for personal vehicle (non-transport) is done at the time of renewal of registration (after 15 years) and reported every five year in case of renewal of registration is applied.

67. Which of the following statement is **not** correct for age limit to obtain driving licence in India ?



- (A) An applicant under the age of 18 years (between 16 to 18 years) shall be granted a learner's licence to drive a motor cycle without gear with some conditions.
- (B) The applicant who has completed the age of 18 years of age will be eligible to apply for a driving licence to drive a motor vehicle other than a transport vehicle.
- (C) An applicant who has completed 20 years of age will be eligible for applying for a licence to drive a transport vehicle.
- (D) An applicant who has completed 18 years of age will be eligible for applying for a licence to drive a transport vehicle.

68. Which Section of the MVA-1988 prohibits driving a motor vehicle unless it is registered ?

- (A) Section 40
- (B) Section 39
- (C) Section 52
- (D) Section 56

69. Section 112 of the Motor Vehicle Act (MVA) – 1988 deals with

- (A) Limits of speed
- (B) Parking stations
- (C) Traffic signs
- (D) Vehicle registration



70. Which of the following is an addition feature of the 2022 Amendment to the Motor Vehicle Act (MVA) ?

- (A) Chapter VIII-A – Road rage
- (B) Chapter IV – Necessity for registration
- (C) Chapter VI-A – Good samaritan law
- (D) Chapter III – Licensing of conductors

71. The specified tire pressure in a vehicle helps

- (A) Proper vehicle handling
- (B) Avoiding premature tire wear
- (C) Both (A) and (B)
- (D) None of the above

72. On a top-terminal battery, the negative terminal post is

- (A) Smaller than positive terminal post
- (B) The same size as the positive terminal post
- (C) Larger than the positive terminal post
- (D) None of the above

73. To start the engine, the starting motor armature spins about 3000 rpm which in turn rotate the crank shaft about

- (A) 50 rpm
- (B) 200 rpm
- (C) 500 rpm
- (D) 2000 rpm

74. The ignition coil of an ignition system of an automobile is

- (A) A step-down transformer
- (B) A step-up transformer
- (C) A device to produce spark
- (D) A device to distribute voltage

75. In the electronic ignition system, the primary circuit is opened and closed by

- (A) A solenoid valve
- (B) Contact points energy loss
- (C) A mechanical switch
- (D) An electronic switch

76. In rear wheel drive, the drive line includes following joints

- (A) Universal joint
- (B) Slip joint
- (C) Both (A) and (B)
- (D) Oldham joint

77. In a wheel of an automobile 'camber' is (when viewed from the front of vehicle)

- (A) Inward tilt of a wheel from the vertical
- (B) Outward tilt of a wheel from the vertical
- (C) Inward or outward tilt of a wheel from the vertical
- (D) None of the above





78. Negative caster angle is provided in wheels to
- (A) Reduce steering effort
 - (B) Maintain directional stability
 - (C) Reduce tire wear
 - (D) All of the above
79. In a rear wheel drive vehicle, when the rear-axle housing move up and down
- (A) The drive line length changes
 - (B) The angle of drive changes
 - (C) Both (A) and (B)
 - (D) None of the above
80. In a steering system, steering-ratio is the number of degrees the
- (A) Steering wheel must turn to pivot the front wheels one degree
 - (B) Front wheels must turn in order to turn the rear wheels
 - (C) Outside wheel must pivot to produce a 20° pivot of the inside wheel
 - (D) Steering wheel must turn to get full mechanical advantage
81. The dimensionless Stanton number is given by
- (A) $h/\rho C_p$
 - (B) $\rho C_p/h$
 - (C) $h/\rho V C_p$
 - (D) $\rho V C_p/h$



82. The general form of Reynolds analogy is expressed as
- (A) $St(Pr)^{1/2} = C_f/2$
 - (B) $St(Pr)^{1/3} = C_f/8$
 - (C) $St(Pr)^{1/4} = C_f/4$
 - (D) $St(Pr)^{2/3} = C_f/2$
83. Wien's displacement law is expressed as
- (A) $\lambda_{\max} - T = 2.898 \mu\text{mK}$
 - (B) $\lambda_{\max} T = 28.98 \mu\text{mK}$
 - (C) $\lambda_{\max} T = 289.8 \mu\text{mK}$
 - (D) $\lambda_{\max} T = 2898 \mu\text{mK}$
84. The radiation exchange between grey surface of the enclosure is given by
- (A) $(J_1 - J_2) / \left(\frac{1}{A_1} \right)$
 - (B) $(J_1 - J_2) / \left(\frac{1}{A_1 F_{12}} \right)$
 - (C) $(J_1 - J_2) / (A_1 F_{12})$
 - (D) $(J_1 - J_2) / \left(\frac{A_1}{F_{12}} \right)$



85. The shape factor F_{12}^1 is expressed as

(A) $\frac{1}{A_1} \int_{A_2} \int_{A_1} \frac{\cos \theta_1 \cos \theta_2}{\pi r^2} dA_1 dA_2$

(B) $\int_{A_2} \int_{A_1} \frac{\cos \theta_1 \cos \theta_2}{r^2} dA_1 dA_2$

(C) $A_1 \int_{A_2} \int_{A_1} \frac{\cos \theta_1 \cos \theta_2}{r^2} dA_1 dA_2$

(D) $\pi A_1 \int_{A_2} \int_{A_1} \frac{\cos \theta_1 \cos \theta_2}{r^2} dA_1 dA_2$

86. A gasoline is rated as 90 octane number, if its tendency to detonate in the test engine is the same as that of a mixture of

- (A) 10% isooctane and 90% normal heptane
- (B) 90% isooctane and 10% normal heptane
- (C) 10% octane and 90% propane
- (D) 90% octane and 10% propane

87. The following hydrocarbon is known as cetane

- (A) Hepta – methylnonane
- (B) Alpha – methyl naphthalene
- (C) n – hexadecane
- (D) None of the above

88. The amount of unburned hydrocarbons in the exhaust is

- (A) More in CI engines than SI engines
- (B) More in SI engines than CI engines
- (C) Zero in CI engines
- (D) Zero in SI engines

89. The formation of NO_x in SI engine exhaust emissions

- (A) Increases with increase in engine speed
- (B) Decreases with increase in engine speed
- (C) Does not depend on engine speed
- (D) First increases and then decreases

90. Catalytic converters are used to control the emission of hydrocarbons and carbon monoxide, which of the following catalysts is most effective ?

- (A) Copper
- (B) Cobalt
- (C) Platinum and Palladium
- (D) Vanadium and Manganese





91. The Brayton cycle consists of
- (A) Two constant volume and two constant pressure processes
 - (B) Two constant volume and two isentropic processes
 - (C) Two isentropic and two constant pressure processes
 - (D) None of the above
92. The gross power produced by the engine is given by
- (A) Indicated power
 - (B) Brake power
 - (C) Friction power
 - (D) None of the above
93. An isolated system is that system which
- (A) Exchanges energy but not mass with the surroundings
 - (B) Exchanges mass but not energy with the surroundings
 - (C) Exchanges both mass and energy with the surroundings
 - (D) Exchanges neither mass nor energy with the surroundings
94. Following is an intensive property
- (A) Enthalpy
 - (B) Temperature
 - (C) Volume
 - (D) Entropy
95. Following is an irreversible process
- (A) Evaporation
 - (B) Electrolysis
 - (C) Adiabatic mixing
 - (D) Isothermal expansion
96. As per the Information Technology Act, 2000, "Cyber Security" means protecting
- (A) Information stored in computers
 - (B) Information stored in communication devices
 - (C) Both (A) and (B)
 - (D) None of the above
97. The vision of National Cyber Security Policy, 2013 is to build a secure and resilient cyberspace for
- (A) Citizens
 - (B) Businesses
 - (C) Government
 - (D) All of the above
98. In Digital Personal Data Protection Act, 2023, "Appellate Tribunal" means
- (A) Telecom Regulatory Authority of India
 - (B) Ministry of Electronics and Information Technology
 - (C) Telecom Disputes Settlement and Appellate Tribunal
 - (D) National Consumer Dispute Redressal Commission





99. What is ISO/IEC 27001 ?
- (A) It is a standard for vibration measurement of an IC engine
 - (B) It is a standard for noise measurement of an IC engine
 - (C) It is a standard for information security management system
 - (D) None of the above
100. The full form of CADD is
- (A) Computer Aided Design and Drawing
 - (B) Computer Aided Design and Drafting
 - (C) Computer Aided Detailed Design
 - (D) Computer Aided Dynamic Design
101. The IP address consists of
- (A) 4 bits
 - (B) 4 bytes
 - (C) 8 bits
 - (D) 8 bytes
102. In networking ISP stands for
- (A) Indian Service Provider
 - (B) Information Service Provider
 - (C) Internet Service Provider
 - (D) Intelligent Service Provider
103. In Windows-7, Pressing "Windows logo key" and "D" together will
- (A) Open or close the start menu
 - (B) Open the search window
 - (C) Minimize all open windows
 - (D) Display the projection controls
104. To use the internet, computer can be connected to the Internet Service Providers (ISPs) by
- (A) Wired connection
 - (B) Wireless connection
 - (C) Dial-up
 - (D) All of the above
105. Which of the following computer network is point-to-multipoint connection ?
- (A) Star
 - (B) Mesh
 - (C) Bus
 - (D) Ring
106. As per ARAI, maximum sulphur content allowed in BS-VI Petrol (E5) fuel is
- (A) 100 mg/kg
 - (B) 50 mg/kg
 - (C) 10 mg/kg
 - (D) 300 mg/kg





107. As per ARAI, minimum and maximum content limit of Ethanol allowed in BS-VI Petrol (E5) fuel (in % v/v) is
- (A) 4.7, 5.3
 - (B) 0, 5.3
 - (C) 5.3, 10.3
 - (D) 1.7, 10.3
108. The Bharat Stage – VI (BS-VI) emission standards effected for all vehicles (light and heavy duty vehicles, as well as two and three wheeled vehicles) manufactured on or after
- (A) 1 April 2020
 - (B) 1 January 2020
 - (C) 1 April 2022
 - (D) 1 January 2022
109. The standard density of Gasoline Fuel (E10) at 15 degree C (in kg/m^3) as per the Gazette of Ministry of Road Transport and Highways published dated 26 Nov. 2019 (These rules may be called the Central Motor Vehicles, Twelfth Amendment, Rules – 2019).
- (A) Min. 743 and Max. 756
 - (B) Min. 643 and Max. 743
 - (C) Min. 843 and Max. 856
 - (D) Min. 943 and Max. 956
110. Under BS-VI norms, two wheeler vehicles that fullfill the following specifications belongs to which class of vehicle ?
($130 \text{ km/hr} < V_{\text{max}} < 140 \text{ km/hr}$)
- (A) Class 1
 - (B) Sub class 2.1
 - (C) Sub class 2.2
 - (D) Sub class 3.1
111. Section 185 of the Motor Vehicle Act – 1988 deals with penalties and procedure for
- (A) Driving at excessive speed
 - (B) Allowing unauthorized persons to drive vehicles
 - (C) Racing and trials of speed
 - (D) Driving by a drunken person or by a person under the influence of drugs
112. Under Central Motor Vehicles Rules (CMVR) 1989, what is the form number for a permanent registration certificate of a motor vehicle ?
- (A) Form 20
 - (B) Form 21
 - (C) Form 22
 - (D) Form 23





113. High Security Registration Plates (HSRP) became mandatory under _____ of the Central Motor Vehicles Rules – 1989, which was amended in March 2001.
- (A) Rule 50
(B) Rule 60
(C) Rule 72
(D) Rule 114
114. "Provision for carriage of goods of dangerous or hazardous nature to human life" explained in the _____ of the carriage by Road Act, 2007.
- (A) Section 3
(B) Section 13
(C) Section 20
(D) Section 12
115. The Road Transport Corporation Act, India, published in the year _____
- (A) 2007
(B) 1950
(C) 2021
(D) 1991
116. For better ride comfort of an automobile, the most preferred option is
- (A) Sprung mass should be as low as possible.
(B) Unsprung mass should be as low as possible
(C) Unsprung mass should be as high as possible
(D) Sprung mass and unsprung mass should be equal
117. The Antilock Braking System (ABS) consists of
- (A) Wheel speed sensor
(B) ABS control module
(C) Hydraulic actuators
(D) All of the above
118. A planetary gear set includes the following except
- (A) Sun gear
(B) Ring gear
(C) Worm gear
(D) Planet-pinion carrier
119. Brake linings can usually be made of
- (A) Semimetallic materials
(B) Metallic materials
(C) Polymeric and ferrous alloys
(D) Viscoelastic materials
120. Air can enter the hydraulic system of a brake unit because of
- (A) Self-adjusters not working
(B) Failure of one section of the pneumatic system
(C) Lining contaminated with oil or brake fluid
(D) Low fluid level in master cylinder



121. Following is **not** a type of disc brakes
- (A) Fixed caliper
 - (B) Floating caliper
 - (C) Sliding caliper
 - (D) Rotating caliper
122. MacPherson-Strut front suspension combines
- (A) Leaf spring and shock absorber used separately
 - (B) Leaf spring and shock absorber used as a single assembly
 - (C) Coil spring and shock absorber used separately
 - (D) Coil spring and shock absorber into a single assembly
123. In an automobile clutch, the friction disc absorbs torsional vibration mainly through
- (A) Cushion bolts
 - (B) Coil springs
 - (C) Torsion bars
 - (D) Leaf springs
124. The aspect ratio of tires is the ratio of a tire's
- (A) Section height to section width
 - (B) Section width to section height
 - (C) Overall diameter to rim diameter
 - (D) Rim diameter to overall diameter
125. The tire size is given as 'P205/75 R15', here 15 stands for
- (A) Section width
 - (B) Section height
 - (C) Aspect ratio
 - (D) Rim diameter
126. In a vapour compression refrigeration system the high pressure liquid from the condenser/receiver is cooled below its saturation temperature, then it
- (A) Increases flashing of the liquid during expansion and increases the refrigerating effect
 - (B) Reduces flashing of the liquid during expansion and increases the refrigerating effect
 - (C) Reduces flashing of the liquid during expansion and decreases the refrigerating effect
 - (D) Reduces the net work per cycle





127. In a vapour compression refrigerant R12 (Normal Boiling Point – 29.8 °C) is replaced by R134a (Normal Boiling Point – 26.15 °C). To obtain the same refrigeration capacity following changes are required in vapour compression system

- (A) Increase compressor speed, Increase compressor volume
- (B) Decrease compressor speed, Increase compressor volume
- (C) Increase compressor speed, Decrease compressor volume
- (D) Decrease compressor speed, Decrease compressor volume

128. In winter air conditioning the process is

- (A) Heating, humidification and cooling
- (B) Heating, humidification and heating
- (C) Heating, dehumidification and heating
- (D) Cooling, dehumidification and heating

129. Evaporative air-cooler is used effectively, when



- (A) Dry bulb temperature is very close to wet bulb temperature
- (B) Dry bulb temperature is high and relative humidity is high
- (C) Dry bulb temperature is low and relative humidity is high
- (D) Dry bulb temperature is high and relative humidity is low

130. A cooling coil with a bypass factor of 0.1 and apparatus dew point (adp) of 12 °C comes in contact with air having a dry bulb temperature of 38 °C and dew point of 9 °C. Over the cooling coil, the air would undergo

- (A) Sensible cooling
- (B) Cooling and humidification
- (C) Cooling and dehumidification
- (D) Adiabatic saturation

131. A plane wall of thickness L is insulated on one face and convectively cooled on the other with heat transfer coefficient h and ambient temperature T_{∞} . For steady state conduction, the appropriate boundary condition at the insulated face $x = 0$, is

- (A) $T = T_{\infty}$ at $x = 0$
- (B) $-k \frac{dT}{dx} = 0$ at $x = 0$
- (C) $-k \frac{dT}{dx} = h(T - T_{\infty})$ at $x = 0$
- (D) $T = \text{constant}$ at $x = 0$



132. A cylindrical pipe of inner radius r_i and outer radius r_o , length L has thermal conductivity K and steady radial heat flow from inside to outside. The thermal resistance per unit length for conduction through the pipe wall is

- (A) $R = \ln\left(\frac{r_o}{r_i}\right) / (2\pi KL)$
 (B) $R = \ln\left(\frac{r_o}{r_i}\right) / (2\pi K)$
 (C) $R = 2\pi KL / \ln\left(\frac{r_o}{r_i}\right)$
 (D) $R = (r_o - r_i) / (2\pi KL)$

133. A straight rectangular fin of length L , constant cross-sectional area A and perimeter P is exposed to convection with coefficient h and ambient temperature T_∞ . If the fin base is at temperature T_b and tip is insulated and parameter m is defined as $m^2 = \frac{hP}{KA}$ the relation for temperature distribution will be expressed as

- (A) $\frac{T(x) - T_\infty}{T_b - T_\infty} = \frac{\cosh[m(L-x)]}{\cosh[mL]}$
 (B) $\frac{T(x) - T_\infty}{T_b - T_\infty} = \frac{\cosh[m(L-x)]}{\sinh[mL]}$
 (C) $\frac{T(x) - T_\infty}{T_b - T_\infty} = \frac{\cosh[mx]}{\cosh[mL]}$
 (D) $\frac{T(x) - T_\infty}{T_b - T_\infty} = \frac{\cosh[mx]}{\sinh[mL]}$

134. The Fourier number is defined in transient heat conduction problem, which is the correct for the Fourier number ?



- (A) It is ratio of conduction resistance to convection resistance
 (B) Dimensionless temperature difference
 (C) Ratio of heat conduction to rate of energy storage
 (D) Dimensionless time constant

135. Which statement is correct regarding the effect of Prandtl number on thermal boundary layer thickness in forced convection over a flat plate ?

- (A) Higher Pr leads to thicker thermal boundary layer than velocity boundary layer
 (B) Higher Pr leads to thinner thermal boundary layer than velocity boundary layer
 (C) Prandtl number does not effect thermal boundary layer thickness
 (D) Thermal boundary layer thickness equals velocity boundary layer thickness for all Pr

136. What is the incorrect statement for SI engines ?

- (A) Requires an ignition system
 (B) Constant volume heat addition cycle
 (C) Constant pressure heat addition cycle
 (D) Compression ratio is between 6 – 10



137. What is the incorrect statement for CI engines ?
- (A) Maximum thermal efficiency is higher than SI engines
 - (B) Compression ratio is between 16 – 20
 - (C) A fuel injector is required
 - (D) Maximum thermal efficiency is lower than SI engines
138. The thermal efficiency for Otto cycle
- (A) Increases when increasing compression ratio
 - (B) Decreases when increasing compression ratio
 - (C) Does not change when increasing compression ratio
 - (D) First increases then decreases when increasing compression ratio
139. When specific heat ratio increases, the thermal efficiency for Otto cycle
- (A) Increases
 - (B) Decreases
 - (C) Does not change
 - (D) First increases and then decreases
140. For the same compression ratio and heat addition
- (A) Otto cycle has least efficiency
 - (B) Diesel cycle has highest efficiency
 - (C) Dual cycle has efficiency between Otto cycle and Diesel cycle
 - (D) None of the above
141. In a counter flow heat exchanger, the temperature profile of the fluids is
- (A) Linear
 - (B) Constant
 - (C) Exponential
 - (D) Logarithmic
142. In a parallel flow heat exchanger, the temperature difference between the two fluids
- (A) Increases along the length
 - (B) Remains constant
 - (C) Decreases along the length
 - (D) First increases then decreases
143. Fouling factor unit typically expressed in units of
- (A) W/m^2K
 - (B) m^2K/W
 - (C) J/kgK
 - (D) W/K
144. The NTU method is preferred over LMTD when
- (A) Inlet and outlet temperatures are known
 - (B) Heat exchanger effectiveness is not needed
 - (C) Outlet temperatures are unknown
 - (D) Fouling is negligible



145. Consider the following statements in respect of vapour absorption refrigeration cycle.

1. The absorption refrigeration cycle is generally used when waste heat is available from an existing source or when free energy like solar energy is to be used.
2. There are no moving parts in the absorption refrigeration plant except a small liquid pump.
3. The value of the coefficient of performance is nearly the same in both vapour compression and vapour absorption system.

Which of the above statements are correct ?

- (A) 1, 2 and 3
- (B) 1 and 2
- (C) 1 and 3
- (D) 2 and 3



146. In throttling process

- (A) Enthalpy remains constant
- (B) Entropy remains constant
- (C) Both enthalpy and entropy remains constant
- (D) Neither enthalpy nor entropy remains constant

147. No heat engine can operate by exchanging heat from a single temperature source. This is

- (A) The Kelvin-Planck statement
- (B) The Carnot theorem
- (C) The Joule law
- (D) The Clausius statement

148. The Carnot's theorem says

- (A) Efficiency of a reversible and non-reversible engine is same
- (B) Efficiency of a reversible engine is always greater than that of a non-reversible engine
- (C) Efficiency of a non-reversible engine is always greater than that of a reversible engine
- (D) None of the above

149. Heat can not be transported from a low temperature reservoir to a high temperature reservoir without the aid of an external work input. This is

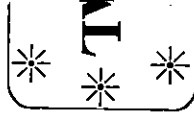
- (A) The Kelvin-Planck statement
- (B) The Carnot theorem
- (C) The Joule law
- (D) The Clausius statement

150. The entropy of our universe is

- (A) Constant
- (B) Always decreasing
- (C) Always increasing
- (D) Zero



रफ़ कार्य / ROUGH WORK



रफ़ कार्य / ROUGH WORK

