MEP-1

PROVISIONAL ANSWER KEY

Name of The Post	**Deputy Executive Engineer (Mechanical), Class-2 (GWSSB)**
Advertisement No	**42/2020-21**
Preliminary Test Held On	**04-07-2021**
Que. No.	**001-200 (General Studies & Aptitude)**
Publish Date	**06-07-2021**
Last Date to Send Suggestion (S)	**14-07 -2021**

Instructions / સૂચના

Candidate must ensure compliance to the instructions mentioned below, else objections shall not be considered: -

(1) All the suggestion should be submitted in prescribed format of suggestion sheet Physically.

(2) Question wise suggestion to be submitted in the prescribed format (Suggestion Sheet) published on the website.

(3) All suggestions are to be submitted with reference to the Master Question Paper with provisional answer key (Master Question Paper), published herewith on the website. Objections should be sent referring to the Question, Question No. & options of the Master Question Paper.

(4) Suggestions regarding question nos. and options other than provisional answer key (Master Question Paper) shall not be considered.

(5) Objections and answers suggested by the candidate should be in compliance with the responses given by him in his answer sheet. Objections shall not be considered, in case, if responses given in the answer sheet /response sheet and submitted suggestions are differed.

(6) Objection for each question shall be made on separate sheet. Objection for more than one question in single sheet shall not be considered & treated as Cancelled.

(7) Candidate who is present in the exam entitled to submit the objection/(s).

(8) Candidate should attach copy of his/her OMR (Answer sheet) with objection/(s).

ઉમેદ્વારે નીચેની સૂચનાઓનું પાલન કરવાની તકેદારી રાખવી, અન્યથા વાંધા-સૂચન અંગે કરેલ રજૂઆતો ધ્યાને લેવાશે નહીં

(1) ઉમેદવારે વાંધા-સૂચનો નિયત કરવામાં આવેલ વાંધા-સૂચન પત્રકથી રજૂ કરવાના રહેશે.

(2) ઉમેદવારે પ્રશ્નપ્રમાણે વાંધા-સૂચનો રજૂ કરવા વેબસાઇટ પર પ્રસિધ્ધ થયેલ નિયત વાંધા-સૂચન પત્રકના નમૂનાનો જ ઉપયોગ કરવો.

(3) ઉમેદવારે પોતાને પરીક્ષામાં મળેલ પ્રશ્નપુસ્તિકામાં છપાયેલ પ્રશ્નક્રમાંક મુજબ વાંધા-સૂચનો રજૂ ન કરતા તમામ વાંધા-સૂચનો વેબસાઈટ પર પ્રસિધ્ધ થયેલ પ્રોવિઝનલ આન્સર કી **(**માસ્ટર પ્રશ્નપત્ર**)**ના પ્રશ્ન ક્રમાંક મુજબ અને તે સંદર્ભમાં રજૂ કરવા.

(4) માસ્ટર પ્રશ્નપત્ર માં નિર્દિષ્ટ પ્રશ્ન અને વિકલ્પ સિવાયના વાંધા-સૂચન ધ્યાને લેવામાં આવશે નહી.

(5) ઉમેદવારે જે પ્રશ્નના વિકલ્પ પર વાંધો રજૂ કરેલ છે અને વિકલ્પ રૂપે જે જવાબ સૂચવેલ છે એ જવાબ ઉમેદવારે પોતાની ઉત્તરવહીમાં આપેલ હોવો જોઈએ. ઉમેદવારે સૂચવેલ જવાબ અને ઉત્તરવહીનો જવાબ ભિન્ન હશે તો ઉમેદવારે રજૂ કરેલ વાંધા-સૂચન ધ્યાનમાં લેવાશે નહી.

(6) એક પ્રશ્ન માટે એક જ વાંધા-સૂચન પત્રક વાપરવું. એક જ વાંધા-સૂચન પત્રકમાં એકથી વધારે પ્રશ્નોની રજૂઆત કરેલ હશે તો તે અંગેના વાંધા-સૂચનો ધ્યાને લેવાશે નહી.

(7) પરીક્ષામાં હાજર રહેલ ઉમેદવાર જ વાંધા - સુચન રજુ કરી શકશે .

(8) ઉમેદવારે વાંધા-સુચન સાથે પોતાની જવાબવહીની નકલ બિડાણ કરવાની રહેશે.

001. નીચેના પૈકી કઈ જોડીઓ યોગ્ય રીતે જોડાયેલી છે ?

1. તમિલનાડુ – પુથન્ડુ (Puthandu)
2. આંધ્રપ્રદેશ – ઉગાડી (Ugadi)
3. કેરળ – વિશુ (Vishu)
4. વૈશાખી – શીખ (Sikhs)

(A) 1, 2, 3 અને 4 (B) માત્ર 2, 3 અને 4
(C) માત્ર 1, 2 અને 3 (D) માત્ર 1 અને 2

002. નીચે આપેલા સંવતને તે શરૂ થવાના વર્ષ સાથે યોગ્ય રીતે જોડો.

સંવત	શરૂ થવાનું વર્ષ
1. વિક્રમ સંવત	a. ઈ.સ. 78
2. શક સંવત	b. ઈ.સ. પૂર્વે 58
3. કલચૂરી સંવત	c. ઈ.સ. 248
4. હર્ષ સંવત	d. ઈ.સ. 606

(A) 1 - a, 2 - b, 3 - d, 4 - c (B) 1 - c, 2 - b, 3 - a, 4 - d
(C) 1 - d, 2 - c, 3 - b, 4 - a (D) 1 - b, 2 - a, 3 - c, 4 - d

003. 'નમસ્તે'ની પરંપરા સંસ્કૃતમાંથી ઉદ્‌ભવેલી છે અને તે 'નમહ' તથા 'તે' શબ્દોના જોડાણથી બનેલો શબ્દ છે. અહીં 'નમહ' શબ્દનો અર્થ ..... થાય છે.

(A) આદરણીય વંદન (Reverential salutation) (B) તમને (to you)
(C) આત્મા (soul) (D) મનોભાવ (spirit)

004. ખંભાલીડા બૌદ્ધ ગુફાઓ ..... ખાતે સ્થિત છે.

(A) અમરેલી (B) ભૂજ (C) રાજકોટ (D) વડોદરા

005. ભારતના rock-cut (ખડક કાપીને આકાર આપેલા) સ્થાપત્યના ઈતિહાસ બાબતે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?

1. બદામી ખાતેની ગુફાઓ એ ભારતમાં હયાત rock-cut ગુફાઓમાંની સૌથી જૂની છે.
2. બારાબર (Barabar) rock-cut ગુફાઓ એ સમ્રાટ ચંદ્રગુપ્ત મૌર્ય દ્વારા અસલમાં આજીવિકા માટે બનાવવામાં આવી હતી.
3. ઈલોરા ખાતે ગુફાઓ વિવિધ ધાર્મિક આસ્થાઓ (faiths) માટે બનાવવામાં આવી હતી.

(A) માત્ર 1 અને 2 (B) માત્ર 2 અને 3 (C) માત્ર 3 (D) 1, 2 અને 3

006. હરપ્પન મુદ્રાઓ અંગે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?

1. મુદ્રાઓમાં પ્રાકૃત લિપિનો ઉપયોગ થયો હતો.
2. લિપિ જમણી બાજુથી ડાબી બાજુ તરફ લખાઈ હતી.
3. મુદ્રાઓ એ આધ્યાત્મિક હેતુઓ માટે તાવીજ તરીકે ઉપયોગમાં લેવાતી હતી.

(A) માત્ર 1 અને 2 (B) માત્ર 2 અને 3 (C) માત્ર 2 (D) માત્ર 1 અને 3

001. Which of the following pairs are correctly matched?

1. Tamil Nadu – Puthandu
2. Andhra Pradesh – Ugadi
3. Kerala – Vishu
4. Vaisakhi – Sikhs

(A) 1, 2, 3 and 4 (B) 2, 3 and 4 only
(C) 1, 2 and 3 only (D) 1 and 2 only

002. Correctly match the eras with their respective year of beginning:

Eras	Year of beginning
1. Vikrama Era	a. 78 A.D.
2. Saka Era	b. 58 B.C.
3. Kalchuri Era	c. 248 A.D.
4. Harsha Era	d. 606 A.D.

(A) 1 - a, 2 - b, 3 - d, 4 - c (B) 1 - c, 2 - b, 3 - a, 4 - d
(C) 1 - d, 2 - c, 3 - b, 4 - a (D) 1 - b, 2 - a, 3 - c, 4 - d

003. The tradition of 'Namaste' is derived from Sanskrit and is a combination of the word 'namah' and 'te'- the word 'namah' means _____.

(A) Reverential Salutation (B) To you
(C) Soul (D) Spirit

004. The Khambhalida Buddhist caves are situated at _____.

(A) Amreli (B) Bhuj
(C) Rajkot (D) Vadodara

005. Which of the following statements is/are correct regarding to history of Indian rock-cut architecture?

1. The caves at Badami are the oldest surviving rock-cut caves in India.
2. The Barabar rock-cut caves were originally made for Ajivikas by the emperor Chandragupta Maurya.
3. At Ellora, caves were made for different faiths.

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

006. Which of the following statements is/are correct Harappan seals?

1. The script used in seals is Prakrit.
2. The script was written from right to left.
3. The seals were used as amulets for spiritual purposes.

(A) 1 and 2 only (B) 2 and 3 only
(C) 2 only (D) 1 and 3 only

007. ભારતીય શાસ્ત્રીય સંગીતમાં રાગ એ ..... છે.

(A) સમય નિર્દિષ્ટ (specific)
(B) મનોભાવ (mood) નિર્દિષ્ટ (specific)
(C) ઋતુ નિર્દિષ્ટ (specific)
(D) ઉપરોક્ત તમામ

008. દિવાળીના તહેવાર બાબતે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?

(A) દિવાળી એ પૂર્ણિમા અર્થાત પૂર્ણ ચંદ્રના શુભ દિવસે આવે છે.
(B) આ તહેવાર મહાભારત ઉપર આધારિત છે.
(C) (A) તથા (B) બંને
(D) (A) અથવા (B) એકપણ નહિ

009. ભૂજનું ફર્ગ્યુસન સંગ્રહાલય એ ..... ના સમય દરમ્યાન સ્થાપવામાં આવ્યું હતું.

(A) ખેંગારજી - ત્રીજા
(B) રાવ પ્રાગમલજી
(C) દેસાદજી
(D) વિજયરાજજી

010. ખજૂરાહો સ્થાપત્ય પાઠશાળા બાબતે નીચેના પૈકી કયાં વિધાનો સાચાં છે ?

1. આ પાઠશાળાએ ચંડેલા સ્થાપત્ય પાઠશાળા તરીકે પણ ઓળખાય છે.
2. આ પાઠશાળામાં મંદિર બાંધકામની પંચાયતન શૈલીને અનુસરવામાં આવતી હતી.
3. મંદિરની દિવાલો એ કોઈપણ પ્રકારની કોતરણી વિનાની હતી.

(A) 1, 2 અને 3
(B) માત્ર 2 અને 3
(C) માત્ર 1 અને 2
(D) માત્ર 1 અને 3

011. નીચેના પૈકી કયું / કયાં કેન્દ્રો એ પ્રાચીન સમયમાં ઔષધીય શિક્ષણના કેન્દ્ર હતા ?

(A) તક્ષશિલા
(B) ઉજ્જૈન
(C) (A) તથા (B) બંને
(D) (A) અથવા (B) એકપણ નહિ

012. 'તારામતી સ્વયંવર' એ કૃતિની રચના ..... દ્વારા કરવામાં આવી હતી.

(A) બાપુલાલ નાયક
(B) રણછોડભાઈ ઉદયરામ દવે
(C) યુ. સી. મહેતા
(D) વીર નર્મદ

013. 'સરસ્વતીચંદ્ર' કૃતિ બાબતે નીચેના પૈકી કયાં વિધાનો સાચાં છે ?

1. તે એક નવલકથા છે જે ચાર ભાગ ધરાવે છે.
2. તે ગોવર્ધનરામ ત્રિપાઠી દ્વારા લખવામાં આવી હતી.
3. આ કૃતિમાં સરસ્વતીચંદ્ર પોતે એ એક વકીલનું પાત્ર છે.

(A) 1, 2 અને 3
(B) માત્ર 2 અને 3
(C) માત્ર 1 અને 2
(D) માત્ર 1 અને 3

014. નીચે આપેલા વિધાનોને આધારે સ્મારક / મંદિરનું નામ આપો.

1. આ ઈમારત છઠ્ઠી સદીની છે અને તે ગુજરાતમાં હયાત હોય તેવી પ્રાચીનકાળની પથ્થરોની ઈમારતોમાંની એક છે.
2. ટાવરની છત એ આમલકા ચક્રદાંતના પૈડા આકારના મુગટની નીચે કમાન આકારની ગવાક્ષ બારી થી શણગારવામાં આવેલ છે.
3. તે વરતુ નદીના કાંઠે સ્થિત છે.

(A) રાણકી વાવ
(B) ઘુમલી
(C) ગોપ મંદિર
(D) ઉપરના પૈકી એકપણ નહીં

007. In the Indian classical music, ragas are _____

(A) Time specific **(B) Mood specific**

(C) Season specific **(D) All of the above**

008. Which of the following statements is/are correct regarding festival Diwali?

(A) Diwali falls on the auspicious day of Poornima, i.e. full moon.

(B) This festival is based on Mahabharata.

(C) Both (A) and (B)

(D) Neither (A) nor (B)

009. Ferguson Museum in Bhuj was established during the time of _____.

(A) Khengarji III **(B) Rao Pragamlji**

(C) Desadji **(D) Vijayrajji**

010. Which of the following statements are correct regarding Kahjuraho School of architecture?

1. This school is also known as Chandela school of architecture

2. Panchyatana Style of temple making was followed in this school

3. The temple walls were devoid of any carvings

(A) 1, 2 and 3 **(B) 2 and 3 only**

(C) 1 and 2 only **(D) 1 and 3 only**

011. Which of the following was/were centres of medicinal learning during ancient times?

(A) Takshashila **(B) Ujjain**

(C) Both (A) and (B) **(D) Neither (A) nor (B)**

012. The work "Taramati Swayamvar" was written by _____.

(A) Bapulal Naik **(B) Ranchhodbhai Udayram Dave**

(C) UC Mehta **(D) Veer Narmad**

013. Which of the following statements are correct regarding the work *Sarswatichandra?*

1. It is a novel which consists of four parts

2. This was written by Govardhanram Tripathi

3. In this work Sarswatichandra self is a character of Lawyer

(A) 1, 2 and 3 **(B) 2 and 3 only** **(C) 1 and 2 only** **(D) 1 and 3 only**

014. Name the monument/temple with the help of following statements.

1. **This structure is dated to the 6th century and is one of the earliest surviving stone structures in Gujarat.**
2. **The roof of the tower is decorated with arch-like gavaksha window shapes below an amalka cogged wheel-shaped crown.**
3. **It is located on the bank of Vartu river**

(A) Rani ki vav **(B) Ghumli** **(C) Gop temple** **(D) None of the above**

015. મહમુદ બેગડાએ જૂનાગઢમાં વૈકલ્પિક રાજધાની ઉભી કરી અને તેનું નામ બદલીને ..... કર્યું.

(A) દૌલતાબાદ
(B) અલીમપુર
(C) મુસ્તફાબાદ
(D) મહમુદાબાદ

016. યાદી-I ને યાદી-II સાથે જોડો અને નીચે આપેલા કોડમાંથી યોગ્ય ઉત્તર પસંદ કરો.

યાદી-I	યાદી-II
a. પ્રાંતિક સ્વાયત્તતા	1. ભારત સરકાર અધિનિયમ 1935
b. ભારતના રાજ્ય સચિવ	2. ભારત સરકાર અધિનિયમ 1858
c. મુસ્લીમો માટે અલાયદું મંત્રીમંડળ	3. ભારત સરકાર અધિનિયમ 1919
d. મોન્ટેગ્યુ-ચેમ્સફોર્ડ સુધારા	4. ભારત સરકાર અધિનિયમ 1909

(A) a - 1, b - 2, c - 3, d - 4
(B) a - 1, b - 4, c - 3, d - 2
(C) a - 4, b - 2, c - 1, d - 3
(D) a - 1, b - 2, c - 4, d - 3

017. નીચે આપેલા વડોદરાના શાસકોને સમયાનુક્રમિક ગોઠવો.

1. મલ્હારરાવ ગાયકવાડ
2. પ્રતાપસિંહ ગાયકવાડ
3. મહારાજા સયાજીરાવ - ત્રીજા
4. ગણપતરાવ ગાયકવાડ

(A) 1, 2, 3 અને 4
(B) 2, 1, 4 અને 3
(C) 4, 1, 3 અને 2
(D) 3, 2, 4 અને 1

018. શુદ્રોને ખેડૂતવર્ગના સમુદાય તરીકે સૌ પ્રથમ વર્ણવનાર નીચેના પૈકી કોણ હતા ?

(A) મનુ
(B) ફાહીયાન (Fa-Hien)
(C) હ્યુએન ત્સાંગ (Hiuen Tsang)
(D) નારદ

019. નીચેના પૈકી કોણે ભાવનગર રાજ્યમાં રાજ્ય પરિષદની સ્થાપના કરીને બંધારણીય શાસન લાગુ કર્યું ?

(A) ભાવસિંહજી બીજા (B) જસવંતસિંહજી (C) ધુણાસિંહજી (D) ઉપરના પૈકી એકપણ નહીં

020. ભારતમાં જોડાણ સમયે જૂનાગઢના નવાબ નીચેના પૈકી કોણ હતા ?

(A) મહંમદ મહબતખાનજી ત્રીજા
(B) શાહનવાઝ ખાન
(C) મહંમદ જૌનાખાનજીબક્ષ
(D) મહંમદ હુસેનખાનજી બીજા

021. નીચેના પૈકી કોણે 1470 પછી શાસન કર્યું અને અમદાવાદના સુલતાનને જ્યારે જરૂરત ઉભી થઈ ત્યારે પાયદળ અને અશ્વદળ પૂરા પાડ્યાં ?

(A) કોળીઓ (Kolis)
(B) ગોહિલો (Gohils)
(C) તોમરો (Tomaras)
(D) પ્રતિહારો (Pratiharas)

022. મહારાષ્ટ્ર ઉગ્રવાદ (extremism) એ ..... શહેર સ્થિત અભિનવ ભારત જૂથ સાથે વ્યક્તિગત આતંકનો માર્ગ અપનાવ્યો.

(A) પૂણે
(B) બેલગામ
(C) નાસિક
(D) કોલ્હાપુર

015. Mahmud Begara built an alternative capital in Junagadh and renamed it as_____.

(A) Daulatabad
(B) Alimpur
(C) Mustafabad
(D) Mahmudabad

016. Match List I with List II and select the correct answers by using the codes given below :

List I	List II
a. Provincial Autonomy	1. Government of India Act of 1935
b. Secretary of state for India	2. Government of India Act of 1858
c. Separate Electorate for Muslims	3. Government of India Act of 1919
d. Montagu-Chelmsford Reforms	4. Government of India Act of 1909

(A) a - 1, b - 2, c - 3, d - 4
(B) a - 1, b - 4, c - 3, d - 2
(C) a - 4, b - 2, c - 1, d - 3
(D) a - 1, b - 2, c - 4, d - 3

017. Arrange the following rulers of Baroda in correct chronological order:

1. Malharao Gaikward
2. Pratap Singh Gaikwad
3. Maharaja Sayyaji Rao III
4. Ganpat Rao Gaikwad

(A) 1, 2, 3 and 4
(B) 2, 1, 4 and 3
(C) 4, 1, 3 and 2
(D) 3, 2, 4 and 1

018. Who among the following was the first to describe Sudras as a class of agriculturists?

(A) Manu
(B) Fa-Hien
(C) Hiuen Tsang
(D) Narad

019. Who introduced the constitutional rule in Bhavnagar State by establishing a council of state?

(A) Bhavsinhji II
(B) Jaswantsinhji
(C) Dhunasinhji
(D) None of the above

020. Who among the following was the Nawab of Junagadh at the time of its accession to India?

(A) Muhammad Mahabat Khanji III
(B) Shahnawaz Khan
(C) Muhammad Jauna Khanji Baksh
(D) Muhammad Hussain Khanji II

021. Who among the following ruled after 1470 and provided the Ahmedabad Sultan with infantry and cavalry whenever necessary.

(A) Kolis (B) Gohils (C) Tomaras (D) Pratiharas

022. Maharashtra extremism took the path of individual terror with _____ city based, Abhinav Bharat group.

(A) Pune (B) Belgam (C) Nasik (D) Kohlapur

023. સિંધુ ખીણની સંસ્કૃતિ વિશે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?

1. મોહેંજો-દારોમાં સૌથી વિશાળ ઈમારત એ અનાજનો કોઠાર છે.
2. ધોલાવીરાની સૌથી આકર્ષક અને અજોડ વિશેષતા એ તેની જળ સંગ્રહ અને વ્યવસ્થાપન પધ્ધતિ છે.
3. લોથલની સૌથી આગવી વિશેષતા એ તેનો વહાણવાડો (dockyard) છે.

(A) માત્ર 1 અને 3 (B) માત્ર 3
(C) માત્ર 2 અને 3 (D) 1, 2 અને 3

024. 1937 માં લાગુ કરેલી વર્ધા યોજનાનો મુખ્ય ધ્યેય નીચેના પૈકી કયો હતો ?

(A) ભારતમાં બુનિયાદી (basic) શિક્ષણ માટે વિગતવાર રાષ્ટ્રીય યોજના ઘડવી.
(B) ભારતમાં વિશ્વવિદ્યાલયના શિક્ષણમાં સુધારો કરવો.
(C) શિક્ષણના માધ્યમ તરીકે સ્થાનિક ભાષાઓ (Vernacular languages) થી ઉપર અંગ્રેજી રાખવી.
(D) પસંદગી કરેલા ભારતીયોને પશ્ચિમી વિજ્ઞાન અને સાહિત્યની તાલીમ આપવી.

025. બકસરના યુધ્ધના પરિણામો વિશે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?

1. કંપનીના અધિકારીઓ દ્વારા દસ્તક (Dastaks) ના દુરુપયોગ બાદ અસંતોષ વધવાને કારણે તે લડવામાં આવ્યું હતું.
2. અવધને ઈસ્ટ ઈંડીયા કંપની સાથે જોડવામાં આવ્યું.
3. ઈસ્ટ ઈંડીયા કંપનીએ બંગાળમાં દિવાની અને વહીવટી (વ્યવસ્થાપન) (Nizamat) ના હક્કો હસ્તગત કર્યા.

(A) માત્ર 2 (B) 1, 2 અને 3
(C) માત્ર 1 અને 3 (D) માત્ર 3

026. નીચેના પૈકી કયા મત વિસ્તારમાંથી ડૉ. બી. આર. આંબેડકર 1946 માં સંવિધાન સભામાં ચૂંટાયા હતા ?

(A) બોમ્બે (B) નાગપુર
(C) દિલ્હી (D) ઉપરના પૈકી એકપણ નહીં

027. મૌર્ય શાસન દરમ્યાન રજવાડી માર્ગ (royal highway) કે જેણે વ્યાપારને ઉત્તેજન આપ્યું હતું તે ..... સુધીનો હતો.

(A) પાટલીપુત્ર થી મુલતાન (B) પાટલીપુત્ર થી તક્ષશિલા
(C) પાટલીપુત્ર થી કાબુલ (D) પાટલીપુત્ર થી સિયાલકોટ

028. સ્વાતંત્ર્ય સંગ્રામ દરમ્યાન નીચેના પૈકી કોણ Hindustan Socialist Republic Association (હિન્દુસ્તાન સમાજવાદી પ્રજાસત્તાક સંગઠન) સાથે સંકળાયેલા હતા ?

1. ચંદ્રશેખર આઝાદ
2. સુખદેવ થાપર
3. જોગેશચંદ્ર ચેટરજી
4. ભગતસિંહ

(A) માત્ર 1, 2 અને 3 (B) માત્ર 1, 2 અને 4 (C) માત્ર 1 અને 2 (D) 1, 2, 3 અને 4

029. નીચેના પૈકી કયા બે ગ્રહો એ સૂર્ય અને પૃથ્વીની વચ્ચે આવેલા છે ?

(A) બુધ અને મંગળ (B) શુક્ર અને મંગળ
(C) બુધ અને શુક્ર (D) ગુરૂ અને શની

023. Which of the following statements is/are correct regarding Indus Valley Civilization?

1. In Mohenjo-daro the largest building is a granary.
2. Most impressive and unique feature of Dholavira is its water harvesting and management system.
3. Most distinctive feature of Lothal is the dockyard

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

024. Which of the following was the main aim of Wardha Scheme brought in 1937?

(A) To formulate a detailed national scheme for basic education in India
(B) Improvement of University education in India.
(C) To keep English over vernacular languages as a medium of instruction
(D) To train selected Indians in western science and literature.

025. Which of the following statements is/are correct regarding the consequences of Battle of Buxar?

1. It was fought due to the rise in discontent following misuse of Dastaks by the company's officials.
2. Awadh was annexed by East India Company.
3. The East India Company acquired both the Diwani and Nizamat rights in Bengal.

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

026. From which of the following constituencies Dr. BR Ambedkar elected to the constituent Assembly in 1946?

(A) Bombay (B) Nagpur
(C) Delhi (D) None of the above

027. Under Mauryan rule, the royal highway that encouraged trade was from _____.

(A) Patliputra to Multan (B) Patliputra to Taxila
(C) Patliputra to Kabul (D) Patliputra to Sialkot

028. Who among the following were associated with Hindustan Socialist Republic Association during the freedom struggle?

1. Chandra Shekar Azad
2. Sukhdev Thapar
3. Jogesh Chandra Chatarjee
4. Bhagat Singh

(A) 1, 2 and 3 only (B) 1, 2 and 4 only
(C) 1 and 2 only (D) 1, 2, 3 and 4

029. Which of the following two planets lying between the Sun and the Earth?

(A) Mercury and Mars (B) Venus and Mars
(C) Mercury and Venus (D) Jupiter and Saturn

030. જો ઉષ્ણકટિબંધીય વરસાદી વનને દૂર કરવામાં આવે તો તે ઉષ્ણકટિબંધીય પાનખર વનની સરખામણીમાં ઝડપથી પુનઃનિર્માણ થઈ શકતા નથી. તેનું કારણ ..... છે.

(A) વરસાદી વનની જમીન પોષક તત્વોની ઉણપ ધરાવે છે.

(B) વરસાદી વનમાં વૃક્ષોનો પ્રસાર નબળી અંકુરણ ક્ષમતા ધરાવે છે.

(C) વરસાદી વનની પ્રજાતિઓની વૃધ્ધિ ધીમી હોય છે.

(D) વિલાયતી પ્રજાતિઓ (Exotic Species) વરસાદી વનની ફળદ્રુપ જમીન પર આક્રમણ કરે છે.

031. ભારતમાં, જ્યાં વાર્ષિક વરસાદ ..... ની વચ્ચે હોય તેવા મોટાભાગના સ્થળો એ ઉષ્ણકટિબંધિય પાનખર વનો કુદરતી આવરણ બનાવે છે.

(A) 201 સેમી અને 250 સેમી
(B) 251 સેમી અને 300 સેમી
(C) 70 સેમી અને 100 સેમી
(D) 101 સેમી અને 200 સેમી

032. નીચેના પૈકી કયો અનુક્રમ એ ભારતીય હિમાલયની દક્ષિણથી ઉત્તર તરફની સાચી હારમાળા દર્શાવે છે ?

(A) Trans Himalaya – Great Himalaya – Lesser Himalaya – Sub Himalaya

(B) Great Himalaya – Trans Himalaya – Lesser Himalaya – Sub Himalaya

(C) Sub Himalaya – Trans Himalaya – Great Himalaya – Lesser Himalaya

(D) Sub Himalaya – Lesser Himalaya – Great Himalaya – Trans Himalaya

033. ભારતના પૂર્વ ઘાટ અને પશ્ચિમ ઘાટ ..... ખાતે મળે છે.

(A) કાર્ડામોમ ટેકરીઓ
(B) અન્નામલાઈ ટેકરીઓ
(C) નિલગીરી ટેકરીઓ
(D) પાલાની ટેકરીઓ

034. મેઘાલયનો ઉચ્ચ પ્રદેશ મહદઅંશે ..... થી રચાયેલો છે.

(A) ક્રેટાસીઅસ લાવા (Cretaceous lava)

(B) ગોંડવાના ખડકો (Gondwana rocks)

(C) ધારવારીયન ક્વાર્ટઝાઈટ્સ (Dharwarian Quartziets)

(D) ત્રીજા ક્રમના નિક્ષેપના ખડકો (Tertiary sedimentary rocks)

035. નીચેના પૈકી કઈ જોડીઓ યોગ્ય રીતે જોડાયેલી છે ?

1. ઝીંક – ઝારવાર ખાણ, રાજસ્થાન
2. મેંગેનીઝ – ચાઈબાસા ખાણ, ઝારખંડ
3. મેગ્નેટાઈટ – બાબા હડાન ટેકરીઓ, કર્ણાટક
4. યુરેનિયમ – ડોમીઆસટ, મેઘાલય

(A) 1, 2, 3 અને 4
(B) માત્ર 2, 3 અને 4
(C) માત્ર 1, 2 અને 3
(D) માત્ર 1, 3 અને 4

036. નીચેના પૈકી કયા એ રાસાયણિક રીતે રચાયેલા નિક્ષેપના ખડકો છે ?

(A) જીપ્સમ (ચિરડી)
(B) કોલસો
(C) રેતીનો પથ્થર (sandstone)
(D) ચૂનાનો પથ્થર (limestone)

030. If a tropical rain forest is removed, it does not regenerate quickly as compared to a tropical deciduous forest. This is because of _____.

(A) The soil of rain forest is deficient in nutrients

(B) Propagates of the trees in a rain forest have a poor viability

(C) The rain forest species are slow-growing

(D) Exotic species invade the fertile soil of rain forest

031. In India, the tropical deciduous forests form the natural cover in nearly all the places where the annual rainfall is between _____.

(A) 201 cm and 250 cm

(B) 251 cm and 300 cm

(C) 70 cm and 100 cm

(D) 101 cm and 200 cm

032. Which of the following is the correct sequence of the ranges of the Indian Himalaya from South to North?

(A) Trans Himalaya – Great Himalaya – Lesser Himalaya – Sub Himalaya

(B) Great Himalaya – Trans Himalaya – Lesser Himalaya – Sub Himalaya

(C) Sub Himalaya – Trans Himalaya – Great Himalaya – Lesser Himalaya

(D) Sub Himalaya – Lesser Himalaya – Great Himalaya – Trans Himalaya

033. India's Eastern Ghats and Western Ghats meet at the _____.

(A) Cardamom hills

(B) Aanamalai hills

(C) Nilgiri hills

(D) Palani hills

034. The Meghalaya Plateaus are largely formed of _____.

(A) Cretaceous lava

(B) Gondwana rocks

(C) Dharwarian Quartzites

(D) Tertiary sedimentary rocks

035. Which of the following pairs are correctly matched?

1. Zinc – Zarwar Mines, Rajasthan

2. Manganese – Chaibasa mines, Jharkhand

3. Magnetite – Baba Hudan hills, Karnataka

4. Uranium – Domiasat, Meghalaya

(A) 1, 2, 3 and 4

(B) 2, 3 and 4 only

(C) 1, 2 and 3 only

(D) 1, 3 and 4 only

036. Which one of the following is chemically formed sedimentary rocks?

(A) Gypsum

(B) Coal

(C) Sandstone

(D) Limestone

037. ડંકન માર્ગ (passage) એ ..... વચ્ચે સ્થિત છે.

(A) South and Little Andaman
(B) Little and Great Nicobar
(C) North and South Andaman
(D) Middle and Little Andaman

038. વનો વિશે નીચેના પૈકી કયાં વિધાનો સાચાં છે ?

1. આરક્ષિત વનોમાં ઈમારતી લાકડા એકત્રિત કરવા પર જાહેર પ્રવેશ નિષેધ છે.
2. સુરક્ષિત વનોમાં લોકો ઈમારતી લાકડું એકત્રિત કરી શકે છે તેમજ તેમના ઢોરને ચરાવી શકે છે.
3. ભારતમાં દેશના કુલ વનોનો 53% હિસ્સો સુરક્ષિત વનો ધરાવે છે.

(A) 1, 2 અને 3
(B) માત્ર 1 અને 2
(C) માત્ર 2 અને 3
(D) માત્ર 1 અને 3

039. ગુજરાતની સરહદો વિશે નીચેના પૈકી કયા વિધાનો સાચાં છે ?

1. ગુજરાત એ અરબી સમુદ્ર અને ઉત્તરમાં પાકિસ્તાનના સિંધ પ્રાંતની સરહદ ધરાવે છે.
2. ગુજરાત એ ઉત્તરપૂર્વમાં રાજસ્થાનની સરહદ ધરાવે છે.
3. ગુજરાત એ દક્ષિણમાં દાદરા અને નગર હવેલી તથા દમણ અને દીવની સરહદ ધરાવે છે.

(A) 1, 2 અને 3
(B) માત્ર 1 અને 2
(C) માત્ર 2 અને 3
(D) માત્ર 1 અને 3

040. ગુજરાતની નીચેના પૈકી કઈ જાતિમાં દક્ષિણ આફ્રિકાના લોકોના લક્ષણોનું લાક્ષણિક પ્રતિબિંબ જોવા મળે છે ?

(A) બરડા
(B) સિદ્દી
(C) ભીલ
(D) રબારી

041. ભારતના મુખ્ય દરિયાઈ બંદરોમાં નીચેના પૈકીનું કયું બંદર એ કુદરતી બંદર નથી ?

(A) મુંબઈ
(B) કોચીન
(C) પારાદીપ
(D) માર્માગાઓ (Mormugao)

042. અરવલ્લીના પર્વતો વિશે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?

(A) અરવલ્લી એ જૂનો ગડી પર્વત છે કે જે ઉત્તર કરતાં દક્ષિણમાં વધુ વિસ્તૃત અને ઊંચો છે.
(B) અરવલ્લી હારમાળા એ પૂર્ણ જળ વિભાજક છે તે સાબરમતી, લૂણી અને બનાસનદીનો સ્ત્રોત છે.
(C) (A) તથા (B) બંને
(D) (A) અથવા (B) એકપણ નહિ

043. વિવિધ પ્રકારની મિસાઈલો બાબતે નીચેના પૈકી કયાં વિધાનો સાચાં છે ?

1. ક્રુઝ મિસાઈલ તેમના સમગ્ર માર્ગમાં માર્ગદર્શિત હોય છે અને તે વાતાવરણમાં રહે છે.
2. બેલેસ્ટીક મિસાઈલ્સ કરતાં ક્રુઝ મિસાઈલ્સમાં પેલોડ વહન ક્ષમતા ઘણી વધારે હોય છે.
3. ક્રુઝ મિસાઈલ ટેકનોલોજીએ ટૂંકા અંતરના મિસાઈલ્સ માટે યોગ્ય છે.

(A) 1, 2 અને 3
(B) માત્ર 1 અને 3
(C) માત્ર 1 અને 2
(D) માત્ર 2 અને 3

037. Duncan passage is located between _____.

(A) South and Little Andaman
(B) Little and Great Nicobar
(C) North and South Andaman
(D) Middle and Little Andaman

038. Which of the following statements are correct regarding forests?

1. No public entry is allowed for the collection of timber in reserved forests.
2. In protected forests people are allowed collect timber and graze their cattle
3. In India protected forests occupied 53% of the total forest of the country

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

039. Which of the following statements are correct regarding Boundaries of Gujarat?

1. Gujarat is bordered by Arabian Sea and the Pakistani province of Sindh to the North.
2. Gujarat is bordered by Rajasthan to the northeast
3. Gujarat is bordered by Dadra and Nagar Haveli and Daman and Diu to the south

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

040. Among the following which Gujarati tribe has reflection of typical traits of South African people?

(A) Barda
(B) Siddi
(C) Bhil
(D) Rabari

041. Which one of the following major seaports of India is not a natural harbor?

(A) Mumbai
(B) Cochin
(C) Paradeep
(D) Mormugao

042. Which of the following statements is/are correct regarding Aravalli Mountains?

(A) Aravalli is an old fold mountain, it is broader and higher in the south than in the north.
(B) Aravalli range is a perfect water divide, it is a source of Sabarmati, Luni and Banas rivers.
(C) Both (A) and (B)
(D) Neither (A) nor (B)

043. Which of the following statements are correct regarding different kinds of missiles?

1. Cruise missiles are guided throughout their path and remain in the atmosphere
2. Payload carrying capacity is very high in cruise missiles than ballistic missiles
3. Cruise missile technology is suitable for short range missiles

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

044. Air Quality Index (AQI) (હવા ગુણવત્તા સૂચકાંક)ના સંદર્ભમાં નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?

(A) AQI ના કુલ સાત પ્રકાર હોય છે.

(B) તે 'એક નંબર - એક રંગ - એક વર્ણન' (One number - One color - one Description) બંધારણ ધરાવે છે.

(C) (A) તથા (B) બંને

(D) (A) અથવા (B) એકપણ નહિ

045. નીચેના પૈકી કયાં વિધાનો સાચાં છે ?

1. કેલરીનો સામાન્ય વપરાશ પુરૂષોમાં 2200 કિલો કેલરી પ્રતિદિન છે.
2. કેલરીનો સામાન્ય વપરાશ સ્ત્રીઓમાં 1500 કિલો કેલરી પ્રતિદિન છે.
3. જો જમ્યા પછી લોહીમાં શર્કરાનું સ્તર 160 mg થી વધે તો તે શર્કરા શરીરમાં દેખાવવાનું શરૂ કરે છે.

(A) 1, 2 અને 3 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 2 (D) માત્ર 1 અને 3

046. હિપેટાઈટીસ-B વિશે નીચેના પૈકી કયા વિધાનો સાચાં છે ?

1. તે લાંબા સમય માટે ચેપ લગાડી શકે છે અને લોકોને સિરહોસીસ (cirrohosis) તેમજ યકૃતના કેન્સરથી મૃત્યુના ઊંચા જોખમમાં મૂકી શકે છે.
2. હિપેટાઈટીસ-B સામાન્ય રીતે જન્મ સમયે માતામાંથી બાળકમાં ફેલાય છે.
3. તે જાતીય સંક્રમણથી ફેલાઈ શકતો નથી.

(A) માત્ર 1 અને 2 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) 1, 2 અને 3

047. AB રક્તજૂથ ધરાવતી વ્યક્તિ ક્યારેક સર્વગ્રાહી તરીકે ઓળખાય છે કારણ કે .....

(A) એન્ટીજનના અભાવના લીધે

(B) એન્ટીબોડીઝના અભાવના લીધે

(C) એન્ટીજન અને એન્ટીબોડીઝના અભાવને લીધે

(D) એન્ટીબોડીઝની હાજરીના લીધે

048. ધનુષ તોપ બંદૂકો (Dhanush Artillery Guns) બાબતે નીચેના પૈકી કયું વિધાન સત્ય નથી ?

(A) તે ચોકસાઈ અને નિશ્ચિતતા (accuracy and precision) સાથેનો 40 કિલોમીટરનો પ્રહાર વિસ્તાર ધરાવે છે.

(B) તે સ્વીડીશ બોફોર્સ બંદૂકનું ઊંચી કક્ષાનું સંસ્કરણ છે.

(C) તે direct fire mode (સીધા તોપમારના પ્રકાર)માં રાત્રી ફાયરીંગની સુવિધા ધરાવે છે.

(D) ઉપરના પૈકી એકપણ નહીં.

049. નીચેના પૈકી કયા પ્રકારના સજીવ એ બાયોપેસ્ટીસાઈડ્ઝ તરીકે ઉપયોગમાં લેવામાં આવે છે ?

1. સૂક્ષ્મ જીવાણુ (Bacteria)
2. ફુગ (Fungi)
3. પુષ્પના છોડ (flowering plants)

(A) માત્ર 1 અને 2 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) 1, 2 અને 3

044. With reference to Air Quality Index (AQI), which of the following statements is/are correct?

(A) There are seven AQI categories.

(B) It follows the format 'One Number-One Color-One Description'

(C) Both (A) and (B)

(D) Neither (A) nor (B)

045. Which of the following statements are correct?

1. Normal consumption of calories among males is 2200 kcal per day.
2. Normal consumption of calories among females is 1500 kcal per day
3. Post-meal, if the blood glucose level rises more than 160 mg then the glucose starts appearing in the body

(A) 1, 2 and 3

(B) 2 and 3 only

(C) 1 and 2 only

(D) 1 and 3 only

046. Which of the following statements are correct regarding Hepatitis-B?

1. It can cause chronic infection and puts people at high risk of death from cirrhosis and liver cancer
2. Hepatitis B is most commonly spread from mother to child during birth
3. It cannot be spread through sexual transmission

(A) 1 and 2 only

(B) 2 and 3 only

(C) 1 and 3 only

(D) 1, 2 and 3

047. A person with blood group AB is sometimes called a universal recipient because of _____.

(A) Lack of antigens

(B) Lack of antibodies

(C) Lack of both antigens and antibodies

(D) The presence of antibodies

048. Which of the following statements about Dhanush Artillery Guns is INCORRECT?

(A) It has a strike range of 40 kilometers with accuracy and precision

(B) It is upgraded version of Swedish Bofors gun

(C) It also has night firing capability in direct fire mode.

(D) None of the above

049. Which of the following kinds of organisms are employed as biopesticides?

1. Bacteria
2. Fungi
3. Flowering Plants

(A) 1 and 2 only

(B) 2 and 3 only

(C) 1 and 3 only

(D) 1, 2 and 3

050. નીચેના પૈકી કયું એ તીવ્ર અણુ રીએક્ટરમાં શીતક તરીકે ઉપયોગમાં લઈ શકાય છે ?
(A) પ્રવાહી સોડીયમ (B) ભારે પાણી (C) પીગળેલો બરફ (D) ઉપરના પૈકી એકપણ નહીં

051. Bharat Stage Emission ધોરણો એ ..... ને લાગુ પડે છે.
1. પરિવહન વાહનો
2. લઘુ કક્ષાના ઉદ્યોગો
3. પાવર પ્લાન્ટ
(A) માત્ર 1 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) 1, 2 અને 3

052. વાદળ નામકરણ અનુસાર, નીચેના પૈકી કયા નીચા વાદળ છે ?
(A) Cirrocumulus (B) Cirrostratus
(C) Altocumulus (D) Nimbostratus

053. રેડિયોના શોધક Guglielmo Marconi દ્વારા વપરાયેલી ટેકનોલોજી જેવી જ "the Mercury Coherer" ટેકનોલોજીનું નિદર્શન કયા ભારતીય વૈજ્ઞાનિકે કર્યું હતું ?
(A) સર સી. વી. રામન (B) ડૉ. હોમી જે. ભાભા
(C) સર જગદીશચંદ્ર બોઝ (D) ડૉ. સત્યેન્દ્રનાથ બોઝ

054. ટેસ્ટ ટ્યૂબ બેબી અર્થાત્ .....
(A) અંડબીજ ફલિત કરવામાં આવે અને ટેસ્ટ ટ્યૂબમાં વિકસિત કરવામાં આવે.
(B) અંડબીજ ટેસ્ટ ટ્યૂબમાં ફલિત કરવામાં આવે અને ટેસ્ટ ટ્યૂબમાં વિકસિત કરવામાં આવે.
(C) (A) તથા (B) બંને
(D) (A) અથવા (B) એકપણ નહિ

055. નીચેના પૈકી કયો એ ગુજરાતમાં સ્થિત ગેસ આધારિત ઊર્જા પ્લાન્ટ છે ?
(A) વણાકબોરી (B) ઉકાઈ (C) ધુવારણ (D) કડાણા

056. નીચેના પૈકી કઈ જોડી સાચી રીતે જોડાયેલી નથી ?

	રક્તજૂથ	–	એન્ટીજન	–	એન્ટીબોડી
(A)	A	–	A	–	B
(B)	O	–	O	–	O
(C)	B	–	B	–	A
(D)	AB	–	AB	–	O

057. ગુજરાત સરકારની નીચેના પૈકીની કઈ યોજના એ ગ્રામીણ ક્ષેત્રના 50,000 કુશળ તથા અર્ધ-કુશળ કારીગરોને તાલીમ આપવા 6% સુધીની વ્યાજની આર્થિક સહાય પૂરી પાડશે ?
(A) મુખ્યમંત્રી ગ્રામોદય યોજના
(B) મુખ્યમંત્રી એપ્રેન્ટીસશીપ યોજના
(C) The Bajpai Bankable Scheme
(D) માનવ કલ્યાણ યોજના

050. Which of the following can be used as a coolant in fast nuclear reactors?

(A) Liquid sodium (B) Heavy Water

(C) Melting Ice (D) None of the above

051. Bharat Stage emission standards are applicable to _____.

1. Transport vehicles

2. Small Scale Industry

3. Power Plants

(A) Only 1 (B) 2 and 3 only

(C) 1 and 3 only (D) 1, 2 and 3

052. As per cloud nomenclature, which one of the following is a low cloud?

(A) Cirrocumulus (B) Cirrostratus

(C) Altocumulus (D) Nimbostratus

053. Which Indian scientist demonstrated "the Mercury Coherer", similar technology used by Guglielmo Marconi in the invention of radio?

(A) Sir C. V. Raman (B) Dr. Homi J. Bhabha

(C) Sir Jagadish Chandra Bose (D) Dr. Sateyendranath Bose

054. Test tube baby means _____.

(A) Ovum fertilized and developed in test tubes

(B) Ovum fertilized in test tubes and developed in test tubes

(C) Both (A) and (B)

(D) Neither (A) nor (B)

055. Which of the following is a Gas based Power Plant in Gujarat?

(A) Wanakbori (B) Ukai (C) Dhuvaran (D) Kadana

056. Which of the following pairs is INCORRECTLY matched?

	Blood Group	–	Antigen	–	Antibody
(A)	A	–	A	–	B
(B)	O	–	O	–	O
(C)	B	–	B	–	A
(D)	AB	–	AB	–	O

057. Which of the following schemes government of Gujarat will provide interest subvention upto 6% to train 50,000 skilled and semi-skilled workers in rural areas?

(A) Mukhyamantri Gramoday Yojana

(B) Mukhyamantri Apprenticeship Scheme

(C) The Bajpai Bankable Scheme

(D) Manav Kalyan Yojana

058. ભારતમાં સામાજીક અને આર્થિક આયોજન બાબતે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?
(A) ભારતમાં માત્ર કેન્દ્ર સરકાર વિકાસના આયોજનો કરી શકે છે.
(B) આર્થિક અને સામાજીક આયોજન એ બંધારણની સંઘયાદી હેઠળ સાતમી અનુસૂચિમાં આવે છે.
(C) (A) તથા (B) બંને
(D) (A) અથવા (B) એકપણ નહિ

059. પરંપરાગત કૃષિ વિકાસ યોજના (PKVY)નું લક્ષ્ય ..... છે.
(A) દેશમાં સેન્દ્રીય ખેતીને પ્રોત્સાહન આપવાનું
(B) રસાયણો અને જંતુનાશકોના અવશેષોથી મુક્ત એવી કૃષિ પેદાશોનું ઉત્પાદન કરવાનું
(C) સેન્દ્રીય ખેતીમાં અતિ આધુનિક તકનીકોનો પ્રસાર કરવાનું
(D) ઉપરના તમામ

060. નીચેના પૈકી કયા દેશો એ South Asian Free Trade Agreement (SAFTA) ના સદસ્યો છે ?
1. ભૂતાન
2. માલદીવ
3. પાકિસ્તાન
4. મ્યાનમાર
5. અફઘાનિસ્તાન
(A) માત્ર 1, 2, 3 અને 5 (B) માત્ર 1, 3, 4 અને 5 (C) માત્ર 1, 2, 4 અને 5 (D) 1, 2, 3, 4 અને 5

061. નીચેના પૈકી કઈ એ ચલણના અવમૂલ્યનની સંભવિત અસરો છે ?
1. Forex બજારોમાં ચલણના મૂલ્યમાં ઘટાડો
2. ઊંચી નિકાસ સ્પર્ધાત્મકતા
3. ઊંચો ફૂગાવો
4. આયાતની કિંમતમાં વધારો
(A) માત્ર 1 (B) માત્ર 1, 2 અને 4 (C) માત્ર 2 અને 3 (D) 1, 2, 3 અને 4

062. વાયબ્રન્ટ ગુજરાત વૈશ્વિક સમિટ 2019 નું મુખ્ય વિષયવસ્તુ (Main Theme) કયું છે ?
(A) ટકાઉ આર્થિક અને સામાજીક વિકાસ
(B) Gujarat Going Global
(C) નવા ભારતનું નિર્માણ (Shaping a new India)
(D) ગુજરાત વૈશ્વિક વ્યાપારી કેન્દ્ર (Gujarat Global Business Hub)

063. કોઈ દેશની વસ્તુઓ, સેવાઓ અને સંપત્તિની બાકીના વિશ્વ સાથે લેવડ દેવડની નોંધ એ તેની ..... કહેવાય છે.
(A) ચાલુ ખાતુ (Current account)
(B) ચૂકવણી સંતુલન (Balance of Payments)
(C) વ્યાપાર સંતુલન (Balance of Trade)
(D) મૂડી ખાતું (Capital account)

058. Which of the following statements is/are correct regarding social and economic plans in India?

(A) In India only the Central Government can make developmental plans

(B) Economic and social planning falls under the Union list in the Seventh Schedule of the Constitution

(C) Both (A) and (B)

(D) Neither (A) nor (B)

059. Paramparagat Krishi Vikas Yojana (PKVY) aims at _____.

(A) To promote organic farming in the country

(B) Producing agricultural products free from chemicals and pesticides residues

(C) Disseminating latest technologies in organic farming

(D) All of the above

060. Which of the following countries are members of South Asian Free Trade Agreement (SAFTA)?

1. Bhutan
2. Maldives
3. Pakistan
4. Myanmar
5. Afghanistan

(A) 1, 2, 3 and 5 only (B) 1, 3, 4 and 5 only

(C) 1, 2, 4 and 5 only (D) 1, 2, 3, 4 and 5

061. Which of the following are the likely implications of currency devaluation?

1. The decline in value of the currency in forex markets.
2. Higher export competitiveness
3. Higher inflation
4. Rise in cost of imports.

(A) 1 only (B) 1, 2 and 4 only

(C) 2 and 3 only (D) 1, 2, 3 and 4

062. What is main theme of Vibrant Gujarat Global Summit 2019?

(A) Sustainable Economic and Social Development

(B) Gujarat Going Global

(C) Shaping a new India

(D) Gujarat Global Business Hub

063. The record of a country's transactions in goods, services and assets with the rest of the world is its

(A) Current account (B) Balance of payments

(C) Balance of trade (D) Capital account

064. ગુજરાતમાં કૃષિમાં ભૌગોલિક સંકેતો (indications) એ ..... ને પૂરા પાડવામાં આવે છે.

(A) માત્ર ભાલીયા ઘઉં
(B) માત્ર ગીર કેસર કેરી
(C) ભાલીયા ઘઉં અને ગીર કેસર કેરી
(D) ગીર, કચ્છ અને વલસાડ કેસર કેરી

065. આર્થિક વસ્તી ગણતરી એ ..... છે.

(A) ઉત્પાદનમાં રોકાયેલી તમામ સંસ્થાઓની ગણતરી
(B) માત્ર કૃષિ સંસ્થાઓની ગણતરી
(C) માત્ર લઘુ કક્ષાના ઉદ્યોગોની ગણતરી
(D) માત્ર સૂક્ષ્મ (micro) ઉદ્યોગોની ગણતરી

066. SEZ અધિનિયમ, 2005 અંતર્ગત વિશિષ્ટ આર્થિક ક્ષેત્ર (Special Economic Zone) ..... દ્વારા સ્થાપી શકાય.

(A) માત્ર કેન્દ્ર સરકાર
(B) માત્ર રાજ્ય સરકાર
(C) માત્ર વ્યક્તિગત રીતે
(D) તમામ દ્વારા સ્વતંત્ર રીતે અથવા ભાગીદારીમાં

067. નીચેના પૈકી કયું મંત્રાલય / કયા મંત્રાલયો પ્રધાનમંત્રી કૃષિ સિંચાઈ યોજનાના અમલીકરણ માટે જવાબદાર છે ?

1. ગ્રામીણ વિકાસ મંત્રાલય
2. કૃષિ અને ખેડૂત કલ્યાણ મંત્રાલય
3. જળ સંસાધન, નદી વિકાસ અને ગંગા સંરક્ષણ મંત્રાલય

(A) 1, 2 અને 3
(B) માત્ર 2 અને 3
(C) માત્ર 1 અને 3
(D) માત્ર 1 અને 2

068. નીચેના પૈકી કયું Securities and Exchange Board of India (SEBI) (ભારતીય પ્રતિભૂતિ અને વિનિમય બોર્ડ)નું કાર્ય નથી ?

(A) સ્ટોક એક્સચેન્જની કામગીરીનું નિરીક્ષણ
(B) નવી મૂડી બાબતોનું વીમાકરણ (underwriting) કરવું
(C) વેપારી બેંકો અને મ્યુચ્યુઅલ ફંડનું નિયમન
(D) સ્વસ્થ (healthy) મૂડી બજારના વિકાસને પ્રોત્સાહન આપવું

069. 'Make in India' યોજના વિશે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?

(A) તે અર્થતંત્રના 25 ક્ષેત્રો ઉપર ધ્યાન કેન્દ્રીત કરે છે.
(B) Make in India હેઠળ આવરી લેવામાં આવેલા તમામ ક્ષેત્રોમાં 100% સીધા વિદેશી રોકાણ (Foreign Direct Investment) ની મંજૂરી છે.
(C) (A) તથા (B) બંને
(D) (A) અથવા (B) એકપણ નહિ

070. ભારતમાં 'સાવર્ત્રિક બેંકીંગ' (Universal Banking) ની વિભાવના ..... ની ભલામણથી લાગુ કરવામાં આવી.

(A) આર. એચ. ખાન સમિતિ
(B) આબીદ હુસેન સમિતિ
(C) પદ્મનાભન સમિતિ
(D) મેલાગમ સમિતિ

064. In Gujarat, Geographical Indications in agriculture are provided to _____.

(A) Bhalia wheat only
(B) Gir Kesar mango only
(C) Bhalia wheat and Gir Kesar mango
(D) Gir, Kutch and Valsad Kesar Mango

065. Economic census is a _____.

(A) Count of all establishments engaged in production
(B) Count of only agricultural establishments
(C) Count of only small scale enterprises
(D) Count of only micro enterprises

066. As per Act of SEZ 2005 a Special Economic Zone may be established by _____

(A) Central Government only
(B) State Government only
(C) Individuals only
(D) All of them alone or in partnership

067. Which of the following ministries are responsible for implementation of Pradhan Mantri Krishi Sinchai Yojana?

1. Ministry of Rural Development
2. Ministry of Agriculture and Farmers Welfare
3. Ministry of Water Resources, River Development and Ganga Rejuvenation

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

068. Which of the following is not a function of the Securities and Exchange Board of India (SEBI)?

(A) Supervising the working of the Stock Exchanges
(B) Underwriting new capital issues
(C) Regulating merchant banks and mutual funds
(D) Promoting the development of a healthy capital market

069. Which of the following statements is/are correct regarding 'Make in India' scheme?

(A) It focuses on 25 sectors of economy
(B) 100% Foreign Direct Investment is permitted in all sectors covered in Make in India
(C) Both (A) and (B)
(D) Neither (A) nor (B)

070. The concept of 'Universal Banking' was implemented in India on the recommendation of _____.

(A) R H Khan Committee
(B) Abid Hussain Committee
(C) Padmanabhan Committee
(D) Malegam Committee

071. ભારતમાં જાહેર સેવાઓ બાબતે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?

1. અખિલ ભારતીય સેવાઓનું નિયંત્રણ માત્ર કેન્દ્ર સરકાર દ્વારા થાય છે.
2. અખિલ ભારતીય સેવાના કોઈપણ અધિકારી વિરૂધ્ધ શિસ્તને લગતી કોઈપણ કાર્યવાહી (શિક્ષા લાદવી) એ માત્ર કેન્દ્ર સરકાર દ્વારા જ થઈ શકે છે.
3. લોકસભાએ 2/3 બહુમતીથી નવી અખિલ ભારતીય સેવાઓનું નિર્માણ કરી શકે છે.

(A) માત્ર 1 અને 3 (B) માત્ર 2 (C) માત્ર 2 અને 3 (D) 1, 2 અને 3

072. સંસદમાં 'Cut-motion' (કાપ દરખાસ્ત)નો હેતુ શું છે ?

(A) સરકારના દૈનિક આર્થિક ખર્ચાઓ મર્યાદિત કરવા.

(B) સરકારમાં અનુદાન મર્યાદિત કરવું.

(C) બજેટ દરખાસ્તોમાં ખર્ચને ઘટાડવા માટેનો દરખાસ્ત પ્રસ્તાવ રજૂ કરવો.

(D) ભારતના સંચિત નિધિ (consolidate fund) માંથી અનુદાનને મર્યાદિત કરવું.

073. નીચેના પૈકી કઈ પરિસ્થિતિ / ઘટનામાં રાજ્યના રાજ્યપાલ એ મુખ્યમંત્રીની નિયુક્તિમાં પોતાની વ્યક્તિગત વિવેકશક્તિનો ઉપયોગ કરે છે ?

(A) ચૂંટણી પછી જ્યારે કોઈપણ પક્ષને સ્પષ્ટ બહુમતી ન મળી હોય.

(B) જ્યારે હોદ્દા પરના મુખ્યમંત્રીનું એકાએક મૃત્યુ થયું હોય.

(C) (A) તથા (B) બંને

(D) (A) અથવા (B) એકપણ નહિ

074. નીચેના પૈકી કઈ પધ્ધતિ દ્વારા વડી અદાલતના ન્યાયાધીશોને તેમના કાર્યકાળ દરમ્યાન તેમના હોદ્દા ઉપરથી દૂર કરી શકાય છે ?

(A) જો રાજ્યની વિધાનસભા એ આ બાબતનો ઠરાવ 2/3 બહુમતીથી પસાર કરે તો રાજ્યપાલ દ્વારા

(B) સંસદની ભલામણથી મુખ્ય ન્યાયમૂર્તિ દ્વારા

(C) સંસદ દ્વારા 2/3 બહુમતીથી પસાર કરવામાં આવેલ ઠરાવના આધારે રાષ્ટ્રપતિ દ્વારા

(D) ઉપરના પૈકી એકપણ નહીં

075. જો કે મંત્રીમંડળ એ સંયુક્ત રીતે લોકસભાને જવાબદાર છે તેમ છતાં બંધારણીય રીતે વ્યક્તિગત રીતે મંત્રીએ ..... ને જવાબદાર હોય છે.

(A) રાષ્ટ્રપતિ (B) વડાપ્રધાન (C) અધ્યક્ષ (D) ઉપરના પૈકી એકપણ નહીં

076. ભારતના ઉપરાષ્ટ્રપતિની ચૂંટણી બાબતે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?

1. રાજ્યસભાના નામાંકિત સભ્ય એ રાષ્ટ્રપતિની ચૂંટણીમાં મતદાન કરી શકતા નથી પરંતુ તે ઉપરાષ્ટ્રપતિની ચૂંટણીમાં મતદાન કરી શકે છે.
2. ઉપરાષ્ટ્રપતિની ચૂંટણીમાં પ્રત્યેક મતદાતાના મતનું મૂલ્ય સમાન હોય છે.
3. પક્ષ પલટા વિરોધી કાયદાની જોગવાઈઓ એ ઉપરાષ્ટ્રપતિની ચૂંટણીમાં લાગુ પડતી નથી.

(A) માત્ર 1 (B) માત્ર 1 અને 2 (C) માત્ર 2 અને 3 (D) 1, 2 અને 3

071. Which of the following statements is/are correct regarding Public Services in India?

1. The All-India Services are controlled only by the Central Government
2. Any disciplinary action (imposition of penalties) against the officers of the All-India Services can only be taken by the Central Government
3. The Lok Sabha can create new All-India Services by 2/3rd majority

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

072. What is the objective of the 'Cut-motion' in Parliament?

(A) To restrict day-to-day financial expenditure of Government

(B) To restrict the Grants in Government

(C) To move a proposal to reduce expenditure in the Budget proposals

(D) To restrict grant from Consolidated Fund of India

073. In which of the following conditions/events, the Governor of a state can use his individual discretion in appointing the Chief Minister?

(A) When after the elections, no political party has clear majority

(B) When the Chief Minister in office dies suddenly

(C) Both (A) and (B)

(D) Neither (A) nor (B)

074. In which of the following manner the judges of the High Court can be removed from their office during their tenure?

(A) By the Governor, if the State Legislature passes a resolution to this effect by two-thirds majority

(B) By the Chief Justice on the recommendation of the Parliament

(C) By the President on the basis of a resolution passed by the Parliament by two-thirds majority

(D) None of the above

075. Though the Council of Ministers is collectively responsible to the Lok Sabha, the individual Ministers are constitutionally responsible to _____.

(A) The President (B) The Prime Minister

(C) The Speaker (D) None of the above

076. Which of the following statements is/are correct regarding Election of a Vice-President of India?

1. The Nominated member of Rajya Sabha will not be able to vote for President's Election but can vote for Vice-Presidential Election
2. Value of vote of each voter is equal in Vice-Presidential Election
3. Provisions of the Anti-Defection Law are not applicable in Vice-Presidential Elections

(A) 1 only (B) 1 and 2 only

(C) 2 and 3 only (D) 1, 2 and 3

077. ભારતમાં અન્ન સુરક્ષા અંગેનો હક એ ..... છે.
(A) કાનૂની હક (B) મૂળભૂત હક (C) બંધારણીય હક (D) ઉપરના પૈકી એકપણ નહીં

078. વચગાળાના મંત્રીમંડળ (1946) બાબતે નીચેના પૈકી કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે ?
1. વચગાળાના મંત્રીમંડળના સભ્યો એ વાઈસરોયની કારોબારી પરિષદના સભ્યો હતા.
2. ડૉ. બાબુ રાજેન્દ્ર પ્રસાદ એ વાઈસરોયની કારોબારી પરિષદના ઉપપ્રમુખ હતા.
3. વચગાળાના મંત્રીમંડળમાં જવાહરલાલ નહેરુ ગૃહ, માહિતી અને પ્રસારણ મંત્રી હતા.
(A) 1, 2 અને 3 (B) માત્ર 1 (C) માત્ર 2 અને 3 (D) માત્ર 1 અને 2

079. નીચેના પૈકી કઈ જોડીઓ યોગ્ય રીતે જોડાયેલી છે ?
1. ચોથી અનુસૂચિ – રાજ્યસભામાં સીટોની ફાળવણી
2. દસમી અનુસૂચિ – ધારાકીય સંસ્થાઓમાં સભ્યોના ગેરલાયક થવા અંગેની જોગવાઈઓ
3. સાતમી અનુસૂચિ – કેન્દ્ર અને રાજ્ય વચ્ચે સત્તાની વહેંચણી
4. છઠ્ઠી અનુસૂચિ – કેટલાક રાજ્યોમાં આદિજાતિ ક્ષેત્રોમાં વહીવટ અંગેની જોગવાઈઓ
(A) માત્ર 1 અને 3 (B) માત્ર 2 અને 4 (C) માત્ર 2, 3 અને 4 (D) 1, 2, 3 અને 4

080. ભારતના બંધારણના આમુખ બાબતે નીચેના પૈકી કયા વિધાનો સાચાં છે ?
1. આમુખ એ લોકોની સત્તા આખરી છે તેના પર ભાર મૂકે છે.
2. આમુખ એ જે. એલ. નેહરૂ દ્વારા બંધારણ સભામાં રજૂ કરવામાં આવેલા 'હેતુલક્ષી ઠરાવ' પર આધારિત છે.
3. 'લોકશાહી' એ શબ્દ માત્ર રાજકીય જ નહિ પરંતુ સામાજીક અને આર્થિક લોકશાહીને સ્વીકારે છે.
(A) 1, 2 અને 3 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 2 (D) માત્ર 1 અને 3

081. લોકોને બંધારણ દ્વારા આપવામાં આવેલા હકોનો મૂળભૂત હકો કહે છે કારણ કે .....
(A) તે સાહજિક (natural) હકો છે.
(B) તેને સ્થગિત કરી શકાય નહી
(C) તે બંધારણના ભાગરૂપ છે.
(D) તે અદાલત દ્વારા લાગુ પાડી શકાય છે અને તેને અદાલતનું રક્ષણ મળે છે.

082. નીચેના પૈકી કયા આયોગ/સમિતિએ ભલામણ કરી કે જે રીતે ભારતના રાષ્ટ્રપતિ સામે મહાભિયોગ પ્રસ્તાવ રજૂ કરી શકાય તે જ રીતે રાજ્યપાલ સામે રાજ્ય વિધાનસભા દ્વારા મહાભિયોગની જોગવાઈઓ હોવી જોઈએ ?
(A) દવે સમિતિ (B) જી. વી. રામકૃષ્ણ સમિતિ
(C) એમ. એમ. પુંચી આયોગ (D) કે. સંથાનમ સમિતિ

083. બંધારણીય સુધારાઓ બાબતે નીચેના પૈકી કયા વિધાનો સાચાં છે ?
1. સંસદના કોઈપણ ગૃહમાં વિધેયક રજૂ કરીને ભારતના બંધારણમાં સુધારો દાખલ કરી શકાય છે.
2. ભારતના બંધારણનો અનુચ્છેદ 368 એ બંધારણીય સુધારાની જોગવાઈ કરે છે.
3. શંકરી પ્રસાદ કેસ, 1951 માં ભારતની સર્વોચ્ચ અદાલતે ચાર સુધારા અધિનિયમની બંધારણીય માન્યતાને આધારે સમર્થન આપ્યું હતું.
4. સજ્જન સિંઘ કેસમાં ભારતની સર્વોચ્ચ અદાલતે બુનિયાદી સંરચના સિધ્ધાંત પ્રતિપાદિત કર્યો હતો.
(A) માત્ર 1, 2 અને 3 (B) માત્ર 1 અને 3 (C) માત્ર 1 અને 2 (D) 1, 2, 3 અને 4

077. The Right to Food Security in India is a _____.

(A) Legal Right (B) Fundamental Right

(C) Constitutional Right (D) None of the above

078. Which of the following statements is/are correct regarding Interim Cabinet (1946)?

1. The members of the Interim Cabinet were members of the Viceroy's executive council.
2. Dr Babu Rajendra Prasad was the vice president of the Viceroy's Executive Council.
3. Jawaharlal Nehru was the minister for Home, Information and Broadcasting in the Interim Cabinet.

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

079. Which of the following pairs is/are correctly matched?

1. Fourth Schedule - Allocation of seats in the Rajya Sabah
2. Tenth Schedule - Provisions relating to the Disqualification of members in legislative bodies.
3. Seventh Schedule - Division of powers between Centre and State
4. Sixth Schedule - Provisions relating to the administration of Tribal areas in some states.

(A) 1and 3 only (B) 2 and 4 only (C) 2, 3 and 4 only (D) 1, 2, 3 and 4

080. Which of the following statements are correct regarding Preamble of the Indian Constitution?

1. The Preamble emphasises the ultimate authority of the people
2. The Preamble is based on the 'objectives resolution' moved by J.L. Nehru in constituent Assembly
3. The word 'Democratic' embraces not only Political but social and economic democracy as well

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

081. Rights given to the people by the Constitution are called Fundamental Rights because _____.

(A) They are natural rights

(B) They can't be suspended

(C) They are a part of the Constitution

(D) They can be enforced and safeguarded by the courts

082. Which one of the following Commissions/Committees recommended that 'there should be provision for impeachment of the Governor by the State Legislature along the same line as that of President of India

(A) Dave Committee (B) G. V. Ramkrishna Committee

(C) M. M. Punchi Commission (D) K. Santhanam Committee

083. Which of the following statements are correct regarding constitutional amendments?

1. An Amendment to the Constitution of India can be initiated by an introduction of a bill in either of the two Houses of the Parliament
2. Article 368 of the Indian Constitution provides for Constitutional Amendment
3. In Shankari Prasad case, 1951 the Supreme Court of India upheld the constitutional validity of Fourth Amendment Act
4. The basic structure doctrine was propounded by the Supreme Court of India in Sajjan Singh case

(A) 1, 2 and 3 only (B) 1 and 3 only (C) 1 and 2 only (D) 1, 2, 3 and 4

084. ભારતના બંધારણમાં નીચેના પૈકી કયો અધિકાર એ મૂળભૂત અધિકાર નથી ?

(A) પ્રદુષણ મુક્ત હવાનો અધિકાર
(B) આશ્રયનો અધિકાર (Right to shelter)
(C) કાયદાકીય સહાયનો અધિકાર
(D) શિક્ષણનો અધિકાર

085. ભારતીય સુરક્ષા બળોએ સ્વદેશી રીતે વિકસાવેલ ઉપકરણ 'Sahayak-NG' નું સફળ પરિક્ષણ કર્યું તે ..... છે.

(A) હવામાં છોડી શકાય તેવા કન્ટેનર (Air Droppable Container)
(B) યુદ્ધ જહાજ (Frigate)
(C) વાયુ સેના માટે રડાર પ્રણાલી (Radar System for Air Force)
(D) સ્વયં સંચાલિત તોપ બંદૂક (Self propelled artillery gun)

086. તાજેતરમાં, જાપાન Five Eye Network માં જોડાયું છે અને નેટવર્કમાં Sixth eye બન્યું છે. નીચેના પૈકી કયા દેશો એ Five eye network ના સભ્યો છે ?

(A) ઓસ્ટ્રેલિયા, કેનેડા, બ્રિટન, યુ.એસ.એ. અને ભારત
(B) કેનેડા, બ્રિટન, ભારત, ઈન્ડોનેશિયા અને ઓસ્ટ્રેલિયા
(C) ભારત, મલેશિયા, ઈન્ડોનેશિયા, વિયેટનામ અને થાઈલેન્ડ
(D) ઓસ્ટ્રેલિયા, કેનેડા, બ્રિટન, યુ.એસ.એ. અને ન્યૂઝીલેન્ડ

087. તાજેતરમાં ભારતે Tso Khar જલપ્લાવિત સંકુલને તેના 42મા રામસર સ્થળ તરીકે ઉમેર્યું છે. આ સ્થળ ..... ખાતે સ્થિત છે.

(A) મેઘાલય (B) સિક્કિમ (C) લદ્દાખ (D) હિમાચલ પ્રદેશ

088. તાજેતરમાં આસામે તેના રાજભાષા વિધેયકમાં સુધારો કરેલ છે અને ..... ને તેમના રાજ્યની રાજભાષા તરીકે ઉમેરી છે.

(A) નાગા (Naga)
(B) બોડો (Bodo)
(C) કાર્મી (Karmi)
(D) ઉપરના પૈકી એકપણ નહીં

089. સરકારના તાજેતરના નિર્ણય અનુસાર DTH ક્ષેત્રને ..... % સીધા વિદેશી રોકાણની મંજૂરી આપવામાં આવી છે.

(A) 51%
(B) 66%
(C) 99%
(D) 100%

090. તાજેતરમાં ભારતે તેના Medium Range Surface to Air Missile (MRSAM) નું પરીક્ષણ કર્યું. આ મિસાઈલ એ DRDO અને ..... દ્વારા વિકસાવવામાં આવ્યું છે.

(A) French Dassault Aviation
(B) Israel Aerospace Industries
(C) Russian Tungaska Aviation
(D) Britain Jaguar Industries

091. ગૃહ અને શહેરી બાબતોના મંત્રાલય અનુસાર નીચેના પૈકી કયું શહેર એ ઈન્દિરા આવાસ યોજના - શહેરી 2019 એવોર્ડમાં પ્રથમ ક્રમે આવ્યું ?

(A) વિઝાગ
(B) હૈદરાબાદ
(C) કોચી
(D) સુરત

084. Which of the following is NOT a Fundamental Right in Indian Constitution?

(A) Right to pollution free air
(B) Right to shelter
(C) Right to legal aid
(D) Right to education

085. Indian Defence forces successfully tested an indigenously developed equipment named "Sahayak-NG", it is a_____.

(A) Air Droppable Container
(B) Frigate
(C) Radar System for Air Force
(D) Self propelled artillery gun

086. Recently, Japan has joined Five Eye Network and become sixth eye in the network. Which of the following countries are the members of five eye network?

(A) Australia, Canada, Britain, USA and India
(B) Canada, Britain, India, Indonesia and Australia
(C) India, Malaysia, Indonesia, Vietnam and Thailand
(D) Australia, Canada, Britain, USA and New Zealand

087. India recently added the Tso Khar wetland complex as its forty second Ramsar Site, this site is located in _____.

(A) Meghalaya
(B) Sikkim
(C) Ladakh
(D) Himachal Pradesh

088. Recently, Assam amended its official Language Bill and added _____ as the official language of the state.

(A) Naga
(B) Bodo
(C) Karmi
(D) None of the above

089. According to the recent decision of the government _____% of Foreign Direct Investments are allowed in DTH sector.

(A) 51%
(B) 66%
(C) 99%
(D) 100%

090. India recently test-fired the Medium Range Surface to-Air-Missile (MRSAM), this missile was developed by DRDO and _____.

(A) French Dassault Aviation
(B) Israel Aerospace Industries
(C) Russian Tungaska Aviation
(D) Britain Jaguar Industries

091. As per the Ministry of Housing and Urban Affairs, which of the following city stood first in Indira Awas Yojana – Urban 2019 awards?

(A) Vizag
(B) Hyderabad
(C) Kochi
(D) Surat

092. નીચેના પૈકી કયાં વિધાનો Exoplanet બાબતે સાચાં છે ?

1. આંતરરાષ્ટ્રીય વૈજ્ઞાનિક ટીમે Exoplanet માંથી સંભાવ્ય (potential) રેડીયો સિગ્નલો પ્રાપ્ત કર્યા.

2. આ Exoplanet એ પૃથ્વીથી 51 પ્રકાશવર્ષ દૂર છે.

3. આ સિગ્નલ એ સંભવતઃ સૌર મંડળની મર્યાદા બહારના ગ્રહમાંથી પ્રાપ્ત થયેલું પ્રથમ રેડીયો સિગ્નલ છે.

(A) 1, 2 અને 3 (B) માત્ર 2 અને 3

(C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2

093. ..... દેશ સાથેની છઠ્ઠી SAMVAD પરિષદ દરમ્યાન ભારતના પ્રધાનમંત્રીએ પરંપરાગત બૌદ્ધ સાહિત્ય અને ધર્મગ્રંથોના ગ્રંથાલયની રચના કરવાની દરખાસ્ત કરી.

(A) શ્રીલંકા (B) ભૂતાન

(C) જાપાન (D) દક્ષિણ કોરિયા

094. ભારત અને ..... દેશે ચીલાહાટી - હલ્દીબારી રેલ્વે લિંકને પુનઃ શરૂ કરવાનું નક્કી કર્યું.

(A) મ્યાનમાર (B) નેપાળ

(C) બાંગ્લાદેશ (D) પાકિસ્તાન

095. બોરીસ જોહસને અન્ય બે મહેમાન રાષ્ટ્રો સાથે ભારતના વડાપ્રધાનને G-7 મીટીંગ 2021 માં હાજરી આપવા આમંત્રિત કર્યા હતા. આ બીજા બે રાષ્ટ્રો ..... હતા.

(A) દક્ષિણ કોરિયા અને સિંગાપુર (B) સિંગાપુર અને જાપાન

(C) દક્ષિણ કોરિયા અને ઓસ્ટ્રેલિયા (D) નેધરલેન્ડ અને ઓસ્ટ્રેલિયા

096. હિમાલયના શીત રણમાં સૌ પ્રથમવાર હિમાલયન serow દેખાયું આ હિમાલયન serow એ ..... છે.

(A) બિલાડી (B) બકરી

(C) ચિત્તો (D) ઉપરના પૈકી એકપણ નહીં

097. સંયુક્ત રાષ્ટ્રના વિકાસ કાર્યક્રમના માનવ વિકાસ અહેવાલ 2020 અનુસાર ભારત ..... મા ક્રમે આવેલ છે.

(A) 127 (B) 131 (C) 135 (D) 139

098. પ્રધાનમંત્રીએ જુદા જુદા રાજ્યમાં છ દીવાદાંડી પ્રોજેક્ટનો પાયો નાખ્યો. ગુજરાતમાં દીવાદાંડી પ્રોજેક્ટનો પાયો ..... ખાતે નાંખ્યો.

(A) રાજકોટ (B) ભાવનગર (C) સુરત (D) અલંગ

099. પૂર ગ્રસ્ત ક્ષેત્રો માટે Sagar III અભિયાન અંતર્ગત HADR (Humanitarian Assistance and Disaster Relief) (માનવીય મદદ અને આપત્તિ સહાય) સહાય આપવા માટે તાજેતરમાં ..... ના Sihanoukville બંદર ખાતે INS Kiltan આવ્યું.

(A) વિયેટનામ (B) કંબોડીયા

(C) યુગાન્ડા (D) Papua New Guinea

100. ..... ના નેતૃત્વ હેઠળની સંસદીય સ્ટેન્ડીંગ સમિતિએ જાહેર સ્વાસ્થ્ય અધિનિયમની ભલામણ કરી.

(A) કપિલ સિબલ (B) હર્ષવર્ધન

(C) આનંદ શર્મા (D) ગાલા જયદેવ

092. Which of the following statements are correct regarding Exoplanet?

1. An international team of scientists received potential radio signals from Exoplanet.
2. This Exoplanet is 51 light years away from the earth.
3. This is possibly the first radio signal received from a planet beyond solar system.

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

093. During the 6th SAMVAD conference with _____ country Indian Prime Minister proposed to create a library of traditional Buddhist literature and scriptures.

(A) Sri Lanka (B) Bhutan (C) Japan (D) South Korea

094. India and _____ country decide to reopen Chilahati – Haldibari rail link.

(A) Myanmar
(B) Nepal
(C) Bangladesh
(D) Pakistan

095. Prime Minister of India was invited by Boris Johnson to attend the G-7 meeting 2021 along with two other guest nations, the other two nations are _____.

(A) South Korea and Singapore
(B) Singapore and Japan
(C) South Korea and Australia
(D) Netherlands and Australia

096. For the first time, a Himalayan Serow has been sighted in the Himalayan cold desert. The Himalayan Serow is a _____.

(A) Cat
(B) Goat
(C) Leopard
(D) None of the above

097. According to United Nations Development Programme's Human Development report 2020, India is ranked at _____.

(A) 127 (B) 131 (C) 135 (D) 139

098. The Prime Minister of India laid foundation for six lighthouse projects in various states, in Gujarat the lighthouse project foundation laid at _____.

(A) Rajkot (B) Bhavnagar (C) Surat (D) Alang

099. The INS Kiltan recently arrived at Sihanoukville Port of _____ under Mission Sagar III to deliver HADR (Humanitarian Assistance and Disaster Relief) for flood affected areas.

(A) Vietnam
(B) Cambodia
(C) Uganda
(D) Papua New Guinea

100. Parliamentary Standing Committee under the leadership of _____ recommended for the Public Health Act.

(A) Kapil Sibal
(B) Harshvardhan
(C) Anand Sharma
(D) Galla Jaydev

101. What will come in place of the question mark(?) in the following number series?

5, 7, ? , 25, 45, 75

(A) 11 (B) 13 (C) 15 (D) 19

102. Father said his son, "I was as old as you are at present at the time of your birth." If the father age is 38 now, the son age 5 years back was

(A) 14 (B) 19 (C) 33 (D) 38

103. A total of 324 notes comprising Rs 20 and Rs 50 denominations make a sum of Rs. 12,450. The number of Rs. 20 notes is

(A) 200 (B) 144 (C) 125 (D) 110

104. The sum of squares of successive integers 8 to 16, both inclusive, will be

(A) 1126 (B) 1174 (C) 1292 (D) 1356

105. Two numbers X and Y are respectively 20% and 28% less than a third number Z. By what percentage is the number Y less than the number X?

(A) 12% (B) 10% (C) 9% (D) 8%

106. When 75 is added to 75% of a number, the answer is the number. Find 40% of that number.

(A) 100 (B) 80 (C) 120 (D) 160

107. If each side of a square is increased by 25%, find the percentage change in its area?

(A) 65.25 (B) 56.25 (C) 65 (D) 56

108. There are 1650 students in a college. The difference between the number of boys and girls in the college is 400. What is the percentage of girls in the college?

(A) 49 (B) 34 (C) 43 (D) 38

109. Rank of the matrix $\begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix}$ is

(A) 4 (B) 2 (C) 1 (D) 0

110. Eigen values of the matrix

$\begin{bmatrix} 3 & -1 & -1 \\ -1 & 3 & -1 \\ -1 & -1 & 3 \end{bmatrix}$ are

(A) 1, 1, 1 (B) 1, 1, 2 (C) 1, 4, 4 (D) 1, 2, 4

111. Inverse of the matrix

$\begin{bmatrix} -3 & 5 \\ 2 & 1 \end{bmatrix}$ is

(A) $\begin{bmatrix} 5/13 & -1/13 \\ 2/13 & 3/13 \end{bmatrix}$ (B) $\begin{bmatrix} 2/13 & 5/13 \\ -1/13 & 3/13 \end{bmatrix}$ (C) $\begin{bmatrix} -1/13 & 5/13 \\ 2/13 & 3/13 \end{bmatrix}$ (D) $\begin{bmatrix} 1/13 & -5/13 \\ 2/13 & 3/13 \end{bmatrix}$

112. The minimum value of $|x2 - 5x + 2|$ is

(A) –5 (B) 0 (C) –1 (D) –2

113. The differential equation

$$\frac{d^2y}{dx^2} + \sin x \frac{dy}{dx} + ye^x = \sinh x$$ is

(A) First order and linear
(B) First order and non linear
(C) Second order and linear
(D) Second order and non linear

114. Taylor series expansion of the function $F(x) = \frac{x}{1+x}$ around $x = 0$ is

(A) $x + x2 + x3 + x4$.....
(B) $1 + x + x2 + x3 + x4$.....
(C) $2x + 4x2 + 8x3 + 16x4$.....
(D) $X - x2 + x3 - x4$.....

115. The chance that a leap year selected at random will contain 53 Sundays is

(A) 7/2 (B) 2/7 (C) 3/7 (D) 9/2

116. The order of error in the Simpson's rule for numerical integration with a step size h is

(A) h (B) h2 (C) h3 (D) h4

117. Type of design in which a known solution is applied to satisfy a different need is called

(A) Innovative design
(B) Adaptive design
(C) Industrial design
(D) Conceptual design

118. Which of the following subjects is/are related to ergonomics?

(A) Anthropology
(B) Physiology
(C) Psychology
(D) All of the above

119. Nomography stands for

(A) Graphical representation of mathematical laws
(B) Multi view of object
(C) Graphical representation of I-section
(D) Graphical representation of overlapping views

120. Which of the following is the preliminary stage of production planning?

(A) Capacity planning
(B) Material requirement planning
(C) Scheduling
(D) Product development and design

121. The term "Voice of Customer" is associated with

(A) Taguchi approach
(B) Quality function deployment
(C) Concurrent engineering
(D) Service blue printing

122. Which phase of the design includes modelling and simulation?

(A) Product architecture
(B) Configuration design
(C) Parametric design
(D) Detail design

123. Which of the following involves least fraction of cost to produce a product?

(A) Product design
(B) Manufacturing
(C) Marketing
(D) Material

124. Which step in engineering design process involves decision making?

(A) Define problem
(B) Gather information
(C) Concept generation
(D) Evaluation

125. A fundamental attribute of TQM is

(A) Drawing control charts
(B) Having team meetings
(C) Top management's direct involvement
(D) Meeting ISO 9000 audit

126. ISO 9000 determines

(A) If the company practices its written procedures
(B) If vendors are performing well
(C) Process capability
(D) The kind of control chart to be used

127. Accuracy can be improved by

(A) Use of Xbar charts
(B) Team meetings
(C) TQM principles
(D) Management talking to workers

128. The Baldrige Award is

(A) A ISO 9000 requirement
(B) An indication of SPC being used
(C) Indication of no competition
(D) Indication that TQM programs are effective

129. Six Sigma implies

(A) A statistical method
(B) A trouble-shooting method
(C) Teams are effective
(D) 3 defects per million in output

130. Study methods can be improved by

(A) Benchmarking
(B) Improved note taking
(C) Vacations
(D) Sitting in the front row

131. A Reaction Plan is

(A) A flow chart

(B) An afterthought

(C) A way to produce good products

(D) A checklist to use when things don't look right

132. Fishbone diagrams are drawn

(A) To find customer needs

(B) To find the cost of quality

(C) To brainstorm causes of an effect

(D) To screen workers' suggestions

133. The angular Velocity in rad/s of a body rotating at N rpm is

(A) π N / 60 (B) 2 π N / 60 (C) π N / 120 (D) π N / 180

134. The coefficient of restitution for inelastic bodies is

(A) Zero

(B) Between zero and one

(C) One

(D) More than one

135. Which of the following is a turning pair?

(A) Piston and cylinder of a reciprocating steam engine

(B) Shaft with collars at both ends fitted in a circular hole

(C) Lead screw of a lathe with nut

(D) Ball and socket joint

136. The total number of instantaneous centers of mechanism consisting of n links are

(A) $\frac{n}{2}$ (B) n (C) $\frac{(n-1)}{2}$ (D) $\frac{n(n-1)}{2}$

137. The direction of linear velocity of any point on a link with respect to another point on the same link is

(A) Parallel to the link joining the point

(B) Perpendicular to the link joining the points

(C) At 45° to the link joining the points

(D) None of the above

138. The component of the acceleration, parallel to the velocity of the particle, at the given instant is called

(A) Radial component

(B) Tangential component

(C) Coriolis component

(D) None of the above

139. In a pantograph, all the pairs are

(A) Turning pairs

(B) Sliding pairs

(C) Spherical pairs

(D) Self closed pairs

140. The maximum efficiency of a screw jack is a

(A) $\frac{(1-\sin\phi)}{(1+\sin\phi)}$ (B) $\frac{(1+\sin\phi)}{(1-\sin\phi)}$ (C) $\frac{(1-\tan\phi)}{(1+\tan\phi)}$ (D) $\frac{(1+\tan\phi)}{(1-\tan\phi)}$

141. The velocity ratio of two pulleys connected by an open belt or crossed belt is

(A) Directly proportional to their diameters

(B) Inversely proportional to their diameters

(C) Directly proportional to the square of their diameters

(D) Inversely proportional to the square of their diameters

142. When the pitching of a ship is upward, the effect of gyroscopic couple acting on it will be

(A) To move the ship towards port side

(B) To move the ship towards star-board

(C) To raise the bow and lower the stern

(D) To raise the stern and lower the bow

143. Kirchhoff's current law is applicable to only

(A) Closed loops in a network (B) Electronic circuits

(C) Junctions in a network (D) Electric circuits

144. According to KVL the algebraic sum of all IR drops and e.m.f's in any closed loop of a network is always

(A) Zero (B) Positive

(C) Negative (D) Determined by battery e.m.f 's

145. For a given line voltage, four heating coils will produce maximum heat when connected

(A) All in parallel

(B) All in series

(C) With two parallel pairs in series

(D) One pair in parallel with the other two in series

146. One Kilo watt of electrical energy equals

(A) 3600 J (B) 860 kCal (C) 3600 W (D) 4186 J

147. The unit of absolute permittivity of a medium is

(A) Joule / coulomb (B) Newton – metre

(C) Farad / metre (D) Farad / Coulomb

148. Inside a conducting sphere _____ remains constant

(A) Electric flux (B) Electric Intensity

(C) Charge (D) Potential

149. A capacitor consists of two

(A) Insulation separated by a di-electric
(B) Conductor separated by an insulator
(C) Ceramic plates and one mica disc
(D) Silver coated insulator

150. Relative permeability of Vacuum is

(A) $4\pi \times 10^{-7}$ H/m (B) 1 H/m (C) 1 (D) ¼ π

151. The capacity of a cell is measured in

(A) Watt-Hours (B) Watts (C) Amperes (D) Ampere-hours

152. A moving coil voltmeter measures…..

(A) Only AC voltages
(B) Only DC voltages
(C) Both AC and DC voltages
(D) None of the above

153. On which of the following factors does the electrical conductivity of a semiconductor depend?

1. Carrier concentration
2. Carrier mobility
3. Sign of the carrier

Select the correct answer using the codes given below

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

154. Principle of Hall effect is used in the construction of which one of the following?

(A) Ammeter (B) Voltmeter (C) Galvanometer (D) Gaussmeter

155. In an intrinsic semi conductor the number of electrons is equal to the number of holes at which temperature?

(A) 0 K
(B) 0° C
(C) High Temperatures
(D) All temperatures

156. A semiconductor has a band gap of 2eV. The wave length of radiation emitted from the semiconductor when electrons and holes recombine is

(A) 625 nm (B) 625 μm (C) 625 mm (D) 625 cm

157. According to free electron theory, electron in a metal are subjected to

(A) Constant potential
(B) Sinusoidal potential
(C) Square wave potential
(D) Non periodic potential

158. The current flow in a semiconductor is due to

1. Drift current
2. Displacement current
3. Diffusion current

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

159. Width of energy bands depend on which of the following?
(A) Temperature
(B) Pressure
(C) Relative freedom of electrons in the crystal
(D) Mass of atom in the material

160. The electrical conductivity of a semiconductor increases with increase in temperature because
(A) The mobility of carriers increases
(B) The carrier concentration increases
(C) Both carrier concentration and mobility increase
(D) Thermal energy of electrons increases

161. Measuring BOD (biological oxygen demand) is primarily used for
(A) Estimating the types of microbes
(B) Determine the level of dissolved oxygen
(C) Estimating the quantity of organic matter in sewage water
(D) None of the above

162. Cosmic rays, such as gamma rays are a source of
(A) Soil Pollution
(B) Noise Pollution
(C) Thermal Pollution
(D) Radiation pollution

163. The primary agenda of the Kyoto protocol is
(A) Regulation of hazardous wastes
(B) Regulate the production of nuclear energy
(C) Control anthropogenic sources of greenhouse gases
(D) None of the above

164. The presence of _____ in a water body is an indicator of water pollution.
(A) Zygosporangium
(B) E.Coli
(C) Deinococcus radiodurans
(D) None of the above

165. Lichens are good bio-indicators for
(A) Environmental radiation
(B) Soil pollution
(C) Water and air pollution
(D) None of the above

166. Carbon dioxide is primarily called a greenhouse gas because
(A) Traps heat
(B) Traps light
(C) Traps warm currents
(D) None of the above

167. _____ is an organism used to gauge the quality of an ecosystem.
(A) Decomposers
(B) Predator
(C) Bio-remediator
(D) Bio-indicator

168. _____ is a waste disposal method where solid organic wastes are converted into the residue and gaseous products through combustion.
(A) Incarnation (B) Incineration (C) Incarceration (D) Incubation

169. In a matrix organization, which of the following is true?
(A) The project manager is responsible for employee skills improvement
(B) The functional manager is responsible for employee skills improvement
(C) The project manager is responsible for employee annual appraisal
(D) The employee is responsible for his/her own skills improvement

170. Functional organization system of working was introduced by
(A) F W Taylor (B) Henry Gantt (C) M R Walker (D) J E Kelly

171. In which organization form would the project manager possess the greatest amount of authority?
(A) Classical/traditional (B) Projectized
(C) Strong matrix (D) Weak matrix

172. What are the major advantages of the functional type of organization?
(A) Single point of contact for the customer (B) Stable organizational structure
(C) Project orientation (D) Multifunctional teams are easy to form

173. The best way to resolve a conflict in a project is by
(A) Collaborative (B) Confronting
(C) Compromising (D) Smoothing

174. Which of the following graphical method tells about the root cause of the risk?
(A) Pareto chart (B) Scatter Diagram
(C) Ishikawa/Fishbone diagram (D) Monte Carlo analysis

175. At what stage of team formation, the team can work effectively even without a leader?
(A) Forming (B) Storming (C) Norming (D) Performing

176. When you have accepted the risk with the ongoing project, also risks have been quantified & their category determined which of the following would work as Plan B, if some thing goes out of the order?
(A) Fallback plans (B) Contingency plans
(C) Change request plan (D) Monte Carlo analysis

177. The following equation is related to corrosion rate
(A) Nernst equation (B) Faraday's equation
(C) Newton's equation (D) None of the above

178. Graphene is
(A) New material made from carbon nanotubes
(B) One-atom thick sheet of graphite
(C) A thin film made from fullerence
(D) A graphical representation of C60 molecule

179. Which one of the following refractory material is recommended for steel furnaces containing CaO slag?

(A) Alumina
(B) Silica
(C) Magnesia
(D) Fireclay

180. The type of bonding in ceramic is

(A) Purely covalent
(B) Predominantly covalent with small ionic character
(C) Predominantly ionic with small covalent character
(D) Purely ionic

181. Phenol formaldehyde is a/an

(A) Thermoplastic polymer
(B) Thermoset polymer
(C) Elastomer
(D) Rubber

182. Pyrometer works based on

(A) Laser technology
(B) Photo conduction
(C) Thermal emission
(D) Tyndall effect

183. Which of the following insulating material has the least affinity to moisture?

(A) Cotton (B) Paper (C) Asbestos (D) Mica

184. Which one of the following cast irons consists of carbon in rosette form?

(A) White cast iron
(B) Gray cast iron
(C) Malleable cast iron
(D) Nodular cast iron

185. What is a fully equipped computer that is worn as a piece of clothing or attached to a piece of clothing similar to the way that cell phone is carried on belt?

(A) Wearable computer
(B) GPS
(C) Implant chip
(D) None of the above

186. ERP stands for

(A) Enterprise resolution planning
(B) Enterprise reverse planning
(C) Enterprise resource planning
(D) None of the above

187. What is meant by e-pramaan?

(A) It is a national online identification system
(B) It is a national knowledge network
(C) It is national e-Authentication service
(D) None of the above

188. The Information Technology Act was enacted in India in the year

(A) 1998
(B) 2000
(C) 2005
(D) 2003

189. Project Loon is
(A) To provide internet access in rural and remote areas
(B) To send probe on to moon
(C) To develop nano crystals based medicine
(D) To provide toilets in rural areas

190. The father of modern computer is
(A) Charles Babbage (B) Von-Neumann
(C) Danies Ritchel (D) Blaise Pascal

191. Errors in computer results could be due to
(A) Encoding of data (B) Transmission of data
(C) Manipulation of data (D) All of the above

192. What does .com mean?
(A) Computer (B) Lan common website
(C) Commercial website (D) Website for government

193. Which one of the following gestures is interpreted as unfriendly?
(A) Holding someone's hand (B) Staring
(C) Eye contact (D) Smiling

194. Another name for interpersonal communication is
(A) Mass communication (B) Face to face public communication
(C) Dyadic communication (D) Virtual reality

195. Adding incentives to the job is included in
(A) Intrinsic motivation (B) Extrinsic motivation
(C) Outsourced motivation (D) In-house motivation

196. Ethics and law overlap. This is called
(A) Yellow area (B) White area
(C) Black area (D) Grey area

197. Who invented ethics of duty?
(A) Wilson H (B) Wilson I (C) Kant H (D) Kant I

198. Ethics is synonymous to
(A) Morality (B) Money (C) Standards (D) Conduct

199. Which one of the following is a receivers weakness type of barrier to communication?
(A) Ambiguity (B) Jargon (C) Time (D) Prejudice

200. A form of interpersonal attraction whereby followers develop a respect for and trust in the individual is known as
(A) Direction (B) Charisma
(C) Bureaucratic control (D) Achievement orientation

MEP-2

PROVISIONAL ANSWER KEY

Name of The Post	**Deputy Executive Engineer (Mechanical), Class-2 (GWSSB)**
Advertisement No	**42/2020-21**
Preliminary Test Held On	**04-07-2021**
Que. No.	**001-300 (Concern Subject)**
Publish Date	**06-07-2021**
Last Date to Send Suggestion (S)	**14-07 -2021**

Instructions / સૂચના

Candidate must ensure compliance to the instructions mentioned below, else objections shall not be considered: -

(1) All the suggestion should be submitted in prescribed format of suggestion sheet Physically.

(2) Question wise suggestion to be submitted in the prescribed format (Suggestion Sheet) published on the website.

(3) All suggestions are to be submitted with reference to the Master Question Paper with provisional answer key (Master Question Paper), published herewith on the website. Objections should be sent referring to the Question, Question No. & options of the Master Question Paper.

(4) Suggestions regarding question nos. and options other than provisional answer key (Master Question Paper) shall not be considered.

(5) Objections and answers suggested by the candidate should be in compliance with the responses given by him in his answer sheet. Objections shall not be considered, in case, if responses given in the answer sheet /response sheet and submitted suggestions are differed.

(6) Objection for each question shall be made on separate sheet. Objection for more than one question in single sheet shall not be considered & treated as Cancelled.

(7) Candidate who is present in the exam entitled to submit the objection/(s).

(8) Candidate should attach copy of his/her OMR (Answer sheet) with objection/(s).

ઉમેદ્વારે નીચેની સૂચનાઓનું પાલન કરવાની તકેદારી રાખવી, અન્યથા વાંધા-સૂચન અંગે કરેલ રજૂઆતો ધ્યાને લેવાશે નહીં

(1) ઉમેદવારે વાંધા-સૂચનો નિયત કરવામાં આવેલ વાંધા-સૂચન પત્રકથી રજૂ કરવાના રહેશે.

(2) ઉમેદવારે પ્રશ્નપ્રમાણે વાંધા-સૂચનો રજૂ કરવા વેબસાઇટ પર પ્રસિધ્ધ થયેલ નિયત વાંધા-સૂચન પત્રકના નમૂનાનો જ ઉપયોગ કરવો.

(3) ઉમેદવારે પોતાને પરીક્ષામાં મળેલ પ્રશ્નપુસ્તિકામાં છપાયેલ પ્રશ્નક્રમાંક મુજબ વાંધા-સૂચનો રજૂ ન કરતા તમામ વાંધા-સૂચનો વેબસાઈટ પર પ્રસિધ્ધ થયેલ પ્રોવિઝનલ આન્સર કી **(**માસ્ટર પ્રશ્નપત્ર**)**ના પ્રશ્ન ક્રમાંક મુજબ અને તે સંદર્ભમાં રજૂ કરવા.

(4) માસ્ટર પ્રશ્નપત્ર માં નિર્દિષ્ટ પ્રશ્ન અને વિકલ્પ સિવાયના વાંધા-સૂચન ધ્યાને લેવામાં આવશે નહી.

(5) ઉમેદવારે જે પ્રશ્નના વિકલ્પ પર વાંધો રજૂ કરેલ છે અને વિકલ્પ રૂપે જે જવાબ સૂચવેલ છે એ જવાબ ઉમેદવારે પોતાની ઉત્તરવહીમાં આપેલ હોવો જોઈએ. ઉમેદવારે સૂચવેલ જવાબ અને ઉત્તરવહીનો જવાબ ભિન્ન હશે તો ઉમેદવારે રજૂ કરેલ વાંધા-સૂચન ધ્યાનમાં લેવાશે નહી.

(6) એક પ્રશ્ન માટે એક જ વાંધા-સૂચન પત્રક વાપરવું. એક જ વાંધા-સૂચન પત્રકમાં એકથી વધારે પ્રશ્નોની રજૂઆત કરેલ હશે તો તે અંગેના વાંધા-સૂચનો ધ્યાને લેવાશે નહી.

(7) પરીક્ષામાં હાજર રહેલ ઉમેદવાર જ વાંધા - સુચન રજુ કરી શકશે .

(8) ઉમેદવારે વાંધા-સુચન સાથે પોતાની જવાબવહીની નકલ બિડાણ કરવાની રહેશે.

1. An open system is one in which

(A) Heat and work cross the boundary of the system, but the mass of the working substance does not

(B) Mass of working substance crosses the boundary of the system but the heat and work do not

(C) Both the heat and work as well as mass of the working substances cross the boundary of the system

(D) Neither the heat and work nor the mass of the working substances cross the boundary of the system

2. Which of the following is an intensive property of a thermodynamic system?

(A) Volume (B) Temperature (C) Mass (D) Energy

3. The value of one bar (in SI units) is equal to

(A) 100 N/m2 (B) 1000 N/m2 (C) 1×104 N/m (D) 1×105 N/m2

4. The latent heat of vaporization at critical point is

(A) Less than zero (B) Greater than zero

(C) Equal to zero (D) None of the above

5. In throttling process

(A) $h_1^2 = h_2$ (B) $h_1 = h_2$

(C) $h_1 = h^2 + h_{fg}/T_s$ (D) $h_2 = h_1 + h_{fg}/T_s$

6. In a reversible adiabatic process the ratio (T_1/ T_2) is equal to

(A) $\left(\frac{p1}{p2}\right)^{(\gamma-1)/\gamma}$ (B) $\left(\frac{p2}{p1}\right)^{(\gamma-1)/\gamma}$ (C) $\left(\frac{p1}{p2}\right)^{(\gamma-1)}$ (D) $\left(\frac{v1}{v2}\right)^{(\gamma-1)/\gamma}$

7. Work done in a free expansion process is

(A) Zero (B) Minimum (C) Maximum (D) Positive

8. The heat absorbed or rejected during a polytropic process is

(A) $\left(\frac{\gamma-n}{\gamma-1}\right) \times$ Work done (B) $\left(\frac{\gamma-n}{\gamma-1}\right)^2 \times$ Work done

(C) $\left(\frac{\gamma-n}{\gamma-1}\right)^{1/2} \times$ Work done (D) $\left(\frac{\gamma-n}{\gamma-1}\right)^3 \times$ Work done

9. The gas constant (R) is equal to the

(A) Sum of two specific heats (B) Difference of two specific heats

(C) Product of two specific heats (D) Ratio of two specific heats

10. Second law of thermodynamics defines

(A) Heat (B) Work (C) Enthalpy (D) Entropy

11. In a reversible cycle the entropy of the system

(A) Increases (B) Decreases

(C) Does not change (D) First increases and then decreases

12. The efficiency of an ideal Carnot engine depends on
(A) Working substance
(B) On the temperature of the source only
(C) On the temperature of the sink only
(D) On the temperatures of both the source and the sink

13. Kelvin-Planck's law deals with
(A) Conservation of energy
(B) Conservation of heat
(C) Conservation of mass
(D) Conversion of heat into work

14. Gibb's function is expressed as
(A) $(u + pv - Ts)$ (B) $(u + pv - Tds)$ (C) $(u + pdv - Tds)$ (D) $(u + pv - sdT)$

15. Joule's law states that the specific internal energy of a gas depends only on
(A) The pressure of the gas
(B) The volume of gas
(C) The temperature of the gas
(D) None of the above

16. The value of the universal gas constant is
(A) 8.314 J/kg K (B) 83.14 kJ/kg K (C) 848 kJ/kg K (D) 8.314 kJ/kg K

17. Rankine cycle comprises
(A) Two isentropic processes and two constant volume processes
(B) Two isentropic processes and two constant pressure processes
(C) Two isothermal processes and two constant pressure processes
(D) None of the above

18. The air standard efficiency of closed gas turbine cycle is given by (r_p = pressure ratio for the compressor and turbine)
(A) $\eta = 1 - 1/(r_p)^{\gamma-1}$ (B) $\eta = 1 - (r_p)^{\gamma-1}$ (C) $\eta = 1 - (1/r_p)^{\gamma-1/\gamma}$ (D) $\eta = (r_p)^{\gamma-1/\gamma} - 1$

19. The thermal efficiency of a gas turbine cycle with ideal regenerative heat exchanger is
(A) Equal to work ratio
(B) Less than work ratio
(C) More work than ratio
(D) Unpredictable

20. Thermal efficiency of a gas turbine plant as compared to Diesel engine plant is
(A) Higher
(B) Lower
(C) Same
(D) May be higher or lower

21. The Fourier's law of heat transfer by conduction is expressed as
(A) Q= kA2 dt/dx (B) Q= kA dt/dx (C) Q= k2A dx/dt (D) Q= k3A dx/dt

22. The thermal conductivity is expressed as
(A) W/m K (B) W/m2 K (C) W/hm K (D) W/h2m2 K

23. Stefan-Boltzmann law is expressed as
(A) Q=σAT4 (B) Q=σA2 T4 (C) Q=σA T2 (D) Q=σA2 T4

24. Heat transmission is directly linked with the transport of medium itself, i.e., there is actual motion of heated particles during

(A) Conduction only
(B) Convection only
(C) Radiation only
(D) Conduction as well as radiation

25. A satellite in space exchanges heat with the surroundings essentially by

(A) Conduction
(B) Convection
(C) Radiation
(D) Conduction and convection put together

26. Which of the following is anisotropic, i.e. ,exhibits change in thermal conductivity due to directional preferences

(A) Wood (B) Glass wool (C) Concrete (D) Masonary brick

27. The thermal diffusivity of substance is given by

(A) $k / \rho C_P$ (B) $k \rho / C_P$ (C) $k C_P / \rho$ (D) $\rho C_P / k$

28. Up to the critical radius of insulation

(A) Heat loss decreases with addition of insulation
(B) Heat loss increases with addition of insulation
(C) There occurs a decrease in heat flux
(D) Conduction heat loss is more than convection heat loss

29. Critical thickness of insulation for spheres is given by

(A) k/h (B) k/4 h (C) h/2k (D) 2k/h

30. Fins are provided on heat transferring surface in order to increase

(A) Heat transfer area
(B) Heat transfer co-efficient
(C) Temperature gradient
(D) Mechanical Strength of the equipment

31. Transient conduction means

(A) Very little heat transfer
(B) Heat transfer for a short time
(C) Heat transfer with a very small temperature difference
(D) Conduction when the temperature at a point varies with time

32. For a transparent or diathermanous body

(A) Absorptivity $\alpha = 1$, reflectivity $\rho = 0$ and transmissivity $\tau = 0$
(B) $\rho = 1$, and $\alpha = \tau = 0$
(C) $\tau = 1$ and $\alpha = \rho = 0$
(D) $\alpha + \tau = 1$ and $\rho = 0$

33. A body which partly absorbs and partly reflects but does not allow any radiation to pass through it ($\alpha + \rho = 1$ and $\tau = 0$) is called

(A) Diathermanous (B) Opaque

(C) Gray (D) Specular

34. The ratio of total emissive power of the body to the total emissive power of a black body at the same temperature is called

(A) Absorptivity (B) Transmissivity (C) Reflectivity (D) Emissivity

35. A radiation shield should

(A) Have high transmissivity

(B) Absorb all the radiations

(C) Have high reflective power

(D) Partly absorb and partly transmit the incident radiation

36. The free convention heat transfer is significantly affected by

(A) Reynolds number (B) Grashof number

(C) Prandtl number (D) Stanton number

37. Which dimensionless number has a significant role in forced convection

(A) Prandtl number (B) Reynolds number

(C) Mach number (D) Peclet number

38. Peclet number is defined as

(A) Kinematic viscosity / Thermal diffusivity

(B) Convective heat transfer / Conduction heat transfer

(C) Buoyancy force × Inertial force / Viscous force

(D) Wall heat transfer rate / Convection heat transfer

39. The Nusselt number in natural transfer is a function of fluid Prandtl number and

(A) Stanton number (B) Biot number

(C) Grashof number (D) Reynolds number

40. In a counter flow heat exchange, Cold fluid enters at 30°C and leaves at 50°C, whereas the hot fluid enters at 150°C and leaves at 130°C. The mean temperature difference for thick case is

(A) 20°C (B) 80°C (C) 100°C (D) Indeterminate

41. By changing the order of integration, the integral $\int_0^2 \int_1^{e^x} dy\, dx$ is equivalent to the double integral _____

(A) $\int_1^e \int_{logy}^2 dx\, dy$ (B) $\int_1^{e^z} \int_{logy}^2 dx\, dy$

(C) $\int_{e^z}^1 \int_2^{logy} dx\, dy$ (D) $\int_1^{e^z} \int_2^{logy} dx\, dy$

42. The value of the integral is $\int_0^1 \int_{y^2}^1 \int_0^{1-x}$

(A) $\frac{4}{35}$ (B) $\frac{3}{35}$ (C) $\frac{8}{35}$ (D) $\frac{6}{35}$

43. The value of $\iint x^2 y^3 dx\, dy$, over the region R, bounded by the rectangle $0 \le x \le 1$ and $0 \le y \le 3$ is

(A) $\frac{27}{4}$ (B) $\frac{27}{8}$ (C) $\frac{29}{4}$ (D) $\frac{29}{8}$

44. The Bernoulli's differential equation $\frac{dy}{dx} - y \tan x = y^4 \sec x$ reduces to linear differential equation is

(A) $\frac{dU}{dx} + (3 \tan x)u = -3 \sec x$ where $y^{-3} = u$ (B) $\frac{dU}{dx} + (\tan x)u = 3 \sec x$ where $y^{-3} = u$

(C) $\frac{dU}{dx} + (\tan x)u = -\sec x$ where $y^{-3} = u$ (D) None of these

45. The solution of the differential equation $\frac{dy}{dx} = x - 1$ satisfying y(1) = 1 is

(A) $y2 = x2 - 2x + 2$ (B) $y2 = 2x2 - x - 1$

(C) $y = x2 - 2x + 2$ (D) None of the above

46. Particular integral of $(D^2 + 4)y = \cos 2x$ is

(A) $\frac{x \sin 2x}{2}$ (B) x sin 2x (C) $\frac{x \sin 2x}{4}$ (D) $\frac{x \sin x}{4}$

47. If $y = c_1y_1 + c_2y_2 = e^x (c_1 \cos x + c_2 \sin x)$ is a complementary function of a second order differential equation, Wroskian $W(y_2y_2)$ is

(A) e^x (B) e^{3x} (C) e^{2x} (D) e^{-2x}

48. The Particular solution for the differential equation $\frac{d2y}{dx2} + 3\frac{d2y}{dx2} + y = 0$ is

(A) 0.5 Cosx+1.5Sinx (B) 1.5 Cosx+0.5Sinx

(C) 1.5 Sinx (D) 0.5 Cosx

49. m=2 is a double root and m= – 1 is another root of the auxiliary equation of a homogeneous differential with constant coefficient. The differential equation is

(A) $(D3 + 3D2 + 4)y = 0$ (B) $(D3 + 3D2 - 4)y = 0$

(C) $(D3 - 3D2 + 4)y = 0$ (D) $(D3 - 3D2 - 4)y = 0$

50. The C-R equations in Cartesian are

(A) $u_x = v_y$, $u_y = -v_x$ (B) $-u_x = v_y$, $u_y = v_x$

(C) $u_x = -v_y$, $u_y = v_x$ (D) $u_x = -v_y$, $-u_y = v_x$

51. If v is harmonic and u is conjugate harmonic, then the analytic function is

(A) u + iv (B) – u + iv (C) v + iu (D) u – iv

52. If $\tan(\alpha + i\beta) = x + iy$ then $x^2 + y^2 + 2x \cot 2a =$ ----

(A) 1 (B) 0 (C) 2 (D) None

53. If C is the semi-circular arc above the real axis then $\int \frac{dz}{z}$ = ---

(A) πi (B) 2πi (C) – πi (D) –2πi

54. Laurent's expansion of $\frac{1}{(z-1)^2}$ valid for | z | > 1 is ------

(A) $\frac{1}{z2} + \frac{2}{z3} + \frac{3}{z4} + \frac{4}{z5} \pm$ ----- (B) $\frac{1}{z2} - \frac{2}{z3} + \frac{3}{z4} - \frac{4}{z5} \pm$ -----

(C) $\frac{1}{z2} + \frac{2}{z3} - \frac{3}{z4} + \frac{4}{z5} \pm$ ----- (D) $\frac{1}{z2} - \frac{2}{z3} - \frac{3}{z4} - \frac{4}{z5} \pm$ -----

55. Residue of $\frac{cos2x}{(z+1)2}$ at z = –1 is -----

(A) 2 cos2 (B) – 2 sin2 (C) 2 sin2 (D) – 2 cos2

56. A 2 liter liquid weighs 15N. Its specific gravity will be

(A) 0.764 (B) 7500Nm^{-3} (C) 764.5 kgm^{-3} (D) 764

57. The total force on a rectangular plane surface 4m wide and 6m deep which lies in vertical plane of water when its upper edge is horizontal and coinciding with water surface

(A) 1412640 N (B) 470880 N (C) 941760 N (D) 706320 N

58. The velocity of water is found by using a pitot-static tube. The stagnation pressure head and static pressure head was found to be 5m and 3m respectively. If the coefficient of tube is 0.97, the velocity of water is

(A) 4.34 ms^{-1} (B) 6.07 ms^{-1} (C) 5.67 ms^{-1} (D) 1.38 ms^{-1}

59. When fluid is passing through a circular conduit, the flow will laminar when its Reynolds number is

(A) less than 5×10^5 (B) more than 5×10^5

(C) less than 2300 (D) more than 2300

60. In Hagen Poiseuille flow the ratio of maximum velocity to average velocity will be

(A) 2 (B) 1.5 (C) 0.5 (D) 1.75

61. In Moody's diagram the abscissa and ordinate are respectively

(A) Reynolds number and relative roughness

(B) Friction factor and Reynolds number

(C) Relative roughness and Reynolds number

(D) Reynolds number and friction factor

62. Water flows through a pipe of diameter 300 mm and length 50m. The hydraulic mean depth (hydraulic radius) will be

(A) 0.3 m (B) 50 m (C) 0.075 m (D) 1.2 m

63. Water flows through a pipe of diameter 200 mm and length 65 m with a velocity of 2 ms^{-1}. If kinematic viscosity of water is 0.02×10^{-4} , the Reynolds number for the flow will be

(A) 9×10^5 (B) 2×10^5 (C) 3×10^5 (D) 5×10^5

64. If ratios of all forces acting on corresponding fluid particles and boundary surfaces in the two systems under comparison are same, then the similitude is called

(A) Geometric similitude
(B) Kinematic similitude
(C) Conditional similitude
(D) Dynamic similitude

65. A jet of water of diameter 60 mm strikes a stationary flat plate with a velocity of 30 ms^{-1}. The force exerted by jet on plate will be

(A) 84.8 N (B) 2544.7 N (C) 1766.8 N (D) 24963.5 N

66. The manometric efficiency of a centrifugal pump whose overall efficiency is 30 % while its mechanical efficiency is 60 % is

(A) 90 % (B) 0.18 % (C) 50 % (D) 30 %

67. To discharge large quantity of water in centrifugal pumps

(A) multistage pumps with impellers connected in parallel should be used
(B) manometric efficiency should be high
(C) delivery head should be high
(D) multistage pumps with impellers connected in series should be used

68. In centrifugal pump, the cavitation will take place when the pressure of the flowing fluid at any point in the flow is

(A) more than vapour pressure of the fluid
(B) less than vapour pressure of the fluid
(C) equal to vapour pressure of the fluid
(D) independent of vapour pressure of the fluid

69. The theoretical discharge of a single acting reciprocating pump running at 60 rpm delivering 0.02 m^3s^{-1} of water when the piston diameter is 200 mm and stroke length is 400 mm is

(A) 0.025 m^3s^{-1} (B) 1.508 m^3s^{-1} (C) 0.754 m^3s^{-1} (D) 0.0125 m^3s^{-1}

70. In reciprocating pump, negative slip occurs when

(A) delivery pipe is short and suction pipe is long
(B) delivery pipe is short and suction pipe is short
(C) delivery pipe is long and suction pipe is long
(D) delivery pipe is long and suction pipe is short

71. The energy possessed by water at inlet of reaction turbine will be

(A) kinetic energy only
(B) pressure energy only
(C) both kinetic energy and pressure energy
(D) static energy

72. In a reaction turbine, draft tube is used because

(A) the pressure at exit of the runner is more than atmospheric pressure

(B) the pressure at exit of the runner is equal to atmospheric pressure

(C) the pressure at exit of the runner is less than atmospheric pressure

(D) the pressure at inlet of the runner is less than atmospheric pressure

73. In a reaction turbine, speed ratio is 0.6 while head developed is 10 m. The tangential velocity of wheel at inlet will be

(A) 10.28 ms^{-1} (B) 8.4 ms^{-1}

(C) 6.356 ms^{-1} (D) 10 ms^{-1}

74. The spillway which has a crest in the form of an ogee or S- shape is

(A) chute spill way (B) free overfall spill way

(C) siphon spill way (D) overflow spill way

75. Which among the following is non structural flood mitigation measure

(A) Embankments, flood walls, sea walls

(B) Flood plain management and zoning

(C) Dams and reservoir

(D) Diversion of flood waters

76. Work done in compression is maximum if the process is

(A) Isothermal (B) $PV^{1.2} = C$ (C) adiabatic (D) $PV^{1.5} = C$

77. An air compressor compresses air from 0.98 bar to 4 bar and has a 4% of stroke clearance volume. If polytropic index is 1.25, volumetric efficiency will be

(A) 91.68 % (B) 61.98 % (C) 96 % (D) 82.83 %

78. With increase of delivery pressure the volumetric efficiency of reciprocating air compressor will

(A) decrease (B) increase

(C) first decreases and then increases (D) no change

79. The capacity of steam plant is expressed in terms of steam rate. Its units will be

(A) kg/h (B) kJ/kWh (C) kWh/kJ (D) kW/kg

80. With increase of mean temperature of heat addition, the efficiency of Rankine vapour power cycle will

(A) decrease

(B) independent of mean temperature of heat addition

(C) increase

(D) none of the above

81. With reheating, the rankine cycle efficiency will
(A) increase depending on maximum pressure
(B) decrease depending on minimum pressure
(C) no change
(D) may increase or decrease depending on mean temperature of heat addition

82. The following conclusion on efficiency(η) of gas power cycles working between same temperature limits can be drawn
(A) $\eta_{carnot} < \eta_{stirling} < \eta_{ericsson}$
(B) $\eta_{carnot} > \eta_{stirling} > \eta_{ericsson}$
(C) $\eta_{ericsson} < \eta_{stirling} < \eta_{carnot}$
(D) $\eta_{carnot} = \eta_{stirling} = \eta_{ericsson}$

83. The efficiency of gas power cycle working on Brayton is a function of
(A) pressure ratio only
(B) maximum temperature only
(C) maximum to minimum temperature ratio
(D) pressure ratio and maximum to minimum temperature ratio

84. The commonly used moderator in nuclear power plant is
(A) ordinary water (B) uranium (C) heavy water (D) thorium

85. The structure provided in the body of a dam or neat dam to relieve the reservoir of excess water is called
(A) penstock (B) spillways (C) surge tank (D) draft tube

86. Kaplan turbine is used
(A) when head of the water is high and volume of water is high
(B) when head of the water is low and volume of water is high
(C) when head of the water is low and volume of water is low
(D) when head of the water is high and volume of water is low

87. Pelton wheel turbine is used
(A) when head of the water is high and volume of water is high
(B) when head of the water is low and volume of water is high
(C) when head of the water is low and volume of water is low
(D) when head of the water is high and volume of water is low

88. The ratio of thermal power discharged to environment to electrical power output is called
(A) collector efficiency
(B) particulate efficiency
(C) pollution efficiency
(D) Thermal discharge index

89. The tariff method which charges the consumer according to his maximum demand and energy consumption is
(A) Hopkinson demand rate method
(B) Doherty rate method
(C) Wright demand rate method
(D) Block meter rate

90. The maximum demand of a power station is 96000 kW and the load in seven intervals of 6 hrs, 2 hrs, 4 hrs, 2 hrs, 4 hrs, 4 hrs and 2 hrs each measured in MW was 48, 60, 72, 60, 84, 96 and 48. The load factor will be

(A) 0.71 (B) 0.6 (C) 0.8 (D) 0.54

91. In a two-stroke cycle engine the operations namely suction compression, expansion, exhaust are completed in the number of revolutions of crankshaft equal to

(A) Four (B) Three (C) Two (D) One

92. In a four-stroke cycle petrol engine, during suction stroke

(A) Only air is sucked in (B) Only petrol is sucked in

(C) Mixture of petrol and air is sucked in (D) None of the above

93. Compression ratio of diesel engines may have a range

(A) 8-10 (B) 10-15

(C) 16-26 (D) None of the above

94. In S.I engine, to develop high voltage for spark plug

(A) Battery is installed (B) Distributer is installed

(C) Carburettor is installed (D) Iginition coil is installed

95. The knocking in S.I engines increases with

(A) Increase in inlet air temperature (B) Increase in compression ratio

(C) Increase in cooling water temperature (D) All of the above

96. The ignition quality of fuels for S.I engines is determined by

(A) Cetane number rating (B) Octane number rating

(C) Calorific value rating (D) Volatility of the fuel

97. Only rocket engines can be propelled to SPACE because

(A) They can generate very high thrust (B) They have high propulsion efficiency

(C) These engines can work on several fuels (D) They are not air-breathing

98. The power actually developed by the engine cylinder of an I.C engine is known as

(A) Brake power (B) Indicated power

(C) Actual power (D) Gear power

99. The brake power of the engine is the indicated power available

(A) At the brake pin (B) In the engine cylinder

(C) At the crankshaft (D) None of these

100. The ratio of the indicated thermal efficiency to the air standard efficiency is called

(A) Mechanical efficiency (B) Overall efficiency

(C) Volumetric efficiency (D) None of the above

101. The Morse test is used to find the indicated power of a
(A) Single cylinder petrol engine (B) Single cylinder diesel engine
(C) Multi-cylinder engine (D) None of these

102. Which does not constitute the theoretical cycle for the working of a practical I.C engine?
(A) Otto cycle (B) Diesel cycle (C) Dual cycle (D) Erricson cycle

103. A slow speed diesel engine theoretically operates on the principle of
(A) Heat addition at constant volume and Heat rejection at constant volume
(B) Heat addition at constant pressure and Heat rejection at constant volume
(C) Heat addition at constant pressure and Heat rejection at constant pressure
(D) Heat addition at constant volume and Heat rejection at constant pressure

104. For the same compression ratio and heat supplied, the air standard efficiency of an Otto cycle compared to that of a diesel cycle is
(A) Less (B) More (C) Equal (D) Unpredictable

105. For the same compression ratio and heat input, the cycles in decreasing order of thermal efficiency are
(A) Otto, dual, diesel (B) Diesel, otto, dual
(C) Dual, diesel, Otto (D) Otto, diesel, dual

106. Which of the following processes is not associated with diesel cycle?
(A) Constant volume (B) Constant pressure
(C) Isothermal (D) Adiabatic

107. A compression ignition engine working on an air standard Diesel cycle has the following particulars
Cylinder bore = 15 cm
Stroke = 25 cm
Clearance volume = $400cm^3$
The fuel injection takes place at a constant pressure of 5% of the stroke. The cut off ratio will be about
(A) 0.82 (B) 1.55 (C) 2.1 (D) 12.0

108. Stroke of an I.C engine equals
(A) Half the crank radius (B) The crank radius
(C) Twice the crank radius (D) Four times the crank radius

109. Velocity of flame propagation in the S.I engine is maximum for air-flame mixture which is _____ stoichiometric
(A) 10% richer than (B) Equal to
(C) More than 10%richer than (D) 10% leaner than

110. The two reference fuels used for cetane rating are
(A) Cetone and Iso-Octane (B) Cetone and tetra ethyl lead
(C) Cetane and n-heptane (D) Cetane and α-methyl naphthalene

111. The highest temperature during the cycle, in a vapor compression refrigeration system, occurs after

(A) Compression (B) Condensation (C) Expansion (D) Evaporation

112. The sub-cooling is a process of cooling the refrigerant in vapor compression refrigeration system

(A) Before compression
(B) After compression
(C) Before throttling
(D) After throttling

113. A simple saturated refrigeration cycle has the following state points Enthalpy after compression= 425 kJ/kg. Enthalpy after throttling=125 kJ/kg, enthalpy before compression=375 kJ/kg. The COP of refrigeration is given by

(A) 5
(B) 3.5
(C) 6
(D) Not possible to find with this data

114. Wet compression vapor compression refrigeration cycle means

(A) Vapor compression takes place in wet region
(B) Vapor compression in dry region, but evaporation in wet region
(C) Vapor compression in wet region, but leaves in super heated region
(D) None of the above

115. The order in which main components of vapor compression of refrigeration system are used is

(A) Compressor-Evaporator-Condenser-Throttle valve
(B) Compressor-Condenser-Evaporator-Throttle valve
(C) Compressor-Condensor-Throttle valve-Evaporator
(D) Compressor-Throttle valve-Evaporator-Condensor

116. Heat is rejected by the refrigerant, during vapor compression refrigeration in

(A) Condensor (B) Evaporator (C) Throttle Valve (D) Compressor

117. During sensible cooling, Wet bulb temperature

(A) Decreases
(B) Increases
(C) Remains constant
(D) Can decrease or increase

118. For saturated air,

(A) Wet bulb depression is zero
(B) Wet bulb depression is negative
(C) Wet bulb depression is positive
(D) Wet bulb depression can be either positive or negative

119. The temperature of air recorded by a thermometer, when it is not affected by the moisture present in it is called

(A) Wet bulb temperature
(B) Dry bulb temperature
(C) Dew Point Temperature
(D) None of these

120. The vertical and uniformly spaced lines on a psychometric chart indicate

(A) Dry bulb temperature
(B) Wet bulb temperature
(C) Dew point temperature
(D) Specific humidity

121. Specific humidity is defined as

(A) Mass of water vapor contained in air-vapor mixture per kg of dry air
(B) Mass of water vapor contained per kg of air-vapor mixture
(C) Mass of dry air contained per kg of air-vapor mixture
(D) None of the above

122. Room sensible heat factor is defined as:(RSH=Room sensible heat, RLH=Room Latent Heat)

(A) RSH / (RSH+RLH)
(B) RLH / (RSH+RLH)
(C) RSH / RLH
(D) None of the above

123. The relative humidity, during sensible heating

(A) Can increase or decrease
(B) Increases
(C) Decreases
(D) Remains constant

124. The relative humidity of air is defined as the ratio of

(A) Mass of water vapor in a given volume to the total mass of the mixture of air and water vapor
(B) Mass of water vapor in a given volume to the mass of water vapor, if air is saturated at the same temperature
(C) Mass of water vapor in a given volume to the mass of air
(D) Mass of air to the mass of water vapor in the mixture of air and water vapor

125. The curved lines on a psychometric chart indicate

(A) Dry bulb temperature
(B) Wet bulb temperature
(C) Specific humidity
(D) Relative humidity

126. The safe compressive load of a column having 300 mm external diameter and 20 mm thickness, factor of safety 5 and safe compressive stress 550 Nmm^{-2} is

(A) 1935.2 kN (B) 9676 kN (C) 1935.2 N (D) 9676 N

127. A 30 mm bar having a gauge length 200 mm, when subjected to a load of 100 kN produces a extension 0.139 mm. Its Young's modulus will be

(A) $2 \times 10^6 Nmm^{-2}$ (B) $4 \times 10^5 Nmm^{-2}$ (C) $2 \times 10^8 Nmm^{-2}$ (D) $2 \times 10^5 Nmm^{-2}$

128. For most metals, Poisson's ratio will be in the range of

(A) 0.25 to 0.35 (B) 0 to 1 (C) 0 to 0.5 (D) 0.5 to 1

129. The ratio of volumetric strain of sphere to strain in its diameter will be

(A) 2 (B) 1/3 (C) 3 (D) 1/2

130. When an element is in a state of simple shear, maximum direct stresses are induced on
(A) mutually parallel planes which are at 45^0 to the planes of pure shear
(B) mutually perpendicular planes which are parallel to the planes of pure shear
(C) mutually perpendicular planes which are perpendicular to the planes of pure shear
(D) mutually perpendicular planes which are at 45^0 to the planes of pure shear

131. The modulus of rigidity of a material whose Young's modulus is 200 Nmm^{-2} and poisson's ratio is 0.5 is
(A) 133.33 Nmm^{-2} (B) 80.67 Nmm^{-2} (C) 66.67 Nmm^{-2} (D) 242.67 Nmm^{-2}

132. Bending moment at any point on a beam subjected to transverse loading will be equal to
(A) Algebraic sum of moments of forces and moments of reactions on one side of the section (point)
(B) Algebraic sum of moments of forces and moments of reactions on both sides of the section (point)
(C) Algebraic sum of moments of forces on both sides of the section (point)
(D) Algebraic sum of moments of reactions on both sides of the section (point)

133. A simply supported beam of span 8 meters carry concentrated loads of 4 kN, 10 kN and 7 kN at distances of 1.5 meters, 4 meters and 6 meters from the left support. The shear force at right support will be
(A) 4 kN (B) 10 kN (C) 11 kN (D) 7 kN

134. Units of section modulus is
(A) mm (B) mm^4 (C) mm^3 (D) mm^2

135. The part of a member is said to be in pure bending if
(A) no bending moment exists in that part.
(B) no shear force and no bending moment exists in that part
(C) shear force and bending moment are maximum
(D) no shear force exists in that part

136. Moment of inertia of a rectangle of base 12 cm and height 14 cm about its base is
(A) 672 cm^4 (B) 2016 cm^4 (C) 914.67 cm^4 (D) 2744 cm^4

137. Polar moment of inertia of a square of side 6 cm is
(A) 108 cm^4 (B) 216 cm^4 (C) 432 cm^4 (D) 324 cm^4

138. The differential equation
EI (d^4y/dx^4) gives
(A) Bending moment (B) Shear force (C) Deflection (D) Rate of loading

139. A cantilever of length 4m carries a udl throughout its length. If slope at its free end is 1^o, then deflection at free end will be
(A) 39.27 mm (B) 286.34 mm (C) 52.36 mm (D) cannot be found

140. A circular shaft when subjected to equal and opposite end couples whose axes coincide with axis of the shaft is said to be in

(A) pure torsion
(B) pure bending
(C) combined bending and torsion
(D) none of the above

141. The efficiency in resisting torsional moments by hollow shaft when compared to solid shaft is

(A) less
(B) more
(C) equal
(D) cannot be determined

142. An open coiled helical spring is subjected to an axial force, the wire of the spring is subjected to

(A) Direct shear only
(B) Combined shear and bending only
(C) Combined shear bending and twisting
(D) Combined shear and twisting only

143. A helical spring is made of 12 mm diameter wire by winding it on a 120 mm diameter mandrel. If there are 10 active turns and modulus of rigidity of material is 8.2×10^4 N/mm^2, the spring constant will be

(A) 2.94 Nmm^{-1}
(B) 3.64 Nmm^{-1}
(C) 9.24 Nmm^{-1}
(D) 11.58 Nmm^{-1}

144. A 800 mm diameter pipe contains a fluid at a pressure of 3 Nmm^{-2}. If the safe stress in tension is 150 Nmm^{-2}, the minimum thickness of the pipe is

(A) 16 mm
(B) 2 mm
(C) 4 mm
(D) 8 mm

145. The effective length of the column of length 2.5 m, when one end is fixed and other end is free is

(A) 5 m
(B) 2.5 m
(C) 1.25 m
(D) 1.77 m

146. Two forces of magnitude $\sqrt{2}$ N and 2 N act at origin, each making 60^0 and 30^0 respectively with positive x axis. The angle made by their resultant with positive x axis will be

(A) 12.36^o
(B) 42.36^0
(C) 72.36^o
(D) 57.36^0

147. According to principle of transmissibility of force the external effect of force on a rigid body

(A) is minimum at its center of gravity
(B) is zero at its center of gravity
(C) is same for all points of application along its line of action
(D) is maximum at its center of gravity

148. A body is in equilibrium under action of three forces. The forces acting on it can be analyzed by

(A) Lami's theorem only
(B) Resolution of forces method only.
(C) Either by Lami's theorem or by resolution of forces method
(D) None of the above

149. A force of 2 N acts along positive y-axis and another force 2N acts along negative x-axis. The angle made by their resultant with positive x-axis will be

(A) 0^0
(B) 45^0
(C) 225^0
(D) 135^0

150. In a truss it was found that $2j < m + 3$, where j is number of joints and m is number of members, then the truss is said to be

(A) statistically indeterminate

(B) unstable

(C) stable

(D) no such conclusion can be drawn for a truss.

151. Pick the correct statement regarding analysis of forces in a truss

(A) Method of joints is used (when) as the forces at a joint are collinear

(B) Method of sections is preferred when the forces at imaginary cutting plane are non collinear

(C) Both are correct

(D) Both are wrong

152. A plane truss has five joints and six members. The truss is

(A) Perfect (B) Redundant

(C) Deficient (D) None of these

153. Principle of virtual work was developed by

(A) Mohr (B) Poiseuille (C) Euler (D) Johann Bernoulli

154. By principle of virtual work, the work done by the force is given by

{ dot(.) represents dot product, cross(x) represents cross product }

(A) $dU = F \cdot dr$ (B) $dU = F \times dr$

(C) $dU = F (dr) \tan \theta$ (D) $dU = F (dr) \cot \theta$

155. The velocity of a particle moving in a straight line is given by, $V = 2t^3 - t^2 + 10$. Its acceleration at $t = 6$ sec will be

(A) 406 ms^{-2} (B) 204 ms^{-2} (C) 308 ms^{-2} (D) 23 ms^{-2}

156. The range of a projectile is maximum when the angle of projection is

(A) 30^0 (B) 60^0 (C) 90^0 (D) 45^0

157. A body is projected with a velocity of 30 ms^{-1} at an angle of 30^0 to the ground. The vertical component of velocity at its maximum height will be

(A) 25.98 ms^{-1} (B) 0 ms^{-1} (C) 15 ms^{-1} (D) 30 ms^{-1}

158. The normal acceleration of a fly wheel of diameter 1.6 m rotating at 6 $rads^{-1}$ will be

(A) 28.8 $rads^{-2}$ (B) 9.6 ms^{-2} (C) 28.8 ms^{-2} (D) 9.6 $rads^{-2}$

159. The acceleration of a body can be found from

(A) area under velocity-time graph (B) slope of velocity-time graph

(C) area under distance-time graph (D) slope of distance-time graph

160. A body is just released from the window of a moving bus moving along a horizontal road. When observed by a person on the ground, the stone will hit the ground following a

(A) Parabolic path
(B) Straight line path
(C) hyperbolic path
(D) circular path

161. The component of acceleration directed towards center of curvature when a body moves around a curve is

(A) linear acceleration
(B) normal acceleration
(C) tangential acceleration
(D) total acceleration

162. The statement "The Impressed forces acting on any body are in dynamic equilibrium with the inertia forces of the particles of the body" is related to

(A) Impulse momentum principle
(B) Theorem of transmissibility of forces
(C) Lami's theorem
(D) D'Alembert's principle

163. Center of percussion is a point at which

(A) total weight of the body acts.
(B) center of mass acts
(C) resultant force of buoyancy acts
(D) if a blow is given, no reaction is felt at the point of suspension of the body

164. Two bodies having masses m and 4m are moving with same kinetic energy . The ratio of their linear momentum will be

(A) 1:4 (B) 4:1 (C) 1:2 (D) 1:1

165. In collisions, coefficient of restitution is defined as ratio of

(A) relative velocity of bodies before impact to relative velocity of bodies after impact.
(B) relative velocity of bodies after impact to relative velocity of bodies before impact.
(C) difference in velocity of heavier body before and after impact to difference in velocities of lighter body before and after impact
(D) difference in velocity of lighter body before and after impact to difference in velocities of heavier body before and after impact

166. A ball and a socket joint form a

(A) turning pair (B) rolling pair (C) sliding pair (D) spherical pair

167. Which of the following is an inversion of double slider crank chain?

(A) Coupling rod of a locomotive
(B) Pendulum pump
(C) Elliptical trammels
(D) Oscillating cylinder engine

168. The mechanism forms a structure, when the number of degrees of freedom (n) is equal to

(A) 0 (B) 1 (C) 2 (D) –1

169. In a 4-bar linkage, if the lengths of shortest, longest and the other two links are denoted by s, l, p and q, then it would result in Grashof's linkage provided that

(A) $l + p < s + q$ (B) $l + s < p + q$ (C) $l + p = s + q$ (D) $l + s = p + q$

170. The driving and driven shafts connected by a Hooke's joint will have equal speeds, if

(A) $\cos\theta = \sin\alpha$ (B) $\sin\theta = \pm\sqrt{\tan\alpha}$ (C) $\tan\theta = \pm\sqrt{\cos\alpha}$ (D) $\cot\theta = \cos\alpha$

Where

θ = Angle through which the driving shaft turns, and

α = Angle of inclination of the driving and driven shafts.

171. In a four bar chain or quadric cycle chain

(A) each of the four pairs is a turning pair

(B) one is a turning pair and three are sliding pairs

(C) three are turning pairs and one is sliding pair

(D) each of the four pairs is a sliding pair

172. A mechanism is having n links, then the number if instantaneous centres would be

(A) n (B) $\frac{n(n-1)}{2}$ (C) $\frac{n}{2}$ (D) $(n-1)$

173. The component of the acceleration, parallel to the velocity of the particle, at the given instant is called

(A) radial component (B) tangential component

(C) Coriolis component (D) axial component

174. The circle, with centre as the centre of the cam axis and radius such that it passes through the pitch point, is known as

(A) prime circle (B) base circle (C) pitch circle (D) pitch curve

175. For high speed engines, the cam follower should move with

(A) uniform velocity (B) simple harmonic motion

(C) uniform acceleration and retardation (D) cycloidal motion

176. The product of the circular pitch and diametral pitch is equal to

(A) 2π (B) π (C) $\frac{\pi}{2}$ (D) 1.0

177. The locus of a point on the circumference of a circle, which rolls without slipping on a fixed straight line, is known as

(A) involute (B) cycloid (C) hypo-cycloid (D) epicycloid

178. Interference can be avoided in involute gears with 20° pressure angle by

(A) cutting involute correctly (B) using as small number of teeth as possible

(C) using more than 20 teeth (D) using more than 8 teeth

179. The train value of a gear train is
(A) equal to velocity ratio of a gear train
(B) reciprocal of velocity ratio of a gear train
(C) always greater than unity
(D) always less than unity

180. When the axes of the first and last wheels of a compound gear train are co-axial, then the train is known as
(A) non-reverted gear train
(B) reverted gear train
(C) epicyclic gear train
(D) simple gear train

181. The ratio of the maximum fluctuation of speed to the mean speed is called
(A) fluctuation of speed
(B) maximum fluctuation of speed
(C) coefficient of fluctuation of speed
(D) minimum fluctuation of speed

182. Which one of the following is a spring loaded type governor?
(A) Watt governor
(B) Hartnell governor
(C) Porter governor
(D) Proell governor

183. The swaying couple is maximum or minimum when the angle of inclination of the crank to the line of stroke (θ) is equal to
(A) 45° and 135°
(B) 90° and 135°
(C) 135° and 225°
(D) 45° and 225°

184. A disturbing mass m_1 attached to a rotating shaft may be balanced by a single mass m_2 attached in the same plane of rotation as that of m_1 such that
(A) $m_1.r_2 = m_2.r_1$
(B) $m_1.r_1 = m_2.r_2$
(C) $m_1.m_2 = r_1.r_2$
(D) $m_1^2.m_2^2 = r_1^2.r_2^2$

185. A disc is spinning with an angular velocity ω rad/s about the axis of spin. The couple applied to the disc causing precession will be
(A) $\frac{1}{2} I.\ \omega^2$
(B) $I.\ \omega^2$
(C) $\frac{1}{2} I.\ \omega.\ \omega_p$
(D) $I.\ \omega.\ \omega_p$

186. The predominant structure of a hypereutectoid steel that has been quenched at above its upper critical temperature will be
(A) Austenite
(B) Martensite
(C) Troosite
(D) Sorbite

187. Fine grains of austenite
(A) decrease hardenability
(B) increase hardenability
(C) first decrease, then increase hardenability
(D) first increase, then decrease hardenability

188. A steel with 0.8% C is called
(A) hypoeutectoid steel
(B) hyper eutectoid steel
(C) eutectoid steel
(D) None of these

189. When a steel is heated to above its upper crictical temp, the structure produced is one of
(A) Martensite
(B) Austinite
(C) Pearlite
(D) Sorbite

190. Eutectoid reaction occurs at
(A) 600° C
(B) 723° C
(C) 1173°C
(D) 1493°C

191. Pearlite consists of
(A) 87% ferrite and 87% cementite
(B) 6.67% C and 93.33% Fe
(C) 13% C and 87% cementite
(D) 8.7% ferrite and 8.5% cementite

192. In a eutectic system, two elements are completely
(A) insoluble in solids and liquids
(B) soluble in liquid state
(C) soluble in solid state
(D) insoluble in liquid state

193. Recrystallization temperature for pure metals is
(A) $0.2T_m$ (B) $0.3T_m$ (C) $0.5T_m$ (D) $0.8T_m$

194. Upper critical temp for steel
(A) is constant
(B) depends upon the rate of heating
(C) varies according to the carbon in steel
(D) depends upon the rate of cooling

195. Carbon occurs in steel in the combined state with iron to form the component
(A) Ferrite (B) Cementite (C) Peralite (D) Bainite

196. TTT diagram indicates time, temp, transformation of
(A) Cementite (B) Peralite (C) Ferrite (D) Austenite

197. A body is subjected to a direct tensile stress of 300Mpa in one plane accompanied by a simple shear stress of 200Mpa. Max normal stress will be
(A) -100Mpa (B) 250Mpa (C) 300Mpa (D) 400Mpa

198. A body is subjected to two normal stresses $20kN/m^2$(tensile) and $10kN/m^2$(Compressive) acting perpendicular to each other.The max stress is
(A) $5kN/m^2$ (B) $10\ kN/m^2$ (C) $15\ kN/m^2$ (D) $20\ kN/m^2$

199. Resilence is the
(A) energy stored in a body when strained within the elastic limit
(B) energy stored in a body when strained up to breaking point
(C) max strain energy stored
(D) none of the above

200. The stress induced in a body, when suddenly loaded is the stress induced when the same load is applied
(A) equal to (B) one half (C) twice (D) four times

201. Rankine theory is used for
(A) brittle materials
(B) ductile materials
(C) elastic materials
(D) plastic materials

202. Guest's theory is used for
(A) brittle materials
(B) ductile materials
(C) elastic materials
(D) plastic materials

203. Failure of material is called fatigue when it fails

(A) at the elastic limit
(B) at the yield point
(C) below the elastic limit
(D) below the yield point

204. In cyclic loading, stress concentration is more serious in

(A) brittle materials
(B) ductile materials
(C) elastic materials
(D) plastic materials

205. The design calculations for members subject to fluctuating loads with the same factor of safety yields by using

(A) gerber relation
(B) soderberg relation
(C) goodman relation
(D) max stress relation

206. Chills are used in moulds to

(A) achieve the directional solidification
(B) reduce the possibility of blow holes
(C) reduce the freezing time
(D) smoothening the metal flow

207. Light impurities in the molten metal are prevented from reaching the mould cavity by providing a

(A) strainer (B) bottom well (C) skim bob (D) runner

208. Centrifugally cast products have

(A) large grain structure with high porisity
(B) fine grain structure with high density
(C) fine grain structure with low density
(D) segregation of slag in the casting

209. Which of the following materials will require the largest size of riser for the same size of casting?

(A) Al (B) CI (C) Steel (D) Cu

210. A spherical drop of molten metal of radius 2mm was found to solidify in 10sec. A similiar drop of radius 4mm will solidify in

(A) 14.14sec (B) 20sec (C) 28.30sec (D) 40sec

211. Disk shaped components are cast by

(A) true centrifugal casting
(B) semi centrifugal casting
(C) centrifuging
(D) die casting

212. Core prints are provided on patterns

(A) to support the core
(B) to locate the core in the mold
(C) to support as well as locate the core in the mold
(D) to fix the core

213. Toys and ornaments of non-ferrous alloys are made by

(A) die casting
(B) centrifugal casting
(C) permanent mold casting
(D) Slush casting

214. A riser is

(A) acts as stopper
(B) delivers molten metal from cavity
(C) delivers molten metal from basin
(D) compensate the shrinkage

215. A moving mandrel is used in

(A) wire drawing (B) tube drawing (C) metal cutting (D) forging

216. In blanking operation, the clearance provided is

(A) 50% on punch and 50% on die
(B) on die
(C) on punch
(D) depends on material

217. Metal extrusion process is generally used for producing

(A) varying solid sections
(B) varying hollow sections
(C) uniform solid and hollow sections
(D) varying solid and hollow sections

218. In metals subjected to cold working, strain hardening effect is due to

(A) slip mechanism
(B) twining mechanism
(C) dislocation mechanism
(D) fracture mechanism

219. Collapsable tubes are made by

(A) direct extrusion
(B) indirect extrusion
(C) impact extrusion
(D) Punching

220. Mass production of cooking utensils is done by

(A) metal spinning
(B) deep drawing
(C) coining
(D) embossing

221. EBW can be carried out in

(A) open air
(B) shield gas place
(C) inert gas chamber
(D) vacuum chamber

222. In thermit welding heat is generated

(A) from combustion
(B) by an arc
(C) by chemical reaction of Al and Fe oxide
(D) by alternate fuel

223. Holes in nylon buttons are made by

(A) EDM (B) CHM (C) USM (D) LBM

224. In ECM, MRR is due to

(A) corrosion (B) erosion (C) fusion (D) ion displacement

225. In EDM the work piece is connected to

(A) anode (B) cathode (C) earthing (D) switch

226. Appropriate instrument to check the flatness of slip gauges

(A) dial indicator
(B) pneumatic comparator
(C) optical comparator
(D) tool makers microscope

227. The fit on a hole-shaft pair system is specified as H7-h6, the type of fit is

(A) Clearance fit (B) sliding fit (C) push fit (D) force fit

228. A threaded nut of M16,ISO metric type having 2mm pitch with a pitch diameter of 14.701 mm is to be checked for its pitch diameter using two or three number of balls or rollers

(A) rollers of 2mm dia
(B) rollers of 1.55mm dia
(C) balls of 2mm dia
(D) balls of 1.55mm dia

229. A shaft of diameter 20(+0.05,-0.15)mm and a hole of diameter 20(+0.20,+0.10)mm when assembled would yield

(A) transition fit (B) interference fit (C) clearance fit (D) push fit

230. For angle measurement in metrology, the following pair can be used in conjunction with each other

(A) sine bar and vernier calipers
(B) bevel protractor and slip gauges
(C) slip gauges and sine bar
(D) bevel protractor and sine bar

231. Abbes principal of alignment is used to be followed in

(A) vernier calipers
(B) depth vernier
(C) internal caliper micrometer
(D) height vernier

232. The geometric tolerance that does not need a datum for its specification is

(A) concentricity
(B) runout
(C) perpendicularity
(D) flatness

233. Which one of the instruments is a comparator?

(A) tool makers microscope
(B) GO/NO gauge
(C) optical interferometer
(D) dial gauge

234. The flatness of a machine bed can be measured using

(A) vernier calipers
(B) auto collimeter
(C) height gauge
(D) tool makers microscope

235. Sine bar is used to measure

(A) angle
(B) surface roughness
(C) surface flatness
(D) deflection

236. External taper can be accurately measured with the help of
(A) slip gauges and sine bar (B) GO/NO gauge
(C) optical interferometer (D) dial gauge

237. A ring gauge is used to measure
(A) outside diameter but not the roundness
(B) roundness but not the outside diameter
(C) both outside diameter and roundness
(D) only external threads

238. What terms is used to designate the direction of the predominant surface pattern produced by machining operation?
(A) roughness (B) lay (C) waviness (D) cutoff

239. In the tolerance specification of 25D6, the letter D represents
(A) grade of tolerance (B) upper deviation
(C) lower deviation (D) type of fit

240. The M and E system in metrology are related to measurement of
(A) screw threads (B) flatness (C) angularity (D) surface finish

241. A block information in NC machine program means
(A) one row on tape (B) a word comprising several tapes
(C) one complete instructions (D) completion of job

242. NC contouring is an example of
(A) continuous path positioning (B) point to point positioning
(C) absolute positioning (D) incremental positioning

243. In NC part programming spindle speed of 730rpm will be coded by the magic-3 rules as
(A) S673 (B) S730 (C) S630 (D S037

244. The function of interpolator in a CNC machine controller is to
(A) control spindle speed (B) coordinates feed rates of axes
(C) control tool rapid approach speed (D) perform miscellaneous function

245. In CNC feed drive, a stepper motor with step angle of 1.8 degree drives a lead unit BLU for this drive is
(A) 10 microns (B) 20 microns (C) 40 microns (D) 100 microns

246. Feed motion can be provided with stepper motors in CNC
(A) lathe (B) drilling machine
(C) milling machine (D) grinding machine

247. Which type of motor is NOT used in axis or spindle drives of CNC machine tools?

(A) induction motor
(B) dc servo motor
(C) stepper motor
(D) linear servo motor

248. For generating Coons surface we require

(A) a set of grid points on the surface
(B) a set of grid control points
(C) four bounding curves defining the surface
(D two boundry curve points

249. The z-axis and x-axis of CNC lathe are provided with straight line controls, it is possible to carry out

(A) turning and facing
(B) turning, facing and taper turning
(C) turning, facing and thread cutting
(D turning, facing and drilling

250. Most common method of interpolation used in NC machining are

(A) linear and circular
(B) linear and parabolic
(C) circular and parobolic
(D circular and elliptic

251. In a unilateral system of tolerance, the tolerance is allowed on

(A) one side of the actual size
(B) one side of the nominal size
(C) both sides of the actual size
(D) both sides of the nominal size

252. Guest's theory is used for

(A) brittle materials
(B) ductile materials
(C) elastic materials
(D) plastic materials

253. Failure of a material is called fatigue when it fails

(A) at the elastic limit
(B) below the elastic limit
(C) at the yield point
(D) below the yield point

254. Two shafts will have equal strength, if

(A) diameter of both the shafts is same
(B) angle of twist of both the shafts is same
(C) material of both the shafts is same
(D) twisting moment of both the shafts is same

255. When a shaft is subjected to a bending moment M and a twisting moment T, then the equivalent twisting moment is equal to

(A) $M + T$ (B) $M^2 + T^2$ (C) $\sqrt{M^2 + T^2}$ (D) $\sqrt{M^2 - T^2}$

256. The frictional torque transmitted for uniform pressure, in case of a conical pivot bearing having semi-angle of the cone as θ, is equal to

(A) $\frac{\mu WR}{\sin\theta}$ (B) $\frac{\mu WR}{2\sin\theta}$ (C) $\frac{2\mu WR}{\sin\theta}$ (D) $\frac{2\mu WR}{3\sin\theta}$

257. The rolling contact bearings are known as

(A) thick lubricated bearings (B) plastic bearings

(C) thin lubricated bearings (D) antifriction bearings

258. Two parallel and coplanar shafts are connected by gears. This type of gear is called

(A) helical gear (B) spur gear (C) bevel gear (D) spiral gear

259. The helix angle for single helical gears ranges from

(A) 10° to 15° (B) 15° to 20° (C) 20° to 35° (D) 35° to 50°

260. When bevel gears having equal teeth and equal pitch angles connect two shafts whose axes intersect at right angle, then they are known as

(A) angular bevel gears (B) crown bevel gears

(C) internal bevel gears (D) mitre gears

261. If T_1 and T_2 are the tensions on the tight and slack side of a belt and θ is the angle of contact, then ratio of tension is given by

(A) $\frac{T_1}{T_2} = \mu\theta$ (B) $\frac{T_1}{T_2} = e^{\mu\theta}$ (C) $\frac{T_1}{T_2} = e^{1/\mu\theta}$ (D) $\frac{T_1}{T_2} = \mu e^{\theta}$

where, μ = Co-efficient of friction between the belt and pulley.

262. In order to have smooth operation, the minimum number of teeth on the smaller sprocket, for moderate speeds, should be

(A) 15 (B) 17 (C) 21 (D) 25

263. Two closed coil helical springs with stiffness k1 and k2 respectively are connected in series. The stiffness of an equivalent spring is given by

(A) $\frac{k1.k2}{k1+k2}$ (B) $\frac{k1-k2}{k1+k2}$ (C) $\frac{k1+k2}{k1.k2}$ (D) $\frac{k1-k2}{k1.k2}$

264. A leaf spring in automobiles is used

(A) to apply forces (B) to measure forces

(C) to absorb shocks (D) to store strain energy

265. A screw is specified by its

(A) major diameter (B) minor diameter

(C) pitch diameter (D) pitch

266. The transverse fillet welded joints are designed for

(A) tensile strength (B) compressive strength

(C) bending strength (D) shear strength

267. The maximum efficiency of a screw jack is a function of

(A) helix angle (B) angle of friction

(C) load lifted (D) effort

268. Oldham coupling is used to connect two shafts

(A) which are perfectly aligned
(B) which are not in exact alignment
(C) which have lateral misalignment
(D) whose axes intersect at a small angle

269. Which of the following is an example of friction clutch?

(A) disc clutch
(B) cone clutch
(C) centrifugal clutch
(D) all of the above

270. A brake commonly used in motor cars is

(A) shoe brake
(B) band brake
(C) band and block brake
(D) internal expanding brake

271. The potential which exists in a PN junction to cause drift of charge carriers is called

(A) Contact potential
(B) diffusion potential
(C) ionisation potential
(D) threshold potential

272. A diode which is formed by using lightly doped GaAs or silicon with metal is called

(A) Zener diode
(B) Schottky diode
(C) Varactor diode
(D) tunnel diode

273. Special types of diodes in which transition time and storage time are made small are called

(A) Snap diodes (B) Rectifier diodes (C) Storage diodes (D) Memory diodes

274. For ideal Rectifier and filter circuits, % regulations must be

(A) 1% (B) 0.1% (C) 5% (D) 0%

275. The value of current that flows through RL in a 'π' section filter circuit at no load is

(A) ∞ (B) 0.1mA (C) 0 (D) few mA

276. The relation between I_{CEO}, I_{CBO} and α is I_{CEO} =

(A) $\frac{I_{CB0}}{\alpha}$
(B) $\frac{I_{CB0}}{1+\alpha}$
(C) $\frac{I_{CB0}}{(1+\alpha)^2}$
(D) $\frac{I_{CB0}}{(1-\alpha)}$

277. Which performance parameter of a regulator is defined as the change in regulated load voltage due to variation in line voltage in a specified range at a constant load current?

(A) Load regulation
(B) Line regulation
(C) Temperature stability factor
(D) Ripple rejection

278. Switching regulators are series type regulators, which has _____ power dissipation & _____ efficiency.

(A) increased, increased
(B) increased, reduced
(C) reduced, increased
(D) reduced, reduced

279. The % load regulation of a power supply should be ideally _____ & practically _____.
(A) zero, small (B) small, zero (C) zero, large (D) large, zero

280. In large signal analysis of amplifiers
(A) The swing of the input signal is over a wide range around the operation point
(B) Operating point swings over large range
(C) stability factor is large
(D) power dissipation is large.

281. The condition for saturation in a BJT is
(A) $|I_B| \leq \left|\frac{I_C}{\alpha}\right|$ (B) $|I_B| \leq \left|\frac{I_C}{\beta}\right|$ (C) $|I_B| \geq \left|\frac{I_C}{\alpha}\right|$ (D) $|I_B| \geq \left|\frac{I_C}{\beta}\right|$

282. When the input is symmetrical, to operate the BJT in active region, the quiescent point is chosen
(A) at the top edge of the load line (B) at the bottom edge of the load line
(C) at the centre of the load line (D) can be chosen anywhere on the load line

283. Voltage divider bias or universal bias circuit is also known as
(A) self-bias circuit (B) collector bias circuit
(C) collector to base circuit (D) Fixed bias circuit

284. h-parameters are valid over a _____ frequency range
(A) R.F. (B) For DC only
(C) Audio frequency range (D) upto 1 MHz

285. The ratio of AC signal power delivered to the load to the DC input power to the active device as a percentage is called
(A) conversion (B) Rectification η
(C) power η (D) utilisation factor

286. Simplex method of solving linear programming problems uses
(A) all the points in the feasible region
(B) only the corner points in the feasible region
(C) intermediate points within the feasible region
(D) only the interior points in the feasible region

287. In PERT, the distrubition of activity times is assumed to be
(A) normal (B) gamma (C) beta (D) exponential

288. In PERT analysis a critical activity has
(A) max float (B) zero float (C) max cost (D) min cost

289. The cost of providing service in a queuing system increases the
(A) increased mean time in the queue (B) increased arrival rate
(C) decreased mean time in the queue (D) decreased arrival rate

290. In the assembly line for assembling toys, five workers are assigned tasks which take times of 10, 8, 6, 9 and 10 min respectively. The balance delay for line is

(A) 43.3% (B) 14.8% (C) 14.0% (D) 16.3%

291. Production flow analysis is a method of identifying part families that uses data

(A) engineering drawing (B) production schedule

(C) bill of materials (D) route sheet

292. Which of the following is a non quassi static processes?

(A) Gradual compression of gas inside a piston cylinder arrangement

(B) Expansion of gas in a cylinder under constant pressure

(C) Free or unrestricted expansion of gas

(D) Rapid leakage of air from a bicycle tyre

293. If there are m sources and n destinations in a transportation matrix, the total number of basic variables in a basic feasible solution is

(A) m+n (B) m+n-1 (C) m+n+1 (D) m

294. A tie for leaving in simplex procedure implies

(A) optimality (B) cycling (C) no solution (D) degeneracy

295. A single bay car wash with a poisson arrival rate and exponential service time has cars arriving at an average rate of 10 min. What is the system utilization?

(A) 1.00 (B) 0.67 (C) 0.40 (D) 0.24

296. We have 6 jobs, each of which must go through the machine A and B in the order AB. Processing times are given in the table

job	1	2	3	4	5	6
M1	3	12	5	2	9	11
M2	8	10	9	6	3	1

What will be the min closed time?

(A) 41 min (B) 42 min (C) 43 min (D) 44 min

297. Following data refers to the activities of a project, where node 1 refers to the start and node 5 refers to the end of the project

Activity	Duration (days)
1-2	2
2-3	1
4-3	3
1-4	3
2-5	3
3-5	2
4-5	4

CP in the network is

(A) 1-2-3-5 (B) 1-4-3-5 (C) 1-2-3-4-5 (D) 1-4-5

298. The symbol used for transport in work study is

(A) arrow (B) T

(C) rectangle (D) inverted triangle

299. A set of five jobs is to be processed on a single machine. The processing time in days is given. The holding cost for each job is Rs. K per day

Job	Processing time
P	5
Q	2
R	3
S	2
T	1

A schedule that minimizes the total inventory cost is

(A) T-S-Q-R-P (B) P-R-S-Q-T (C) T-R-S-Q-P (D) P-Q-R-S-T

300. Setup cost do not include

(A) labour cost of setting up machines (B) ordering cost

(C) maintenance cost (D) cost of processing the work