GPSC
Exe Engineer

Previous Year Paper

(Civil)

04 Oct, 2023

CEP-1

PROVISIONAL ANSWER KEY

Name of The Post	**Executive Engineer (Civil), Class-1 and Deputy Executive Engineer (Civil), Class-2 (GWSSB)**
Advertisement No	**41/2020- 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).

ઉમેદવારે 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 વેબસાઈટ 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 જોઇએ. 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.

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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**

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**

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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

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

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. 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. '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

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

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. 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. 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

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

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. 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. 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

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

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. 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. 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)

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

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. 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. 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

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

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. 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

M

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

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

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. 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. 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

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

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. 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. 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)

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

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. 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. 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

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

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. 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. 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

077. ભારતમાં અન્ન સુરક્ષા અંગેનો હક એ ..... છે.

(A) કાનૂની હક (B) મૂળભૂત હક

(C) બંધારણીય હક (D) ઉપરના પૈકી એકપણ નહીં

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

(A) Legal Right (B) Fundamental Right

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

M

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. રામકિષ્ણ 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

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

M

101. Matrix A is called an Involuntary Matrix if it satisfies the condition that

(A) $A^2 = A$ (B) $A^2 = I$

(C) $A^x = 0$ (D) $A^2 = 0$

102. Two matrices $P = [p_{ij}]$ and $Q = [q_{ij}]$ are said to be equal if

(A) Matrix P and Q are of same size.

(B) The elements in the corresponding places of two matrices are the same.

(C) Matrix P and Q are of same size and the elements in the corresponding places of two matrices are different.

(D) Matrix P and Q are of the same size and the elements in the corresponding places of two matrices are same.

103. Select the condition for which the system of linear non-homogeneous equation AX = B has consistent and infinite number of solutions. (Where r(A) is the rank of the matrix A, r (A B) is the rank of augmented matrix A and B, r is rank of the system and n is the number of unknown variable of the system)

(A) r(A) = r (A B) = r < n (B) r(A) = r (A B) = r > n

(C) r(A) > r (A B) = r = n (D) r(A) < r (A B) = r < n

104. In a Real symmetric matrix, all the eigen values are

(A) Real (B) Imaginary

(C) Zero (D) Negative

105. If a 3 × 3 matrix has eigen values 2, 4 and 5, then the determinant of the matrix will be

(A) 11 (B) 10

(C) 40 (D) 25

106. A vector F is called irrotational when F satisfies the following condition.

(A) $\nabla \times F = 0$ (B) $\nabla \times F = 1$

(C) $\nabla \cdot F = 0$ (D) $\nabla \cdot F = 1$

107. Divergence of the vector $x^2z\vec{i} + xy\vec{j} - yz^2\vec{k}$ at (1,1,1) is

(A) 0 (B) 1

(C) 3 (D) 5

108. There are two non-zero vectors A and B. If $A \cdot B = 0 = 0$, then the angle between two vectors in degree is equal to

(A) 0 (B) 45

(C) 90 (D) 180

109. If $Q = \int_1^{\infty} x^{-3}\, dx$, then the value of Q is

(A) $\frac{-1}{2}$ (B) $\frac{1}{2}$ (C) 1 (D) 0

110. If a function is continuous at a point then

(A) the limit of the function may not exist at that point.

(B) the function must be derivable at that point.

(C) the limit of the function at that point tends to infinity.

(D) the limit must exist at that point and the value of limit should be same as the value of the function at that point.

111. Given that $y = x^3 + 2x + 100$, then the value of $\frac{dy}{dx}$ at x = 1.

(A) 5 (B) 4

(C) 3 (D) 2

112. It is known that two roots of the nonlinear equation $x^3 - 6x^2 + 11x - 6$ are 1 and 2. The third root will be.

(A) 5 (B) 6

(C) 3 (D) 0

113. The differential equation $4\left(\frac{d^3y}{dt^3}\right) + 10\left(\frac{dy}{dt}\right) + y^2 + 10 = x$ has

(A) Order = 1, Degree = 3 (B) Order = 2, Degree = 1

(C) Order = 3, Degree = 1 (D) Order = 3, Degree = 0

114. The solution of at $\frac{dy}{dx} = -\frac{x}{y}$ x = 1 and y = $\sqrt{3}$ is

(A) $x - y^2 = -2$ (B) $x + y^2 = -4$

(C) $x^2 - y^2 = -2$ (D) $x^2 + y^2 = 4$

115. If $x = \sqrt{-1}$ then the value of x^x is.

(A) 1 (B) x

(C) $e^{\pi/2}$ (D) $e^{-\pi/2}$

116. Solutions of Laplace equation having continuous second-order partial derivatives are called

(A) Error functions (B) Conjugate harmonic functions

(C) Biharmonic functions (D) Harmonic functions

117. A dice is thrown twice. What is the probability that the sum is neither 8 nor 9?

(A) 1/9 (B) 5/36

(C) 1/4 (D) 3/4

118. If P(X) = 1/2 , P(Y) = 1/4 , and P(XY) = 1/20 P(X∩Y) = 1/20 then the value of P(Y/X) is

(A) 1/5 (B) 1/10

(C) 1/8 (D) 1/6

119. Which of the following methods is most adopted in solving the ordinary differential equations?

(A) Gauss elimination method

(B) Newton-Raphson method

(C) Range-Kutta method

(D) Simpson's rule

120. Using Simpson's 1/3 rule for numerical integration, the consecutive points are joined by

(A) Line

(B) Polynomial with power 1/3

(C) Polynomial with power 3

(D) Parabola

121. The variance of an activity may be calculated by using following formula.

(A) $\left(\frac{t_p - t_0}{3}\right)^2$ (B) $\left(\frac{t_p - 2t_0}{6}\right)^{-1}$

(C) $\left(\frac{t_p - t_0}{6}\right)$ (D) $\left(\frac{t_p - t_0}{6}\right)^2$

122. The critical path has

(A) Infinite slack (B) Minimum slack

(C) Maximum slack (D) Zero slack

123. Interfering float is equal to

(A) Total float – Free float

(B) Total float – Independent float

(C) Free float – Independent float

(D) Independent float + Activity time

124. Milestone chart is an improvement over

(A) Bar chart (B) PERT schedule

(C) CPM schedule (D) All of the above

125. Total float

(A) affects only preceding activity.

(B) affects only succeeding activity.

(C) affects both preceding and succeeding activity.

(D) is independent of preceding and succeeding activity.

126. Negative slack occurs when

(A) Events follow the schedule.

(B) Dummy activities are large in number.

(C) Deficiency of resources occurs.

(D) Dummy activities do not exist.

127. Which one of the following project management techniques is deterministic in nature?

(A) CPM (B) PERT

(C) GERT (D) LCES

128. The cost slope is defined as

(A) $\frac{crash\ cost–normal\ cost}{crash\ time}$

(B) $\frac{crash\ cost}{normal\ time – crash\ time}$

(C) $\frac{crash\ cost – normal\ cost}{normal\ time}$

(D) $\frac{crash\ cost – normal\ cost}{normal\ time – crash\ time}$

129. The reduction in project time normally results in

(A) Decreasing the direct cost but increasing indirect cost

(B) Increasing the direct cost but decreasing the indirect cost

(C) Increasing both - the direct and indirect cost

(D) Decreasing both - the direct and indirect cost

130. Site order book is used for recording.

(A) Instruction of the executive engineer

(B) Construction measurement

(C) Requisition of plants and equipment

(D) Indents for material to be ordered.

131. Earliest finish time of an activity is equal to

(A) Earliest start time + activity time

(B) Earliest start time – activity time

(C) Latest start time + activity time

(D) Latest finish time – activity time

132. PERT network analysis is _____ oriented.

(A) event

(B) activity

(C) float

(D) slack

133. In cost time optimization of a project, the project can be crashed by expediting

(A) all the activities on the network

(B) all the activities on the sub critical path

(C) all the critical activities having minimum cost slope

(D) all the activities on the critical path

134. Total project cost versus time curve is a/an

(A) S-shaped curve

(B) U-shaped curve

(C) Parabola

(D) Straight line

135. The constraints in case of resource smoothing operation would be

(A) Project duration time

(B) Resources

(C) Both project duration time and resources

(D) None of the above

136. The CPM network is updated

(A) at regular interval

(B) at fixed times

(C) at any time

(D) whenever there is difference in the planned activity and actual performance

137. At work site, statistical quality control of concrete means

(A) Measurement of risks to eliminate failures.

(B) Applying the theory of probability to sample testing or inspection

(C) Reduction in wastage of inspection costs

(D) Reduction in costs for the removal of defects

138. The probability of completion of any activity within its expected time is

(A) 25%
(B) 50%
(C) 75%
(D) 82.5%

139. During the construction period, price variation clause in contracts caters to

(A) Increase in rates of only important materials.
(B) Variation in cost in material element, labour element and petrol-oil-lubricant element
(C) Variation in total cost of the project on an ad hoc basis
(D) Rate of inflation

140. Sinking fund is

(A) the fund for rebuilding a structure when its economic life is over.
(B) the fund raised to meet maintenance costs.
(C) the total sum to be paid to the municipal authorities by the tenants.
(D) the fund reserved for providing additional structures and carry out structural modifications.

141. Which of the following is a basic principle of total quality management?

(A) Continuous process improvement
(B) Continuous defect elimination
(C) Continuous value enhancement
(D) Continuous productivity improvement

142. Who is often referred to as the 'Father of Quality Control'?

(A) J.M. Juran
(B) Armand Feigenbaum
(C) Edward Deming
(D) Kaoru Ishikawa

143. Which of the following is a type of Variable Control Chart?

(A) P-chart
(B) X-chart
(C) C-chart
(D) U-chart

144. The percentage of defects which consumers are willing to accept as 'good' is defined by the

(A) Consumer risk level
(B) Producer risk level
(C) Acceptance quality level
(D) Average outgoing quality

145. Malcolm Baldrige National Quality Award (MBNQA) is for

(A) Total Quality Management
(B) Total Quality Control
(C) Total Productive Maintenance
(D) Organization of International Standards

146. To maintain six sigma quality, a process must not produce more than _____ defects per million opportunities.

(A) 6.2 (B) 5.0

(C) 4.8 (D) 3.4

147. Six Sigma is a business-driven, multi-dimensional structural approach for:

(i) Reducing process variability

(ii) Increasing customer satisfaction

(iii) Lowering defects

(A) Only (i) (B) (i) and (ii)

(C) (ii) and (iii) (D) (i), (ii) and (iii)

148. ISO 14010 to ISO 14015 is for

(A) Environmental Labelling

(B) Environmental Auditing and related activities

(C) Environmental performance evaluation

(D) Life cycle assessment

149. An environmental impact refers to

(i) any change to the environment, whether adverse or beneficial

(ii) those activities, products or services which can pollute the environment.

(iii) poor environmental management that results in pollution

(A) Only (i) (B) Only (ii)

(C) (ii) and (iii) (D) (i), (ii) and (iii)

150. The inventory which is built up due to anticipated demand of product in future is called as

(i) Anticipation Inventory

(ii) Seasonal Inventory

(iii) Transit or pipeline inventory

(iv) Buffer or safety stock

(A) Only (i) (B) (i) and (ii)

(C) (ii) and (iii) (D) (i), (ii), (iii) and (iv)

151. Which of the following shows the Shortage or Stockout Cost (SC) estimation?

(A) Number of units short – Shortage cost/unit

(B) Number of units short + Shortage cost/unit

(C) Number of units short × Shortage cost/unit

(D) Number of units short / Shortage cost/unit

152. A circle will appear on an isometric drawing as a(n) _____

(A) Circle
(B) Cycloid
(C) Ellipse
(D) Parabola

153. Select the type of line which is part of a dimension in drawings

(A) Break lines
(B) Cutting plane lines
(C) Extension lines
(D) Phantom lines

154. The cube can also be called a regular _____

(A) Hexahedron
(B) Isocohedron
(C) Octahedron
(D) Tetrahedron

155. Select the tool which can be used to draw a 90-degree angle

(i) Drafting machine
(ii) Protractor
(iii) 30/60 triangle

(A) Only (i)
(B) (i) and (ii)
(C) (i) and (iii)
(D) (i), (ii) and (iii)

156. How many tangents can be drawn to a given circle, parallel to a given line?

(A) 1
(B) 2
(C) 4
(D) ∞ (infinite)

157. What will be the top view of an egg when it is placed vertically on a horizontal plane?

(A) Circle
(B) Ellipse
(C) Oval
(D) Sphere

158. A circular plate of a negligible thickness is placed vertically to a horizontal plane; the front view will be:

(A) Circle
(B) Ellipse
(C) Line
(D) Rectangle

159. Steel is used as reinforcing material in RCC because

(A) its thermal expansion is almost equal to that of concrete
(B) its thermal expansion is lower to that of concrete
(C) it can easily manufactured in the factory
(D) it's the cheapest tensile load bearing substance

160. Atoms bond primarily to

(A) Increase their potential energy and lose stability
(B) Increase their potential energy and gain stability
(C) Reduce their potential energy and lose stability
(D) Reduce their potential energy and gain stability

161. Aluminum alloys are widely used in the aircraft industry due to its

(A) Good corrosion resistance
(B) Good weldability
(C) High strength
(D) Low specific gravity

162. The purest form of iron is

(A) Cast iron
(B) Pig iron
(C) Stainless Steel
(D) Wrought iron

163. A material is considered to be linear elastic if

(A) Energy $\propto$ Displacement
(B) Energy $\propto$ Load
(C) Load $\propto$ Displacement
(D) Load $\propto$ 1/ Displacement

164. Poisson's ratio of a perfectly plastic material is

(A) 0.25
(B) 0.50
(C) 1.0
(D) – 1.0

165. Progressive deformation of a material at a slow rate for applied constant loading is called as

(A) Creep
(B) Consolidation
(C) Fatigue
(D) Yielding

166. Resilient Modulus (Mr) can be represented by:

(A) $Mr = \frac{Stress}{Strain}$
(B) $Mr = \frac{Deviatric\ stress}{Recoverable\ strain}$
(C) $Mr = \frac{Direct\ stress}{Linear\ strain}$
(D) $Mr = \frac{Direct\ stress}{Volumetric\ strain}$

167. Breaking of a wire due to repeated bending is an example of

(A) Creep failure
(B) Ductile failure
(C) Fatigue failure
(D) Shear failure

168. Bauschinger effect refers to

(A) anelastic deformation
(B) the dependence of yield stress on path and direction
(C) the Hysteresis loss during loading and unloading
(D) the unchanged stress-strain characteristics

169. In general, the true stress-strain curve is _____ when compared with the conventional stress-strain curve.

(A) above and left
(B) above and right
(C) below and left
(D) below and right

170. For the isentropic materials, the stress-strain relationship is known as

(A) Coulomb's law
(B) Hooke's law
(C) Newton's law
(D) Ohm's law

171. The viscous component of viscoelastic material is modelled as _____

(A) Dashpot
(B) Locknut
(C) Spring
(D) Plunger

172. Study of materials at cryogenic level deals with temperatures around _____

(A) – 45°C
(B) – 90°C
(C) – 180°C
(D) – 360°C

173. The face-centered cubic (FCC) crystal structure possesses _____ atomic packing factor.

(A) 0.63
(B) 6.30
(C) 0.74
(D) 7.40

174. The basic source of magnetism is due to

(A) Charged particles alone
(B) Magnetic dipoles
(C) Magnetic domains
(D) Movement of charged particles

175. Annealing is generally done on

(A) High carbon steels
(B) Medium carbon steels
(C) Low carbon steels
(D) Steel castings

176. Flame hardening can only be performed on steels with a minimum of _____ carbon content.

(A) 0.4%
(B) 0.8%
(C) 1.2%
(D) 1.6%

177. The factor of safety for brittle materials (having elongation less than 5%) is based on

(A) Endurance limit
(B) Limit of proportionality
(C) Ultimate stress
(D) Yield stress

178. Select the welding process in which no filler metal is used

(A) Autogenous
(B) Fusion
(C) Heterogeneous
(D) Homogeneous

179. The refractory powder used in ceramic mold casting is _____

(A) Argon
(B) Magnesia
(C) Zircon
(D) Silicon carbide

180. Which one of the following is NOT an output device?

(A) Monitor
(B) Plotter
(C) Printer
(D) Scanner

181. What is a "firewall" in a computer network ?

(A) A web browsing software
(B) A system designed to prevent unauthorized access
(C) An operating system of the computer network
(D) The physical boundary of the network

182. Modern Information and Communication Technologies (ICT) includes

(i) Digital library
(ii) Multimedia projector
(iii) Multimedia personal computer

(A) Only (i)
(B) (i) and (ii)
(C) (ii) and (iii)
(D) (i), (ii) and (iii)

183. Consider the following statements w.r.t. Cloud Computing:

(i) Private cloud describes a "cloud services" that can be accessed only by a pre-defined group of people
(ii) Private cloud provides elastic behavior as well as scalability
(iii) Scalability is that feature of cloud computing that alters the service to change in size or volume so as to meet user's needs
(iv) A cloud environment can be accessed from anywhere globally as long as the user has access to the internet.

Which of the above statements are correct?

(A) (i), (ii) and (iii)
(B) (i), (ii) and (iv)
(C) (ii) and (iii)
(D) (i), (ii), (iii) and (iv)

184. Which of the following values is/are not considered as moral value(s)?

(i) Integrity
(ii) Honesty
(iii) Respectfulness
(iv) Hard-working

(A) (i) and (ii)
(B) (iii) and (iv)
(C) (i), (ii), (iii) and (iv)
(D) None of the four options

185. Whistle blowing is the exposure of abuses for

(A) Protecting public interest
(B) Personal interest
(C) Organizational gains
(D) None of the above

186. Plagiarism is

(i) the representation of another author's language, thoughts, ideas, or expressions as one's own original work
(ii) Using the intellectual property of others without their permission

(A) Only (i)
(B) Only (ii)
(C) Both (i) and (ii)
(D) Neither (i) nor (ii)

187. Work ethics in an organization can be improved by

(i) Appointing formal ethical committees to look into ethical issues
(ii) Establishing a code of ethics
(iii) Teaching ethics in training programs

(A) Only (i)
(B) (i) and (ii)
(C) (i) and (iii)
(D) (i), (ii) and (iii)

188. In India, when is the National Pollution Prevention Day observed?

(A) 22nd April
(B) 05th June
(C) 2nd December
(D) 13th December

189. Which of the following air pollutant is not considered while calculating the Air Quality Index?

(A) Ozone
(B) NO_2
(C) SO_2
(D) CO_2

190. The theme of the World Meteorological Day for the year 2021 was

(A) The Ocean, our climate and weather
(B) Climate and Water
(C) The Sun, the Earth and the weather
(D) Weather-ready, Climate-smart

191. Unified Mobile Application for New-age Governance (UMANG) is a Digital India initiative is associated with

(A) a platform for all Indian Citizens to access pan India e-Gov services
(B) children's education by enhancing interaction between schools as well as parents
(C) a platform offering online courses for school and college students
(D) a platform to provide High Quality Educational Channels through DTH (Direct to Home) across the length and breadth of the country

192. Which of the following process is used for the production of Biodiesel oils and fats?

(A) Fermentation
(B) Transesterification
(C) Distillation
(D) None of the above

193. Which substance is used as a primary fuel in Fuel Cells?

(A) Oxygen
(B) Hydrogen
(C) Lithium
(D) Phosphorus

194. An area comprising not less than _____ metres around hospitals, educational institutions and courts may be declared as silence area / zone.

(A) 50
(B) 100
(C) 250
(D) 500

195. _____ air pollutants have been notified in the National Ambient Air Quality Standards 2009 under the Environmental Protection Act 1986

(A) 11
(B) 12
(C) 13
(D) 14

196. Which of the following is/are a part of the National Action Plan on Climate Change (NAPCC)

(i) National Water Mission
(ii) National Solar Mission
(iii) National Mission for a Green India
(iv) National Mission for Sustaining the Himalayan Ecosystem

(A) (i) and (ii)
(B) (ii) and (iii)
(C) (i), (iii) and (iv)
(D) (i), (ii), (iii) and (iv)

197. Which of the following statement is /are correct about Government Instant Messaging System (GIMS)?

(i) It is designed and developed by Telecom Regulatory Authority of India (TRAI)
(ii) It is an Indian equivalent of popular messaging platforms, such as WhatsApp and Telegram, for secure internal use.

(A) Only (i)
(B) Only (ii)
(C) Both (i) and (ii)
(D) Neither (i) nor (ii)

198. To deal with the problem of air pollution recently, Supreme Court of India has directed the Central Government to look into the feasibility of introducing vehicles based on _____

(A) Hydrogen cell technology.
(B) Oxygen cell technology.
(C) Recycling cell technology.
(D) Renewable cell technology

199. Which of the following is/are correct with respect to targets under the National Solar Mission?

(i) Solar power generation capacity addition target of 100,000 MW by the year 2022.

(ii) The target principally comprises 60 GW Rooftop and 40 GW through Large and Medium Scale Grid Connected Solar Power Projects.

(A) Only (i)
(B) Only (ii)
(C) Both (i) and (ii)
(D) Neither (i) nor (ii)

200. The term 'Dark sky reserve' is related to:

(A) an area in space with high concentration of artificial satellites
(B) an area kept free of light pollution
(C) an area of high ozone layer depletion
(D) an area of high particulate pollution completely obstructing the sunlight

_____

CEP-2
PROVISIONAL ANSWER KEY

Name of The Post	**Executive Engineer (Civil), Class-1 and Deputy Executive Engineer (Civil), Class-2 (GWSSB)**
Advertisement No	**41/2020- 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).

ઉમેદવારે 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 વેબસાઈટ 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 જોઇએ. 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.

M

001. Which of the following statement(s) is/are TRUE for 'Boulder-Clay'?

(i) It is an unstratified deposit formed by melting of a glacier

(ii) It is generally well graded

(iii) It can be easily densified by compaction

(A) Only (i)
(B) (i) and (ii)
(C) (ii) and (iii)
(D) (i), (ii) and (iii)

002. Both 'Porosity' and 'Void Ratio' are measures of denseness of soils, however in soil engineering, it is more convenient to use

(A) void ratio because when the volume of the soil mass changes only the numerator changes and the denominator remains constant

(B) void ratio because when the volume of the soil mass changes only the denominator changes and the numerator remains constant

(C) porosity because when the volume of the soil mass changes both the numerator and the denominator change proportionately

(D) porosity because when the volume of the soil mass changes only the numerator changes and the denominator remains constant

003. For determining the water content of soils containing significant amount of organic matter, the temperature range recommended for overdrying is

(A) 60° – 80° C
(B) 90° – 100° C
(C) 100° – 110° C
(D) 110° – 120° C

004. Sand Bath method for determination of water content of soil is a

(A) Rapid but not very accurate method
(B) Slow but very accurate method
(C) Rapid and accurate method
(D) Slow and not very accurate method

005. Which of the following is not a method for determination of Mass Density of soil?

(A) Sand replacement method
(B) Water balloon method
(C) Radiation method
(D) Calcium-carbide method

006. Particle size distribution of soils finer than _____ size is determined by sedimentation analysis

(A) 4.75 mm
(B) 150 µm
(C) 75 µm
(D) 7.5 µm

007. In a Hydrometer test for particle size distribution analysis if the temperature is more than the standard temperature, then

(A) the suspension is lighter and the temperature correction is positive

(B) the suspension is lighter and the temperature correction is negative

(C) the suspension is denser and the temperature correction is positive

(D) the suspension is denser and the temperature correction is negative

008. In a 'Gradation Curve' representing the distribution of particles of different sizes in a soil mass

(A) the percentage finer than a given size is plotted as abscissa on log-scale and the particle size as ordinate on natural scale

(B) the percentage finer than a given size is plotted as ordinate on log-scale and the particle size as abscissa on natural scale

(C) the percentage finer than a given size is plotted as abscissa on natural scale and the particle size as ordinate on log-scale

(D) the percentage finer than a given size is plotted as ordinate on natural scale and the particle size as abscissa on log-scale

009. For a well-graded soil, the value of coefficient of curvature is

(A) less than 1 (B) between 1-3

(C) between 3-5 (D) greater than 5

010. A soil at water content equal to plastic limit has a Consistency Index of

(A) 0% (B) 50%

(C) 100% (D) 200%

011. Activity of a soil is the ratio of

(A) Plasticity Index and percentage of clay fraction

(B) Consistency Index and percentage of clay fraction

(C) Plasticity Index and percentage of sand fraction

(D) Consistency Index and percentage of sand fraction

012. Of the 4 soil type A-1, A-2, A-3 and A-4 (classified as per the American Association of State Highway and Transportation Official), which one would be most suitable as a highway material or subgrade?

(A) A-1 (B) A-2

(C) A-3 (D) A-4

013. Which of the following factor(s) affect the permeability of the soil?

(i) structure of the soil mass

(ii) degree of saturation of the soil

(iii) presence of adsorbed water

(A) Only (i) (B) (i) and (ii)

(C) (ii) and (iii) (D) (i), (ii) and (iii)

014. Fluctuation in water table level

(A) causes change in the pore water pressure and the corresponding change in the effective stress

(B) causes change in the pore water pressure but the effective stress remains the same

(C) does not change the pore water pressure but changes the effective stress

(D) neither changes the pore water pressure nor the effective stress

M

015. Which of the following statement(s) is/are TRUE for the Quick Sand Condition?

(i) Any cohesionless soil can become 'quick' when the upward seepage force is large enough to carry the soil particles upward

(ii) Quick Sand condition may develop in gravel when the hydraulic gradient exceeds the critical gradient

(A) Only (i)
(B) Only (ii)
(C) Both (i) and (ii)
(D) Neither (i) nor (ii)

016. What is the intensity of the active earth pressure at a depth of 5.0 m in dry sand with an angle of shearing resistance of 30° and unit weight of 18 kN/m^3?

(A) 270 kN/m^2
(B) 120 kN/m^2
(C) 90 kN/m^2
(D) 30 kN/m^2

017. The 'Stability Number' for an infinite slope of clay at a depth of 10 m which has a cohesion of 1 t/m^2 and unit weight of 2 t/m^3 will be

(A) 0.05
(B) 0.5
(C) 5
(D) 20

018. Standard Penetration Test is used to determine

(i) consistency of clays

(ii) undrained shear strength of soft sensitive clays

(iii) drain shear strength of fine loose sand

(A) Only (i)
(B) (i) and (ii)
(C) (ii) and (iii)
(D) (i), (ii) and (iii)

019. Vane Test is associated with which of the following terms?

(A) Grain Size analysis
(B) Shear strength
(C) Bearing capacity
(D) Compaction

020. Which of the following factors does not affect the bearing capacity of the cohesive soils?

(A) Width of the footing
(B) Depth of the footing
(C) Density of the soil
(D) Angle of the shearing resistance of the soil

021. In a plate load test on a soil, at a particular magnitude of settlement, it was observed that the bearing pressure beneath the footing is 50 kN/m^2 and the perimeter shear is 25 kN/m. What will be the corresponding load capacity of a 3 m square footing at the same settlement?

(A) 375 kN
(B) 750 kN
(C) 1000 kN
(D) 1500 kN

022. Which of the following statement(s) is/are true?

(i) The group efficiency of a pile group may be more than 100%

(ii) Friction piles are also called as floating piles

(iii) Minimum number of piles to qualify as a pile group is 4

(A) Only (i)
(B) (i) and (ii)
(C) (ii) and (iii)
(D) (i), (ii) and (iii)

023. Which of the following statement is not true regarding the effect of the addition of lime to the swelling soils?

(A) their Liquid Limit increases
(B) their Plastic Limit increases
(C) their Shrinkage Limit increases
(D) their swelling potential decreases

024. Strap footings are used

(A) for restricting the settlement of soft clays
(B) for restricting damages due to volume changes of swelling soils
(C) for transferring the moment in between two adjacent footings
(D) when columns are very close to the property line

025. End bearing piles are used when

(A) there is a strong soil in surface layer
(B) there is weak surface layer followed by rock at a shallow depth below the ground
(C) the swelling soil in surface layer extends upto few meter below the ground level
(D) there is a weak heterogeneous surface soil layer

026. A square pile of section 30 cm × 30 cm and length 5.0 m penetrates a deposit of clay having $c = 5\ kN/m^2$ and the mobilizing factor m = 0.8. What is the load carried by the pile by skin friction only?

(A) 24
(B) 48
(C) 120
(D) 240

027. In case of a pile foundation, negative skin friction may occur at a load which is

(A) lower than the designed load
(B) higher than the designed load
(C) equal to the designed load
(D) of any magnitude

028. Which technique of stabilization for sub-base is preferred for a heavy plastic soil?

(A) Cement stabilization
(B) Mechanical stabilization
(C) Lime Stabilization
(D) Bitumen Stabilization

029. In case of piles resting on a rock, the minimum centre-to–centre spacing shall be _____ times the respective pile diameter

(A) 1.5
(B) 2.0
(C) 2.5
(D) 3.0

030. Which theory for determining the Ultimate Bearing Capacity of soils is based on the assumption that a strip footing place on the ground surface sinks vertically downwards into the soil at failure?

(A) Rankine's Theory
(B) Terzaghi's Theory
(C) Prandtl's Theory
(D) Skempton's Theory

031. Which of the following is the fastest seismic wave?

(A) Love wave
(B) Rayleigh wave
(C) Parallel wave
(D) Shear wave

032. In a geological study, the angle between the line in an inclined plane and the horizontal in a vertical plane is called as

(A) Rake (B) Strike

(C) Plunge (D) Pitch

033. A location where an earthquake originates is termed as

(A) Hypocenter (B) Epicenter

(C) Horst (D) Source

034. When the hanging wall moves down relative to the footwall, the fault is called as a

(A) Reverse fault (B) Strike slip fault

(C) Normal fault (D) Thrust fault

035. Which of the following is a rock?

(A) Hematite (B) Quartz

(C) Chert (D) Graphite

036. A chord scale is used for measuring _____

(A) angles (B) curved lines

(C) straight lines (D) areas

037. Correction due to the tape being laid along a slope

(A) is always positive

(B) is always negative

(C) can be positive or negative

(D) depends on whether the measurement is down the slope or upwards the slope

038. Prismatic compass is an instrument to measure

(A) the vertical angle between the two lines (B) the horizontal angle between the two lines

(C) the magnetic bearing of the lines (D) the true bearing on the lines

039. The magnetic bearing of a line AB in a map is given as 67°30′. The magnetic declination at that time was 3°30′ W. If the present declination is 1°30′ E, the magnetic bearing of the line at present is

(A) 62°30′ (B) 69°00′

(C) 71°00′ (D) 72°30′

040. In the method of repetition for measuring horizontal angles, to rotate the instrument without changing the reading

(A) lower clamp screw is tightened and upper clamp is loosened

(B) lower clamp is loosened and the upper clamp screw is tightened

(C) any one of the clamp screws is loosened

(D) both the clamp screws are loosened

041. Which of the following statements are true for a telescopic alidade?

(i) Telescopic alidade consists of a telescope which provides a very accurate line of sight

(ii) The telescope is fitted onto an A-frame which is fitted onto a heavy rule

(iii) The telescope may be provided with a spirit level to help level the table

(A) Only (i) (B) (i) and (ii)

(C) (ii) and (iii) (D) (i), (ii) and (iii)

042. The departure of a line of a traverse is

(A) the deviation in the alignment of the line

(B) the projection of the line on the east-west direction

(C) the project of the line on the north-south meridian

(D) the project of the line in any reference direction

043. The sum of external angles of an n-sided traverse is

(A) n × right angles (B) 2n × right angles

(C) (2n – 4) × right angles (D) (2n + 4) × right angles

044. The three consecutive reading taken from a level are 1.325 m, 0.985 m and 2.546 m. If the instrument was shifted after the first reading, the rise or fall of the last point is

(A) 1.221 m rise (B) 1.221 m fall

(C) 1.561 m rise (D) 1.561 m fall

045. An arithmetic check for checking the reduction of the level data in the height of collimation method is that 'Last R.L. – First R.L.' is equal to

(A) sum of back sights – sum of intermediate sights

(B) sum of intermediate sights – sum of fore sights

(C) sum of back sights – sum of fore sights

(D) sum of back sights and fore sights – sum of intermediate sights

046. Which of the following statement(s) is/are true?

i. The effect of the curvature is to make the staff reading higher than what it should be

ii. The effect of the curvature is to make the staff reading lower than what it should be

iii. The line of sight, which is horizontal, gets refracted due to atmospheric influences and bends down with concavity towards earth surface and make the staff reading lower than what it should be

iv. The line of sight, which is horizontal, gets refracted due to atmospheric influences and bends up with convexity towards earth surface and make the staff reading higher than what it should be

(A) Only (i) (B) Only (iii)

(C) (i) and (iii) (D) (ii) and (iv)

M

047. Hypsometry is a method of

(A) Surveying of water bodies

(B) Determining of elevations based on the boiling point of liquids

(C) Measuring distances

(D) Finding temperatures at different heights

048. One hectare is equal to

(A) 100 m^2 (B) 1000 m^2

(C) 10000 m^2 (D) 100000 m^2

049. Area obtained by which of the following methods will give the same value

(A) Average ordinate method and trapezoidal rule method

(B) Trapezoidal rule method and parabolic rule method

(C) Trapezoidal rule method and coordinate method

(D) Parabolic rule method and coordinate method

050. Contour Interval is

(A) the horizontal distance between the contours in a contour map

(B) the difference in the elevation between the two successive contours

(C) the distance between the points of a contour life whose elevations are to found

(D) the distance between the level and a point selected for contouring

051. Clinometer is a hand-held instrument used for

(A) rough measurement of vertical angles (B) precise measurement of vertical angles

(C) rough measurement of horizontal angles (D) precise measurement of horizontal angles

052. The box sextant can be used to

(A) enlarge or reduce plans (B) measure distances

(C) determine reduced levels of given points (D) measure angles and set gradients

053. Vertical control in surveying means

(A) using precise levelling instruments (B) accurately measuring the vertical angles

(C) accurately establishing the benchmarks (D) accurately establishing the contour lines

054. Using the usual notations, Centrifugal Ratio is given by

(A) v/(gr) (B) v^2/g

(C) v/r (D) $v^2/(gr)$

055. The process of turning the telescope about the vertical axis in a horizontal plan is called as

(A) transiting (B) swinging

(C) setting (D) centering

056. As per the latest edition of The International System of Units, kilogram is defined

(A) by an absolute mass of 1 liter of water at 4 °C

(B) by the mass of an artefact IPK (International Prototype of the Kilogram), which is a golf-ball size object consisting 90% of platinum and 10% iridium

(C) by the mass of ice made up from one liter of water and measured at ice point

(D) by taking the fixed numerical value of the Planck constant

057. The Resultant force R of two non-orthogonal forces P and Q is 25 N and the angle between R and P is 45°. The forces P and Q are

(A) P = 15 N & Q = 20 N

(B) P = 12.5 N & Q = 12.5 N

(C) P = 20 N & Q = 15 N

(D) unable to be decided from the given data

058. An upward force of 150 N is acting at coordinate (0,0) and a downward force of 100 N is acting at coordinate (5,0). The Resultant of these two forces will pass from a point whose coordinate is

(A) (2,0)

(B) (-2,0)

(C) (10,0)

(D) (-10,0)

059. A horizontal force of 100 N is required to just hold the block against a wall from falling down. Coefficient of friction between the surfaces of the block and the wall is 0.25. What is the weight of the block?

(A) 25 N

(B) 100 N

(C) 250 N

(D) Can't be computed due to insufficient data

060. A rectangular plate of size 100mm × 50mm has its centroid at coordinate (0,0). If a circular cut-out of radius 10 mm having its centre at (-20,0); and a square cut-out of 17 mm × 17 mm having its centroid at (20,0) are cut from the given plate, then the new centroid of the plate will

(A) move towards left

(B) move towards right

(C) remains at (0,0) only

(D) move upwards

061. If the Second Moment of Area of a square section (having horizontal base) about its vertical centroidal axis is denoted by MI_1, and the Second Moment of Area of the same square section about the axis passing from its diagonal is denoted by MI_2, then which of the following is correct?

(A) $MI_1 = MI_2$

(B) $MI_1 < MI_2$

(C) $MI_1 > MI_2$

(D) The relation depends upon the dimension of the square

062. The Second Moment of Semicircular Area about its vertical centroidal axis having its horizontal as base is (where diameter D and radius R)

(A) $\pi D^4/32$

(B) $\pi D^4/64$

(C) $\pi D^4/128$

(D) $0.11\ R^4$

M

063. Bar AB of uniform cross-section and material throughout the length is fixed at point A. It is subjected to axial force of P at free end B. Simultaneously another force of 100 N opposite to direction of P is applied at midpoint of bar AB. What is value of force P, if after application of both the loads, point B remains at the same initial position?

(A) 0
(B) 50 N
(C) 100 N
(D) 200 N

064. Stress-strain curve (upto proportional limit) of material A and B makes an angle of 30° and 60° respectively with horizontal. What is the relation between Modulus of Elasticity E of both these materials?

(A) $E_A = 2E_B$
(B) $E_B = 2E_A$
(C) $E_A = 3E_B$
(D) $E_B = 3E_A$

065. Breaking stress of a wire having circular cross-section depends upon

(A) Amount of applied force
(B) Material of the wire
(C) Shape of the cross-section
(D) Radius of the wire

066. Which of the following is also called as the True Stress?

(A) First Piola – Kirchhoff Stress
(B) Second Piola – Kirchhoff Stress
(C) Biot Stress
(D) Cauchy Stress

067. In three dimensions, Mohr's stress plane in general has three circles. What happens to it when all the principal stress components become equal?

(A) It reduces to a point
(B) It has two non-overlapping circles
(C) One of the circles become an ellipse
(D) It has three overlapping circles

068. If the bulk modulus of a material is twice of its modulus of rigidity then the Poisson's ratio of the material will be

(A) 1/7
(B) 2/7
(C) 3/7
(D) 4/7

069. Which of the following theories of failure represents its yield surface as a rectangular shape?

(A) Rankine Theory
(B) St. Venant's Theory
(C) Tresca Theory
(D) Beltrami's Theory

070. If an element is subjected to pure shearing stress of 100 MPa, then the Maximum normal stress and the maximum shear stress in MPa will be ____ & _____ respectively.

(A) 0, 0
(B) 0, 100
(C) 100, 0
(D) 100, 100

071. Using strain gauges, the number of strain readings needed on a plane surface to determine the principal strains and their directions is / are

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

072. With usual notations, shear stress in the beam is denoted by

(A) My/I
(B) MI/y
(C) Iy/M
(D) None of the above

073. Shear Centre of a Tee section is located

(A) at the centroid of Tee section
(B) at the centre of the web of Tee section
(C) in the flange of Tee section
(D) outside the flange of Tee section

074. A stepped solid circular shaft A-B-C is fixed at A and C. The diameter of part AB is twice that of part BC, while length and material of both the parts are same. If a torsional moment T is applied at junction B, shear stress induced in outermost layer of shaft AB is

(A) same as that of shaft BC
(B) twice than that of shaft BC
(C) half than that of shaft BC
(D) sixteen times that of shaft BC

075. A stepped circular shaft A-B-C is fixed at A. Twisting moment of 2T is applied at C in clockwise direction, and T is applied at B in anticlockwise direction. Which of the following is correct direction of rotation for points B and C?

(A) B – Anticlockwise, C – Clockwise
(B) B – Clockwise, C – Anticlockwise
(C) B – Clockwise, C – Clockwise
(D) B – Anticlockwise, C – Anticlockwise

076. How many number of 'Point of Contraflexure' are present for both sides overhanging beam subjected to concentrated load at one of the free ends? (Neglect self weight of the beam)

(A) 0
(B) 1
(C) 2
(D) 3

077. When subjected to UDL throughout the span, what is the ratio of Maximum Bending Moment developed anywhere in the Simply Supported beam to the Maximum Bending Moment developed anywhere in the Propped Cantilever beam?

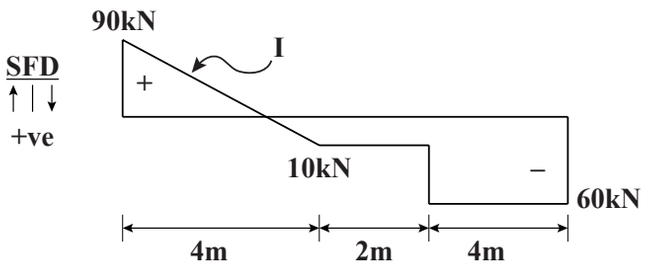
(A) 2/3
(B) 3/2
(C) 2
(D) 1

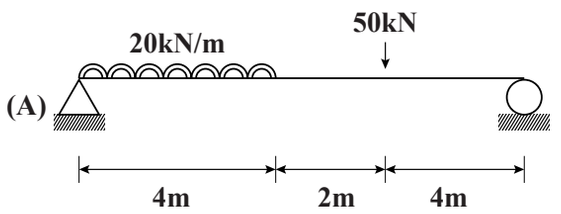
078. A Simply Supported Beam AB is subjected to a Uniformly Varying Load throughout the span having ordinate of w kN/m at point A and zero at point B. Which of the following statement(s) is/ are correct for this beam?

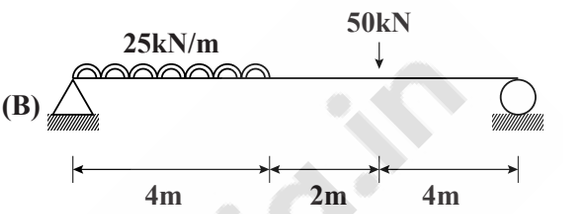
(i) Slope of Shear Force Diagram at point A is less than that at point B.
(ii) Slope of Bending Moment Diagram at point A is less than that at point B.

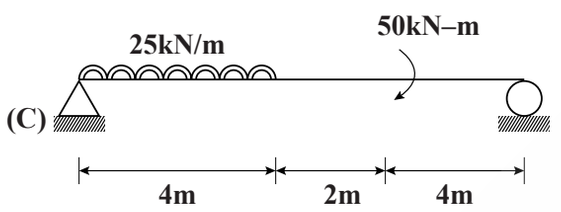
(A) (i) only
(B) (ii) only
(C) (i) and (ii)
(D) Neither (i) nor (ii)

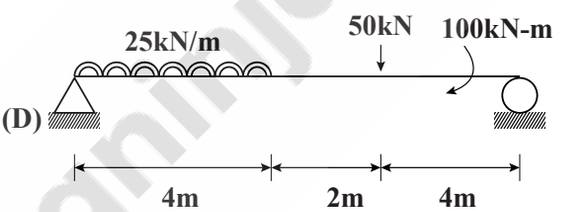
079. For the Shear Force Diagram shown in the figure, loading diagram is











080. Which of these statement(s) is/are correct?

(i) Design of Statically Determinate beam gives lesser cross sectional dimensions than Statically Indeterminate beam.

(ii) Kinematic Indeterminacy can be negative.

(iii) Static Indeterminacy can be negative.

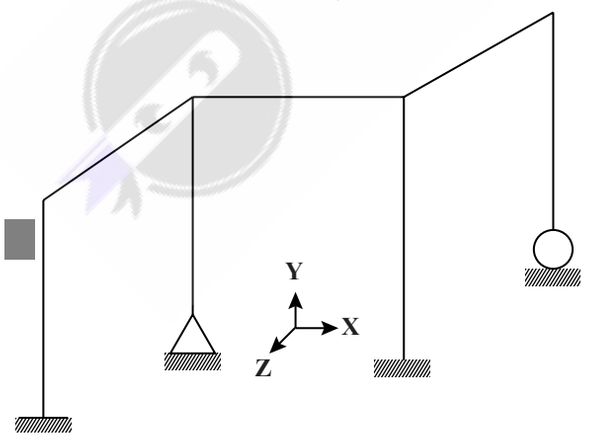
(A) (i) and (ii)

(B) (ii) and (iii)

(C) (iii) only

(D) (i), (ii) and (iii)

081. Total Static Indeterminacy of the given Space Frame is:



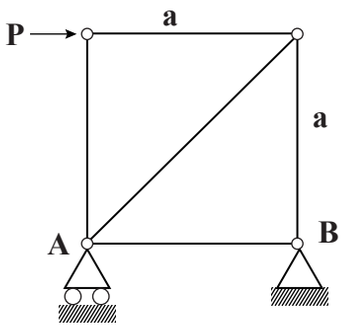
(A) 3

(B) 6

(C) 10

(D) 13

082. Force in the member AB for the given truss system is



(A) P (Compressive)
(B) $\sqrt{2}$ P (Tensile)
(C) $\sqrt{2}$ P (Compressive)
(D) zero

083. If a Cantilever Beam of length L is subjected to a moment of M at its midpoint, then the Slope at the free end will be

(A) (ML)/(EI)
(B) (ML)/(2EI)
(C) (ML)/(3EI)
(D) (ML)/(8EI)

084. If a Fixed beam of span L is subjected to moment of M at its midpoint, then the Fixed End Moment produced will be

(A) M
(B) M/2
(C) M/4
(D) M/L

085. For a Simply Supported Beam of span 10 m, which of the following Influence Line Diagrams (ILD) contain(s) maximum ordinate value as 1?

(i) ILD of Support Reaction
(ii) ILD of Shear Force at section located at 0.4L from the support
(iii) ILD of Bending Moment at midpoint of the beam

(A) (i) only
(B) (i) and (ii)
(C) (iii) only
(D) (i), (ii) and (iii)

086. Point P is situated at 3L/4 distance from the left support of a Simply Supported beam having span L. If a UDL of length shorter than L is moving on the beam from left to right, maximum bending moment at P will occur when the UDL has crossed the point P by

(A) ¼ of its length
(B) ½ of its length
(C) ¾ of its length
(D) Its full length

087. As per Kani's Method, sum of Displacement Factors at a joint, while analysing frames with fixed bases, must be

(A) 0
(B) –1
(C) –0.75
(D) –1.5

088. Beam A-B-C has a fixed support at A, a roller support at B, and a free end at C. Length and Flexural Rigidity of AB and BC are the same. As per Moment Distribution Method, what is the Distribution Factor for moment M_{BA} at point B towards span BA?

(A) 3/4 (B) 4/7

(C) 3/7 (D) 1

089. Beam A-B-C has a fixed support at A, a roller support at B, and a free end at C. Length of AB is 5m and BC is 1m. A UDL of *w* kN/m is acting on part AB and a point load of 10 kN is acting at point C. Moment M_{BA} at point B towards span BA

(A) is equal to 10 kN.m (B) is equal to zero

(C) is more than 10 kN.m (D) depends upon magnitude *w* of UDL

090. Which of the following is also known as Method of Least Work?

(A) First theorem of Moment Area Method (B) Second theorem of Moment Area Method

(C) Castigliano's First theorem (D) Castigliano's Second theorem

091. Which of the following statements are correct with reference to methods of analysis?

(SI = Static Indeterminacy, KI = Kinematic Indeterminacy)

(i) Force method is more suitable when SI is greater than KI.

(ii) Force method is more suitable when SI is less than KI.

(iii) Displacement method is more suitable when SI is greater than KI.

(iv) Displacement method is more suitable when SI is less than KI.

(A) (i) & (iii) (B) (i) & (iv)

(C) (ii) & (iii) (D) (ii) & (iv)

092. Which of the following methods considers this assumption: "In a storey, the intensity of axial stress in a column is proportional to its horizontal distance from the centre of gravity of all the columns in that storey."?

(A) Portal Method – Version I (B) Portal Method – Version II

(C) Cantilever Method (D) Stiffness Centre Method

093. When a Statically Determinate Structure undergoes differential settlements, the structure

(A) develops support reactions

(B) induces moments of same direction at both the adjacent supports

(C) induces moments of opposite direction at both the adjacent supports

(D) does not develop any support reaction

094. The span of a cable, suspended between two supports at same level, is 150 m and its sag is 15 m. The cable is subjected to a UDL of 2 kN/m throughout the length. If the temperature rises by 25°C, the horizontal reaction at the support will

(A) increase (B) decrease

(C) remain same (D) become zero

095. Maximum Bending Moment produced in a Three-hinged Semicircular Arch of radius R, subjected to Uniformly Distributed Load w throughout the span, is

(A) $wR^2/8$ (B) $2wR^2/(3\pi)$

(C) $wR^2/2$ (D) 0

096. Which of the following pairs of Shapes and their Shape Factors is/are correct?

(i) Circular Section – 2.34

(ii) Triangular Section – 1.5

(iii) Rectangular Section – 1.7

(A) Only (i) (B) Only (ii)

(C) Only (iii) (D) None of the above

097. Which of the following statements is/are correct for stresses developed in hemispherical Dome?

(i) Meridional stress in entire dome is of compressive nature.

(ii) Circumferential Hoop stress in upper part of the dome is of tensile nature.

(iii) Circumferential Hoop stress in lower part of the dome is of compressive nature.

(A) (i) only (B) (i) and (ii)

(C) (ii) and (iii) (D) (i), (ii) and (iii)

098. Which of the following Structural Forms do not have uniform stress over the depth of the section?

(A) Membrane (B) Shell

(C) Plate (D) Arch

099. Which of the following statements is/are correct?

(i) Neglecting axial forces, statically determinate real beams have statically determinate conjugate beams.

(ii) Neglecting axial forces, statically indeterminate real beams have unstable conjugate beams.

(A) (i) only (B) (ii) only

(C) Both (i) and (ii) (D) Neither (i) nor (ii)

100. Which of the following is NOT an example of Indeterminate Structures?

(A) Fixed Beam (B) Continuous Beam

(C) Two-hinged Arch (D) Beam overhanging on both sides

101. A cross-section, which can develop plastic moment but has inadequate plastic rotation capacity needed for formation of a plastic collapse mechanism of the member, is known as

(A) Slender Section (B) Semi-compact Section

(C) Compact Section (D) Plastic Section

102. Characteristic Yield Stress refers to the minimum value of stress, below which not more than _____% of yield stress values of tested samples are expected to occur.

(A) 2.5 (B) 5.0

(C) 7.5 (D) 10.0

103. The stress to which high strength friction grip bolts are pre-tensioned is known as

(A) Ultimate Stress
(B) Prying Stress
(C) Stress Range
(D) Proof Stress

104. Net tensile area of threaded bolt at root of the thread is approximately _____ % of the gross area.

(A) 68
(B) 78
(C) 88
(D) 98

105. The size of the Bolt Hole for the bolt of 24 mm nominal diameter is

(A) 24.0 mm
(B) 26.0 mm
(C) 27.0 mm
(D) 28.0 mm

106. Which of the following should not be considered as a criterion for designing the bolted joints with axially loaded members?

(A) The length of joint should be as small as possible to save material on cover plates and gusset plates.
(B) The centre line of all the members meeting at a joint should coincide at one point only.
(C) The reduction in area due to bolt holes can be minimized by arranging them in a zig-zag form.
(D) The number of bolts should be decreased gradually towards the joint.

107. According to IS 800:2007, the main function of a Diagonal Stiffener in a plate girder is

(A) to provide torsional restraint to beams and girders at supports
(B) to transmit tensile forces applied to a web through a flange
(C) to prevent local crushing of the web due to concentrated loading
(D) to provide local reinforcement to a web under shear and bearing

108. Which of the following statement(s) is / are correct for the Castellated Beams?

(i) For the same amount of bending strength, Castellated Beams are lighter than Rolled Sections.
(ii) When very high requirements are set for fire resistance, Castellated Beams are preferred in place of Rolled Sections.
(iii) Castellated Beams are preferred than Rolled Sections because of less possibility of occurrence of Vierendeel mechanism.

(A) (i) only
(B) (i) and (ii)
(C) (ii) & (iii)
(D) (i), (ii) and (iii)

109. In a bolted gusseted base, critical section for the design of thickness of the base plate is considered at

(A) edge of the column
(B) outer edge of the gusset plate
(C) centroid of the gusset angle
(D) root of the fillet of the gusset angle

110. Which of the following statements are correct for Double Angle Struts?

(i) Two angles on the opposite side of the gusset plate will be economical than the two angles on the same side of the gusset plate, keeping same legs connected with gusset plate in both the cases.

(ii) Two unequal angles with the shorter leg connected to the gusset plate provides economical solution compared to the same angles with the longer leg connected to the gusset plate.

(iii) For strut having equal angles, Star angles give economical solution compared to other configurations.

(A) (i) and (ii)
(B) (ii) and (iii)
(C) (i) and (iii)
(D) (i), (ii) and (iii)

111. To account for shear deformation effects, the effective slenderness ratio of a battened column is increased by

(A) 5%
(B) 10%
(C) 15%
(D) 20%

112. Two ISMC300 are placed back-to-back to fabricate a battened column. If the distance between the innermost connecting bolts for batten is 300 mm, the minimum thickness of the batten plate required is

(A) 4 mm
(B) 5 mm
(C) 6 mm
(D) 8 mm

113. If an axially loaded column is machined for full bearing, the fasteners connecting the column to the base plate of gusseted base are designed for

(A) Erection load only
(B) 25% of the column load
(C) 50% of the column load
(D) 100% of the column load

114. Which of the following statement(s) is/are correct for a steel beam?

(i) In practical cases, it's observed that the beam carries a load lower than its plastic moment capacity due to the effects of strain hardening.

(ii) A cross section subjected to co-existing bending and high shear has reduced moment resistance in the presence of high shear.

(iii) Bending stresses in flange are lower near the junction of a web and higher at points away from the web.

(A) (i)
(B) (ii)
(C) (ii) and (iii)
(D) None of the above

115. As per IS-875(Part 3):2015, Importance Factor for Cyclonic Region (k_4) for the industrial structure to be located on Gujarat Coast is

(A) 1.00
(B) 1.15
(C) 1.30
(D) 1.50

116. From the energy dissipation point of view, which of the following bracing systems perform better compared to the others?

(A) Eccentric bracing
(B) Diagonal bracing
(C) Cross bracing
(D) Chevron bracing

117. The value of imperfection factor for Buckling Class A is _____.

(A) 0.34
(B) 0.75
(C) 0.21
(D) 0.5

118. Web splice in a plate girder is designed to withstand

(A) Design shear force
(B) Design shear force and bending moment
(C) Design bending moment
(D) Design axial force

119. In an eccentric riveted connection, if the plane of the load is lying in the same plane of the rivet group, all rivets in the rivet group are subjected to

(A) Shear force and bending moment
(B) Twisting moment only
(C) Bending moment only
(D) Shear force and Twisting moment

120. The square root of the ratio of moment of inertia of cross section to its cross sectional area is called

(A) Second moment of area
(B) Section modulus
(C) Radius of gyration
(D) Slenderness ratio

121. Which of the following measures does not enhance the bond strength between the reinforcement bars and concrete in the RCC structures?

(A) Providing increased cover around each bar
(B) Usage of higher grade of concrete
(C) Avoiding termination of longitudinal reinforcements in tension zones
(D) Usage of larger bar diameters

122. Effective cover of an RCC beam depends upon

(A) Grade of the Reinforcement bars
(B) Effective depth of the beam
(C) Width of the beam
(D) Diameter of the Main Reinforcement

123. As per the limit state method followed in IS 456:2000, the nominal shear stress for solid slabs shall not exceed _____% of the appropriate values of maximum shear stress based on concrete grades given in the code?

(A) 50
(B) 63
(C) 87
(D) 100

124. A RCC column cross-section has width 'b', overall depth 'D' and effective depth 'd'. As per IS 456:2000, the minimum cross-sectional area of the longitudinal reinforcement is

(A) 0.006bd
(B) 0.006bD
(C) 0.008bd
(D) 0.008bD

125. According to IS 456:2000, an RCC Continuous Beam shall be deemed to be a Deep Beam when the ratio of the effective span to the overall depth is less than

(A) 1.75 (B) 2.00

(C) 2.25 (D) 2.50

126. The increase in stiffness over the stiffness of cracked section, on account of the ability of concrete to resist tension, is referred to as

(A) Uncracked-transformed effect (B) Cracked-stiffening effect

(C) Uncracked-stiffening effect (D) Tension stiffening effect

127. Match the following lists of criteria for determining thickness of RCC footing and the location of their critical sections: (d = effective depth of footing)

Criteria	Location of critical sections
a. One-way Shear	1. at the face of the column
b. Bending Moment	2. at a distance $d/2$ from face of the column
c. Two-way Shear	3. at a distance d from face of the column

(A) a - 1, b - 3, c - 2 (B) a - 2, b - 1, c - 3

(C) a - 3, b - 2, c - 1 (D) a - 3, b - 1, c - 2

128. Which of the following types of panel has Maximum Positive Moment at mid-span for the same loading conditions and l_y/l_x ratio of 1.5?

(A) One short edge discontinuous (B) One short edge continuous

(C) One long edge discontinuous (D) One long edge continuous

129. For a RCC Column of size 300 mm × 600 mm, the value of p/f_{ck} is taken as 0.10 by using interaction curve of columns given in SP16. If the grade of steel and concrete are Fe 415 and M20 respectively, then the area of steel will be

(A) 900 mm^2 (B) 1800 mm^2

(C) 2700 mm^2 (D) 3600 mm^2

130. Main reinforcement in the staircase slab supported between two stringer beams is arranged

(A) parallel to the width of flight & at the bottom of the slab

(B) parallel to the width of flight & at the top of slab

(C) parallel to the length of flight & at the bottom of slab

(D) parallel to the length of flight & at the top of slab

131. A beam of 230 mm × 300 mm has all the longitudinal bars of 12 mm diameter. As per IS:13920-2016, what should be the minimum dimension of the column in which this beam is anchored into?

(A) 230 mm (B) 242 mm

(C) 276 mm (D) 300 mm

132. For an economical design of a Cantilever Retaining Wall, the resultant vertical soil reaction at the base should be aligned with

(A) the face of stem on toe side (B) the face of stem on retained earth side

(C) the midpoint of stem thickness (D) the midpoint of heel

M

133. As per the Working Stress Method of RCC design, the neutral axis depth factor of a balanced section depends upon the

(i) Grade of concrete

(ii) Permissible tensile stress in steel

(iii) Percentage steel

(A) (i) only (B) (ii) only

(C) (i) and (ii) (D) (i), (ii) and (iii)

134. Strain distribution in Limit State Design of Prestressed Concrete Structures is assumed to be

(A) Linear (B) Parabolic

(C) Rectangular (D) Combination of Parabolic and Rectangular

135. Which of the following cannot be classified as a masonry construction?

(A) Cement concrete block construction (B) Adobe construction

(C) Random rubble construction (D) Hollow concrete block construction

136. What will be the effective span of the slab for below given deck slab bridge: Clear span = 9 m, Overall depth = 700 mm, diameter of the bar used = 20 mm, Clear cover to reinforcement = 40 mm, Width of the bearing = 400 mm

(A) 9.00 m (B) 9.40 m

(C) 9.65 m (D) 9.70 m

137. Which of the following is correct decreasing order of total weight of IRC loading vehicles as per IRC: 6-2016? [$70R_{tracked}$ = Class 70R tracked vehicle, $70R_{wheeled}$ = Class 70R wheeled seven axles vehicle, A_{train} = Class A train of vehicles]

(A) $70R_{tracked} > 70R_{wheeled} > A_{train}$ (B) $70R_{wheeled} > 70R_{tracked} > A_{train}$

(C) $70R_{tracked} > A_{train} > 70R_{wheeled}$ (D) $70R_{wheeled} > A_{train} > 70R_{tracked}$

138. Shear span is defined as the zone where

(A) Bending Moment is constant (B) Shear force is constant

(C) Bending moment is zero (D) Shear force is zero

139. Which one of the following sections of equal cross sectional area can resist the torsional moment of a R.C.C beam section more efficiently.

(A) A box section (B) A solid rectangular section

(C) A Symmetrical I- section (D) An unsymmetrical I-section

140. Drops are provided in a Flat Slab to resist

(A) Bending moment (B) Shear

(C) Compression (D) Torsion

141. Which of the following aggregates give the least coefficient of thermal expansion of concrete?

(A) Quartzite (B) Sandstone

(C) Limestone (D) Cherts

142. Match the following lists of Ingredients of bricks and the properties they impart in the bricks:

Ingredients	Properties
a. Alumina	1. renders the clay plastic
b. Lime	2. lowers the fusing point in carbonated form
c. Silica	3. prevents the shrinking and warping
d. Ferric Oxide	4. improves the impermeability

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

143. Following data is available in mix design, for batching in dry condition:

	Batch Weight	Water Absorption
Coarse Aggregate	1300 kg/m^3	2%
Fine Aggregate	500 kg/m^3	0.4%

The inference made from above data is/are:
(i) The quantity of coarse aggregate should be decreased by 26 kg.
(ii) The quantity of fine aggregate should be increased by 2 kg.
(iii) The quantity of mixing water per m^3 should be increased by 28 kg.
(A) (i) and (ii) only
(B) (ii) and (iii) only
(C) (i) and (iii) only
(D) (iii) only

144. Which of the following is not an objective of seasoning the timber?
(A) Reduction of the weight of the timber
(B) Rectifying the natural defects in the timber
(C) Increase in the strength and durability of the timber
(D) Reduction in the shrinkage and warping of the timber

145. Which of the following types of steel is used in manufacturing of rails?
(A) Mild steel
(B) Cast steel
(C) Bessemer steel
(D) Manganese steel

146. Which of the following stone possesses minimum crushing strength?
(A) Slate
(B) Sandstone
(C) Basalt
(D) Limestone

147. According to IS: 1121(Part-3) – 2012, the split tensile strength (in N/mm^2) of test specimen of stones is given by (all symbols have their usual mean)
(A) W/πdL
(B) 2W/πdL
(C) 2W/dL
(D) 5W/πdL

148. Which of the following is a good fire-resistant stone?
(A) Marble
(B) Limestone
(C) Compact sandstone
(D) Granite

149. The dimension of modular bricks when tested in accordance with IS: 1077 – 1992, the maximum tolerance in length of brick is limited per 20 bricks as

(A) ± 10 mm
(B) ± 40 mm
(C) ± 60 mm
(D) ± 80 mm

150. The maximum quantity of water per 50 kg of cement for M20 nominal mix concrete is

(A) 30 liters
(B) 34 liters
(C) 42 liters
(D) 50 liters

151. Maximum amount by which an activity can be delayed without delaying the project but will cause delay to the Early Start of some following activity, is known as

(A) Total Float
(B) Free Float
(C) Independent Float
(D) Interfering Float

152. Which of the following is the correct sequence of tasks in a Project Cycle:

(A) Project Appraisal – Feasibility Analysis – Negotiation – Project Selection
(B) Project Appraisal – Feasibility Analysis – Project Selection – Negotiation
(C) Feasibility Analysis – Project Appraisal – Project Selection – Negotiation
(D) Feasibility Analysis – Project Appraisal – Negotiation – Project Selection

153. The amount of capital that a company can potentially issue, as per its memorandum, represents the

(A) Paid-up Capital
(B) Authorized Capital
(C) Subscribed Capital
(D) Issued Capital

154. Which of the following is not one of the constraints of a project?

(A) Budget
(B) Scope
(C) Resources
(D) Team

155. If the Optimistic time, the most probable estimate and the pessimistic time for a given activity are 7, 10 and 19 days respectively then the 'expected time' for this activity will be _____ days ?

(A) 9
(B) 10
(C) 11
(D) 15

156. Match the following lists of contracts and their descriptions:

Contracts	Descriptions
a. Measurement Contract	1. is used to reduce design and contract administration cost.
b. Schedule Contract	2. can be used in situations where design can be described in reasonable detail, but the amount can't.
c. Lump Sum Contract	3. Contractor undertakes the execution of work on item rate basis.
d. Cost Reimbursement Contract	4. Contractor is paid for all of its allowed expenses, plus additional payment to allow for a profit.

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

157. Which of the following works are measured in m^3 unit?

(i) RC Chhajja

(ii) Damp Proof Course

(iii) Half brick Masonry Wall

(iv) Brick bats Chhara

(A) (i) and (iii) (B) (ii) and (iv)

(C) (ii) and (iii) (D) (i) and (iv)

158. In construction project management, Minimum Moment Method is mainly used for

(A) Precedence Diagramming Process (B) Resource Levelling

(C) PERT Analysis (D) Float Diagram

159. Which of the following statements are correct, with respect to network rules?

i. An event cannot occur until all the activities leading to it are completed.

ii. An event can occur twice.

iii. Its usual practice to show the time flow from left to right.

iv. No activity can start until its head end event has occurred.

(A) (i) and (ii) (B) (i) and (iii)

(C) (ii) and (iv) (D) (i), (ii), (iii) and (iv)

160. Which of the following statements are correct pertaining to Free Float?

(A) Free Float is equal to difference of Earliest Start Time of succeeding activity to Earliest Finish Time of the activity under consideration.

(B) Free Float is equal to difference of total float and head event slack.

(C) Free Float is based on the possibility that all the events occur at their latest time.

(D) Free Float cannot be equal to total float.

(A) (i) and (ii) (B) (i) and (iii)

(C) (ii) and (iv) (D) (i), (ii), (iii) and (iv)

161. All the tenders received may be rejected if

i. Radical changes in design are found necessary during the internal deliberations preceding the opening of the tenders.

ii. The highest tenderer has quoted the estimated cost, which is lower than the funds available for the execution of the work.

iii. There exists a well-grounded suspicious of collusion between the tenderers or some other form of fraud has been detected.

iv. The minimum number of tenders to assure adequate competition has not been received.

(A) (i) and (iii) (B) (ii) only

(C) (i), (iii) and (iv) (D) (iii) and (iv)

162. Centering work of brickwork in arch is measured in square metres, only if the respective span is more than

(A) More than 3m. (B) More than 6m.

(C) More than 9m. (D) More than 12m.

163. In plastering measurement deduction for opening of door and window is made for one face only, if the opening is

(A) Exceeding 0.25 m^2 but not exceeding 2.0 m^2

(B) Exceeding 0.50 m^2 but not exceeding 2.0 m^2

(C) Exceeding 0.25 m^2 but not exceeding 3.0 m^2

(D) Exceeding 0.50 m^2 but not exceeding 3.0 m^2

164. Slack time is associated with

(A) A real activity

(B) An event

(C) Both event and real activity

(D) Dummy activity

165. Which of the following statements are correct for the Critical Path?

(i) Critical Path has the most important sequence of activities which leads to maximum economic gains

(ii) Critical Path has the most important sequence of activities which has no float and determines the project completion period

(iii) Critical Path is the shortest path with shortest duration within which the project can be completed

(iv) Critical Path is the largest path with shortest duration within which the project can be completed.

(A) Only (i)

(B) (i) and (ii)

(C) (ii) and (iv)

(D) (i), (ii) and (iv)

166. For the first time, 'Expressway' was planned by / in

(A) Nagpur road Plan

(B) Bombay Plan

(C) Lucknow Plan

(D) Jayakar Committee

167. The approximate total length of National Highways in India as on 31.03.2019

(A) 80,000 km

(B) 1,30,000 km

(C) 1,80,000 km

(D) 2,30,000 km

168. In India, the material used for the tack coat application for the flexible pavement construction is

(A) Bitumen

(B) Tar

(C) Bitumen emulsion

(D) Industrial grade glue

169. The width of a 4-lane carriageway is

(A) 13 m

(B) 14 m

(C) 15 m

(D) 16 m

170. If V = the design speed in kmph, 'R' is the radius of the curve (m), the design super elevation 'e' is expressed as

(A) $e = V / 127R$

(B) $e = V^2 / 127R$

(C) $e = V / 225R$

(D) $e = V^2 / 225R$

171. The thickness of desire lines in a typical Origin-Destination plot represents:

i. Number of trips

ii. Number of modes

iii. Connectivity between two zones

(A) (i) Only (B) (i) and (ii)

(C) (ii) and (iii) (D) (i), (ii) and (iii)

172. The value of standard axle load considered for flexible pavement design is:

(A) 80 Ton (B) 100 Ton

(C) 80 kN (D) 100 kN

173. As per recent IRC 37-2018 guidelines, the analysis of flexible pavement is performed based on subgrade soil strength in terms of:

(A) California Bearing Ratio (B) Unconfined Compressive Strength

(C) Confined Compressive Strength (D) Resilient Modulus

174. The tie bars in a rigid pavement are provided at:

(A) Expansion joints (B) Contraction joints

(C) Transverse joints (D) Longitudinal joints

175. The critical combination of stresses for corner region in rigid pavements is:

(A) Load stress + frictional stress

(B) Load stress + warping stress

(C) Load stress + warping stress + frictional stress

(D) Load stress + warping stress + frictional stress + thermal stress

176. A bridge is treated as a 'long-span bridge' if its span is more than

(A) 90 m (B) 120 m

(C) 150 m (D) 240 m

177. A bridge constructed over an obstacle to convey water is known as

(A) Through bridge (B) Grade separator

(C) Aqueduct (D) Viaduct

178. As far as possible, the alignment of a bridge should be

(A) Circular (B) Skewed

(C) Square (D) Parabolic

179. Arrange in the correct order of component of bridge starting from river-bed.

(1) Abutment (2) Girder (3) Foundation (4) Flooring

(A) 3 - 1 - 2 - 4 (B) 3 - 2 - 1 - 4

(C) 3 - 1 - 4 - 2 (D) 3 - 4 - 2 - 1

180. The end support of a bridge sub-structure is known as:

(A) Wing wall (B) Pier

(C) Abutment (D) Girder

M

181. In the design of piers, the water pressure is considered
(i) as Static pressure
(ii) as Dynamic pressure
(iii) due to Impact of cross current
(A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)

182. Which of the following is a type of Elastomeric bearing?
(A) Roller bearing (B) Neoprene rubber bearing
(C) Tar paper bearing (D) Rocker bearing

183. In bridge construction, the width of the expansion joint is:
(A) 25 mm (B) 50 mm
(C) 75 mm (D) 100 mm

184. For bridges of National Highways, the class of loading considered as per IRC is
(A) AA (B) BB
(C) A (D) B

185. In a proof testing of a bridge, the load 'W' shall be applied in the stage of
(A) 3W/4, W/2, W/4 (B) 3W/4, W/4, W/2
(C) W/2, W/4, 3W/4 (D) W/4, W/2, 3W/4

186. Select the most suitable method of tunneling for long tunnels at great depths.
(A) Army method (B) Austrian method
(C) English method (D) Needle beam method

187. The Drift method of tunneling is best suited for
(A) Rock ground (B) Running ground
(C) Soft ground (D) Broken ground

188. Select the most suitable shape of the tunnel to be made in soft grounds
(A) Egg shaped (B) Horse-shoe shaped
(C) Circular section (D) Segmental roof section

189. Which of the following is / are the methods of providing ventilation in a tunnel?
i. To exhaust fumes and gases those are injurious to health and explosive in nature
ii. To blow in fresh air
(A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)

190. Weisbach Triangle method may be used for which of the following?
(A) To carry out surface alignment of a tunnel
(B) To transfer the surface level details to underground
(C) To connect the two ends of an underground tunnel
(D) To interface the surface and underground tunnel surveys

191. The symbol "6WS12" represents
(A) Window of size 60 inches × 120 inches
(B) Window of size 600 mm × 1200 mm
(C) Double shutter window opening
(D) Without shutter window

192. In order to provide an effective control of termite, which of the following chemical(s) is/are normally used in a residential location?
(i) Aldrin
(ii) Toluene.
(iii) Heptachlor.
(A) Only (i)
(B) Only (ii)
(C) (i) and (iii)
(D) (i), (ii) and (iii)

193. The size of 'power shovel' is referred in
(A) m^2
(B) m^3
(C) Tons
(D) Kilogram

194. King-post roof truss consists of
(i) Lower tie beam.
(ii) Two inclined principal rafters.
(iii) Span of 5 to 8 meter.
(A) (i) and (ii)
(B) (i) and (iii)
(C) (ii) and (iii)
(D) (i), (ii) and (iii)

195. The overall height of Indian type Water Closet is normally in the range of
(A) 300 to 400 mm
(B) 450 to 500 mm
(C) 550 to 650 mm
(D) 650 to 800 mm

196. The size of a step commonly adopted for residential buildings is
(A) 250 mm × 160 mm
(B) 270 mm × 150 mm
(C) 300 mm × 130 mm
(D) 350 mm × 100 mm

197. Glass essentially consists of which of the following ingredient?
(A) Silica
(B) Carbon
(C) Manganese
(D) Lead

198. Which of the following is used for varnishing maps and pictures?
(A) Spirit varnish
(B) Water varnish
(C) Spar varnish
(D) Oil varnish

199. The ratio of cement-mortar for stone masonry is generally _____
(A) 1:3
(B) 1:4
(C) 1:6
(D) 1:8

200. In which of the bond every alternate course starts with a qunion header?
(A) Stretcher bond
(B) English bond
(C) Header bond
(D) Double Flemish bond

201. Imaginary vertical line which includes the vertical joint separating two adjoining bricks is called
(A) Perpend (B) Lap
(C) Splay (D) Arise

202. The formation of very small loose mass on the plastered surface is known as
(A) Peeling (B) Popping
(C) Flaking (D) Cracking

203. Which one of the following is related to 'forebays' in a hydropower plant?
(A) It reduces the distance between the turbine and free surface
(B) It helps in absorbing the sudden pressure rise
(C) It helps in dissipating the energy
(D) It stores temporarily the water rejected by plant for adjusting electrical load

204. 'Fourneyron' is a / an
(A) Axial flow turbine (B) Tangential flow turbine
(C) Mixed flow turbine (D) Outward radial flow turbine

205. In reciprocating pumps, the equation for 'acceleration head' is best valid for
(Note: θ = angle made by turning of crank)
(A) $90^\circ \leq \theta \leq 180^\circ$ (B) $0 \leq \theta \leq 90^\circ$
(C) $\theta \geq 180^\circ$ (D) $0 \leq \theta \leq 180^\circ$

206. What is the frequency of a 12 pole 400 rpm alternator?
(A) 40 Hz (B) 50 Hz
(C) 60 Hz (D) 80 Hz

207. The function(s) of air-foil stay ring of fixed vanes in large reaction turbines is/are
(i) to direct water from guide vanes to casing.
(ii) to transfer the weight of non-rotating parts of turbine to the power house.
(A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)

208. Water is supplied to a height of 3.2 m at the rate of 36 liters per second to a hydraulic ram which delivers 2 liters per second to a height of 32 m above the ram. What would be the Rankine's efficiency?
(A) 42% (B) 50% (C) 54% (D) 63%

209. Which of the following statement(s) is/are true for Ferrock?
i. It is a type of rock largely containing Iron
ii. It is a carbon-negative environmentally-friendly compound
iii. It is made by combining steel dust waste with silica
iv. It is largely made up of recycled materials
(A) Only (i) (B) (ii) and (iii)
(C) (ii), (iii) and (iv) (D) (i), (ii), (iii) and (iv)

210. India's first Net Zero Energy building is

(A) Statue of Unity, Gujarat

(B) Ministry of Environment, Forest and Climate Change, New Delhi

(C) Indira Paryavaran Bhawan, New Delhi

(D) Atal Paryavaran Bhawan, Lucknow

211. Modular houses are very popular globally. These are constructed in accordance with _____ codes.

(A) Housing and Urban Development

(B) Bureau of International Standards

(C) South Carolina Code

(D) International Residential Code

212. Carbon fibres used primarily in construction material have fibres of diameter in range of

(A) 0.2 to 0.4 micrometer

(B) 0.5 to 0.6 micrometer

(C) 2 to 4 micrometer

(D) 5 to 6.5 micrometer

213. In pink noise, each octave interval (halving or doubling in frequency) carries _____ the amount of noise energy.

(A) half

(B) equal

(C) twice

(D) thrice

214. In sound, an octave band is a frequency band where the highest frequency is _____ the lowest frequency.

(A) thrice

(B) twice

(C) half

(D) equal to

215. Most appropriate resultant from two sound pressure levels of 60 dB is

(A) 57 dB

(B) 60 dB

(C) 63 dB

(D) 120 dB

216. 1 Sone sound is defined as a sound whose loudness is equal to _____

(A) 20 Phons

(B) 30 Phons

(C) 40 Phons

(D) 50 Phons

217. Ambient Air Quality Standards in respect of Noise for any category of area/zone, Limits in dB(A) Leq are given for day time and night time, where day time shall mean from:

(A) 6 am to 10 pm

(B) 6 am to 9 pm

(C) 7 am to 7 pm

(D) Sun rise to sun set

218. Which of the following air pollutant(s) is / are having different air quality concentration limits for Residential and Ecologically sensitive area?

(i) SO_2 (ii) NO_2 (iii) CO (iv) O_3

(A) Only (i)

(B) (i) and (ii)

(C) (iii) and (iv)

(D) (i), (ii), (iii) and (iv)

219. Non-dispersive Infra Red Spectroscopy method is used for estimating the concentration of which of the following air pollutants?

(A) CO (B) NH_3

(C) C_6H_6 (D) Arsenic

220. For which of the following air pollutant(s), there are standards available only for the annually averaged concentrations?

(A) Lead (B) Carbon monoxide

(C) Ammonia (D) Benzene

221. Which of the following statement(s) is / are true regarding the ambient air quality monitoring

(i) The arithmetic mean of minimum 104 measurements at a particular site in a year taken twice a week for 24 hours at uniform intervals gives the annually averaged concentration of a particular air pollutant

(ii) 24 hourly monitored values, as applicable shall be complied with 50% of the time in a year, and for remaining 50% of the time, they may exceed the limit but not on the two consecutive days of monitoring.

(A) Only (i) (B) Only (ii)

(C) Both (i) and (ii) (D) Neither (i) nor (ii)

222. In a Gaussian Plume Model for air pollution dispersion, the unit of the standard deviation σ_y and σ_z is

(A) meter / second (B) meter

(C) $meter^2$ (D) $meter^3$

223. The rate at which the temperature of the parcel of gas decreases with height is called as the

(A) Dry Adiabatic Lapse Rate (B) Saturated Adiabatic Lapse Rate

(C) Environmental Lapse Rate (D) Tropospheric Thermal Gradient

224. A thermal power plant burns coal at the rate of 10 tonnes / hour. If the coal has sulphur content of 9%, then the rate of emission of SO_2 will be _____

(A) 250 grams / second (B) 500 grams / second

(C) 750 grams / second (D) 1000 grams / second

225. Which one of the following conditions of automobiles gives the maximum unburned hydrocarbons?

(A) Uniform acceleration (B) Gradually varying acceleration

(C) Deceleration (D) Idling

226. Which type of plume behaviour may occur during winter nights?

(A) Trapping (B) Conning

(C) Fanning (D) Looping

227. Which of the following statements are true for the bed material used in a 'packed tower' for removing particulate matter from gaseous emissions?

(i) It has a large surface to volume ratio

(ii) It has a small void ratio

(A) Only (i) (B) Only (ii) (C) Both (i) and (ii) (D) Neither (i) nor (ii)

228. Which of the following statements are true for sampling of stack gases for measurements of concentration of Suspended Particulate Matter?

(i) The suction velocity should be such that isokinetic conditions prevail

(ii) The position of the probe should be such that isothermal conditions prevail

(A) Only (i)
(B) Only (ii)
(C) Both (i) and (ii)
(D) Neither (i) nor (ii)

229. If the particle size in the air is between 1-5 µm, then which of the following device would be best suited for purifying the air?

(A) Gravity settling chamber
(B) Cyclone separators
(C) Electrostatic precipitator
(D) Fabric Filters

230. How many levels the Ringelmann scale (which is used for measuring the apparent density or opacity of smoke) has?

(A) 4
(B) 5
(C) 6
(D) 7

231. Many empirical formulae are being used for estimating Manning's coefficient 'n' in natural channels. According to Strickler's formula, 'n' is proportional to ____.

(Note: d_{50} = particle size in which 50 percent of the bed material is finer)

(A) $[d_{50}]^{1/2}$
(B) $[d_{50}]^{1/6}$
(C) $[d_{50}]^{1/3}$
(D) $[d_{50}]^{1/5}$

232. Consider the following equations related to fluid flow.

(i) Darcy-Weisbach equation

(ii) Bernoulli's equation.

(iii) Momentum equation

(iv) Cauchy's distribution equation

Which of the above equation(s) is / are required to solve branching of pipe problems?

(A) Only (i)
(B) (i) and (ii)
(C) (i), (ii) and (iii)
(D) (ii), (iv)

233. A proposed model of river stretch of 20 km is to have a horizontal scale of (1/1000) and vertical scale of (1/400). If the normal discharge, width and depth of river are 182 m^3/s, 100 m and 2 m, respectively, then model discharge would be

(A) 0.2275×10^{-2} m^3/s
(B) 0.2275×10^{-4} m^3/s
(C) 0.2275×10^{-6} m^3/s
(D) 0.2275×10^{-8} m^3/s

234. A hydraulic pipeline 2.7 km is in length and 60 cm in diameter is used to convey water in a chemical industry. Determine the maximum time required for pressure wave velocity of 1200 m/s, if the valve provided at the outflow is suddenly closed.

(A) 5.0 seconds
(B) 7.5 seconds
(C) 10.0 seconds
(D) None of above

235. A path line is a concept given by

(A) Lagrangian
(B) Euler
(C) Colebrook
(D) Bernoulli

236. According to Nikuradse for turbulent flow in rough pipes, the distance (y′) of irregularities from pipe wall is ____ (Note: k = height of protrusion)

(A) 0.025 k
(B) 0.03 k
(C) 0.25 k
(D) 0.30 k

237. The energy correction difference for flow in circular pipe and flow between parallel plates under ideal conditions, would be approximately

(A) 0.50
(B) 0.45
(C) 0.40
(D) 0.35

238. Which of the following statements are true for a Pitot-tube?

(i) It is a device used for measuring the pressure in a pipe
(ii) It is based on the principle that if the velocity of flow at a point becomes zero, the pressure there is increased due to the conversion of the kinetic energy into pressure energy

(A) Only (i)
(B) Only (ii)
(C) Both (i) and (ii)
(D) Neither (i) nor (ii)

239. In a Bernoulli's theorem, which states that in a steady, ideal flow of an incompressible fluid, the total energy at point of the fluid is constant, the units of the various energies are in

(A) Joules
(B) Kilo-watt hour
(C) Meters
(D) Meter / Second^2

240. In a laminar flow between two fixed plates held parallel to each other at a distance d, the maximum shear stress would occur at

(A) the plate boundaries
(B) at a distance d/8 from both the plates
(C) at a distance d/4 from both the plates
(D) at a distance d/2 from both the plates

241. The Froude number of a hydraulic jump is 10. The jump can be classified as

(A) Undular Jump
(B) Weak Jump
(C) Oscillating Jump
(D) Choppy Jump

242. Rainfall in a catchment is a function of time (t) and represented as $P = 9t^3 + 5t^2$. Here; 't' is time in hours and 'P' is rainfall in mm. The intensity of rainfall in the catchment for 1.5 hours storm would be

(A) 7.6 cm/hr
(B) 7.6 mm/hr
(C) 4.7 cm/hr
(D) 4.7 mm/hr

243. Which of the following non-recording type of rain gauge measurement system has collection diameter of 127 mm?

(A) Tipping Bucket type rain gauge
(B) Float type rain gauge
(C) Symons rain gauge
(D) Weighing bucket type rain gauge

244. If the probability of occurrence of a drought at a place is more than 40%, then such an area is called

(A) Drought prone area

(B) Severely drought prone area

(C) Acutely drought prone area

(D) Chronically drought prone area

245. A 1-day rainfall of 13 cm was found at a particular place with a return period of 20 years. The probability that a 1-day rainfall of this or larger magnitude will occur at least once in next 1 year would be

(A) 1/10 (B) 1/20

(C) 1/100 (D) 1/200

246. The rainfall on three successive 4-h periods is respectively 1.5, 5.0 and 3.5 cm. If the surface runoff resulting from this storm is 2.5 cm, then x-index (in cm/h) for this storm would be

(A) 0.550 cm/hr (B) 0.625 cm/hr

(C) 0.675 cm/hr (D) 0.750 cm/hr

247. Theory of unit hydrograph has application in

(i) Flood forecasting by using very short data.

(ii) Checking the reliability of flows obtained by using statistical methods.

(iii) Representing the snow-melt runoff.

Considering the above, which of the following is the correct option?

(A) Only (i) (B) (i) and (iii)

(C) (ii) and (iii) (D) (i) and (ii)

248. A catchment of area 500 hectares has a runoff coefficient of 0.5. A storm of duration larger than the time of concentration of the catchment and of intensity 3.6 cm/h causes a peak discharge of _____

(A) 5 m^3/s (B) 10 m^3/s

(C) 25 m^3/s (D) 50 m^3/s

249. Water existing in capillary zone is a part of

(A) phreatic water (B) ground water

(C) gravity water (D) vadose water

250. The upper limit of Reynold's number for the Darcy's law to be valid for groundwater flow is

(A) 0.1 (B) 1

(C) 10 (D) 50

251. If the intensity of rainfall is less than the infiltration capacity of the soil, then the infiltration rate will be

(A) Equal to the rainfall intensity

(B) Equal to the infiltration capacity

(C) More than the rainfall intensity but less than the infiltration capacity

(D) More than the infiltration capacity but less than the rainfall intensity

M

252. Probable maximum precipitation is defined as

(A) the greatest depth of precipitation for a given duration meteorologically possible at a particular location at a particular time of the year

(B) the greatest rainfall that is possible with the worst meteorological conditions

(C) the rainfall of a given duration with maximum probability of occurrence

(D) the rainfall for a given duration that is most unlikely to occur

253. Conjunctive use of water in a basin means

(A) combined use of water for irrigation and for hydropower generation

(B) combined use of surface and ground water resources

(C) use of irrigation water for both rabi and kharif season

(D) use of irrigation water by community participation

254. A Check Dam is a

(A) small dam to check the floods

(B) small dam to counteract erosion by reducing water flow velocity water storage structure

(C) river training structure

(D) water storage structure

255. L. K. Sherman propounded the theory for

(A) Exit gradient (B) Regime canal

(C) Unit hydrograph (D) Boundary Layer

256. For row crops and orchards which of the following irrigation system is best suited?

(A) Drip irrigation (B) Sprinkler irrigation

(C) Furrow irrigation (D) Basin flooding

257. If the irrigation water is having concentration of sodium, calcium and magnesium as 30, 4 and 4 mg/l respectively, then the Sodium Absorption Ratio would be

(A) 7.5 (B) 10

(C) 15 (D) 20

258. The depth of moisture in root zone at field capacity and permanent wilting point per meter depth of soil are 0.5 m/m and 0.3 m/m, respectively. If dry weight of soil is 14.7 kN/m^3, then permanent wilting point would be

(A) 33.3% (B) 20%

(C) 15% (D) 25%

259. Soil moisture tension at field capacity ranges between

(A) 7 – 32 atmospheres (B) 2 – 11 atmospheres

(C) 0.33 – 2.0 atmospheres (D) 0.10 – 0.33 atmospheres

260. The left branch canal carrying a discharge of 30 cumec and has culturable area as 30,000 ha. The right branch canal carrying a discharge of 6 cumec and has culturable area of 9,000 ha. By what percent, right branch canal would be more efficient than left branch canal?

(A) 20% (B) 33%

(C) 50% (D) 100%

261. Duty of well water is more than canal water because

(i) Conveyance losses in well irrigation are less

(ii) Well water is cleaner than the canal water.

(iii) Well water is used more judiciously or as per specific requirements.

Which of the following option(s) is / are correct?

(A) Only (i) (B) (i) and (ii)

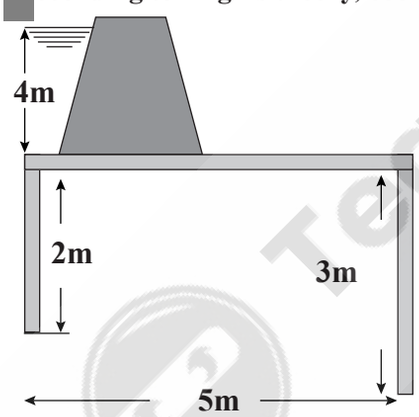
(C) (i) and (iii) (D) (i), (ii) and (iii)

262. For a gravity dam if the length of the water expanse is 40 km and wind velocity is 10 km/h, then the height of the wave would be

(A) 6.4 cm (B) 64 cm

(C) 640 cm (D) 6400 cm

263. Consider the following hydraulic structure with two piles each at downstream and upstream. According to Bligh's theory, coefficient of creep would be



(A) 0.26 (B) 0.86 (C) 0.95 (D) 3.75

264. The straight glacis falls are suited for a discharge

(A) less than 25 m^3/s (B) upto 60 m^3/s

(C) more than 100 m^3/s (D) of any value

265. R.G. Kennedy carried out extensive investigations in the _____ to select some straight reaches those had not posed any problem of silting and scouring since long time.

(A) Indira Gandhi Canal System (B) Ganga Canal System

(C) Upper Bari Doab Canal System (D) Bhakhra Canal System

266. The type of bacteria that uses organic compounds as electron donor and chemical compounds as energy source is called

(A) organochemotrophs
(B) lithochemotrophs
(C) lithophototrophs
(D) organophototrophs

267. Theoretical oxygen requirement for the oxidation of one gram of cell (biomass) is

(A) 1.02 g
(B) 1.22 g
(C) 1.42 g
(D) 1.62 g

268. The process of losing the biofilm layer in the trickling filter is called

(A) clinging
(B) solid-liquid separation
(C) sloughing
(D) sliming

269. In the facultative aerated lagoon, aeration is done for

(A) Maintaining oxygen at the surface of the reactor
(B) Maintaining oxygen throughout the depth of the reactor
(C) Maintaining oxygen throughout the depth of the reactor and to retain solids under suspension
(D) Maintaining oxygen at the surface of the reactor and to retain solids under suspension

270. Theoretical volume of methane produced per kg of glucose is

(A) 150 L
(B) 250 L
(C) 350 L
(D) 425 L

271. As per Hazardous waste management rules 2016, a waste exhibits the characteristic of toxicity if it has an acute oral LD50 less than

(A) 1000 mg/kg
(B) 1750 mg/kg
(C) 2500 mg/kg
(D) 3250 mg/kg

272. In a flat terrain, sewers are designed for attaining self-cleaning velocity at _____ discharge.

(A) daily minimum
(B) daily average
(C) daily maximum
(D) monthly average

273. As per IS 4111 part I, the maximum manhole spacing allowed in a straight sewer of diameter 1.8 m is

(A) 30 m
(B) 100 m
(C) 200 m
(D) 300 m

274. In the domestic drainage system, gully traps are provided at the junction of

(A) Sub-sewer and main sewer
(B) a house sewer and a municipal sewer
(C) an unfoul house drain and a foul house drain
(D) any two house drain system

275. Which gases are generally generated during the aerobic decomposition of sewage?

(A) $CO_2 + NH_3 + H_2S$
(B) $CO_2 + NH_3 + SO_2$
(C) $CO_2 + NH_3 + H_2S + CH_4$
(D) $CO_2 + NH_3 + SO_2 + CH_4$

276. A perfect ecological equilibrium among the producer, consumer and decomposer group of organisms exist in which type of lakes?

(A) oligotropic lakes
(B) senescent lakes
(C) mesotropic lakes
(D) eutrophic lakes

277. If the moisture content of the sludge is reduced from 98% to 96%, the volume of the sludge will decrease by

(A) 2%
(B) 20%
(C) 50%
(D) 100%

278. Which of the following parameters are employed in the design of the Trickling Filter?

(i) Organic Loading Rate
(ii) Hydraulic Loading Rate
(iii) Flow velocity
(iv) Detention time

(A) Only (i)
(B) (i) and (ii)
(C) (i), (ii), (iii)
(D) (i), (ii), (iii) and (iv)

279. If the coefficient of rugosity is increased from 0.02 to 0.04, then the gradient of the pipe of a given diameter to carry the same flow at the same velocity would have to be increased by

(A) 4 times
(B) 5 times
(C) 6 times
(D) 7 times

280. The minimum water pressure that should be available at fire hydrants in case of industries of high hazard category is

(A) 4.00 kg/cm^2
(B) 5.25 kg/cm^2
(C) 6.50 kg/cm^2
(D) 7.75 kg/cm^2

281. In a water sample, the total alkalinity ($CaCO_3$) was found to 450 ppm. If the concentration of Mg^{2+} and Ca^{2+} ions in the sample is 90 ppm and 65 ppm, respectively the non-carbonate hardness in the sample would approximately be

(A) 0 ppm
(B) 81 ppm
(C) 295 ppm
(D) 513 ppm

282. Presently, the dissolved oxygen in wastewater is measured by which of the following method?

(A) EDTA Method
(B) Winkler's Method
(C) Modified EDTA Method
(D) Modified Winkler's Method

283. The air relief valve in pipe distribution network is provided

(i) to avoid negative pressure in the pipe.
(ii) to remove silt and sand deposit from the pipe.
(iii) to decide direction of flow in the pipe.

Which of the options are True?

(A) Only (i)
(B) (i) and (ii)
(C) (ii) and (iii)
(D) (i), (ii) and (iii)

284. Which of the following form of Nitrogen is most dangerous in drinking water?

(A) Nitrate
(B) Nitrite
(C) Albuminoidal nitrogen
(D) Ammonia

285. Rapid sand filter units are designed for 4 MLD of water supply. If it is required 4% of treated water for backwashing in 30 minutes, then the design discharge would be

(A) 3.76 MLD
(B) 3.92 MLD
(C) 4.16 MLD
(D) 4.25 MLD

286. The performance of a well is measured by its

(A) Specific capacity
(B) Specific yield
(C) Specific retention
(D) Specific storage

287. Which of the following method / test is used for estimating Residual Chlorine in drinking water?

(A) Mohr's Method
(B) Orthotolidine Test
(C) EDTA method
(D) Membrane Filter technique

288. Which of the Indian Standards contains the details of methods of sampling and test (physical and chemical) for water and wastewater?

(A) IS 10500 – 2012
(B) IS 3025
(C) IS 10262
(D) IS 5182

289. Which of the following water quality parameter(s) is / are having relaxation in their concentration limits in the absence of alternate source of water?

(i) Aluminum (ii) Magnesium (iii) Nitrates (iv) Chloramines

(A) Only (i)
(B) (i) and (ii)
(C) (iii) and (iv)
(D) (i), (ii), (iii) and (iv)

290. Chlorides from water are removed by

(A) soda-lime process
(B) reverse osmosis process
(C) cation exchange process
(D) chemical coagulation

291. A water treatment plant treats 1 Million Liter per day of water. If it uses 10 kg of chlorine per day, then the chlorine dosage is

(A) 0.1 mg / lit
(B) 1.0 mg / lit
(C) 10 mg / lit
(D) 100 mg / lit

292. Which of the following statements are correct regarding disinfecting the water using Ozone?

(i) Ozone is not widely used in community water supplies
(ii) It is possible to maintain residual concentrations of ozone in water after the disinfection process

(A) Only (i)
(B) Only (ii)
(C) Both (i) and (ii)
(D) Neither (i) not (ii)

293. The main purpose of providing a balancing reservoir in a water supply distribution system is to

(A) equalize pressures in the distribution system

(B) store adequate quantity of water to meet the requirement in case of break-down of inflow

(C) store adequate firefighting reserve

(D) take care of the fluctuations in the rate of consumption

294. The environment-friendly _____ can be installed with 'mass-fired incinerators' to extract heat from the combustion gases.

(A) Combustion chambers (B) Superheaters

(C) Waste-heat boilers (D) Steam generators

295. Leachate is an effluent generated from which of the following?

(A) Landfill (B) Aerated lagoons

(C) Trickling filter (D) Septic tank

296. The optimum range of C/N ratio for a good compost is

(A) 12-18 (B) 34-39

(C) 20-25 (D) 26-31

297. Which of the following statement(s) is / are true for a sedimentation tank?

(i) Depth does not have any effect on the efficiency of the sediment removal

(ii) Surface Overflow Rate is the most important design parameter

(A) Only (i) (B) Only (ii)

(C) Both (i) and (ii) (D) Neither (i) nor (ii)

298. In which treatment unit is Schmutzdecke formed?

(A) Trickling Filter (B) Slow Sand Filter

(C) Rapid Sand Filter (D) Septic Tank

299. An ideal fluid is a fluid

(A) which obeys Newton's law of viscosity

(B) which is incompressible and is having no viscosity

(C) in which shear stress is directly proportional to the rate of shear strain

(D) in which the boundary layer is zero.

300. Compression Index on a soil helps to determine

(A) total time required for consolidation (B) time required for 50% consolidation

(C) total settlement of clay layer (D) pre-consolidation pressure of clay