

BDZ-1

PROVISIONAL ANSWER KEY

Name of The Post	Gujarat Engineering Service (Civil), Class-1 and Class-2
Advertisement No	19/2022-23
Preliminary Test Held On	22-01-2023
Que. No.	001-200
Publish Date	24-01-2023
Last Date to Send Suggestion (S)	02-02-2023

Instructions / સૂચના (Physical Submission)

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 નહીં.
- (5) ઉમેદવારે જે પ્રશ્નના વિકલ્પ પર વાંધો રજૂ કરેલ છે અને વિકલ્પ રૂપે જે જવાબ સૂચવેલ છે એ જવાબ ઉમેદવારે પોતાની ઉત્તરવહીમાં આપેલ હોવો જોઈએ. ઉમેદવારે સૂચવેલ જવાબ અને ઉત્તરવહીનો જવાબ ભિન્ન હશે તો ઉમેદવારે રજૂ કરેલ વાંધા-સૂચન ધ્યાનમાં લેવાશે નહીં.
- (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 નહીં.
- (7) પરીક્ષામાં હાજર રહેલ ઉમેદવાર જ વાંધા - સૂચન રજૂ કરી શકશે .
- (8) ઉમેદવારે વાંધા-સૂચન સાથે પોતાની જવાબવહીની નકલ બિડાણ કરવાની રહેશે.

001. ગુજરાત વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. તાજેતરમાં પ્રધાનમંત્રીશ્રીએ વડોદરા ખાતે હવાઈ જહાજના ઉત્પાદનના એકમનું ઉદ્ઘાટન કર્યું.
 2. આ ઉત્પાદન એકમ C-295 પરિવહન હવાઈ જહાજનું ઉત્પાદન કરશે.
 3. આ એકમ સ્પેનના Airbus Defence and Space ના સહયોગથી Tata Advanced Systems Limited દ્વારા સ્થાપવામાં આવશે.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2
002. Defence Expo નું સંસ્કરણ (edition) ગુજરાતમાં ગાંધીનગર ખાતે યોજવામાં આવ્યું હતું.
- (A) 10મું (B) 11મું (C) 12મું (D) 13મું
003. પર્યાવરણ, વન અને જળવાયુ પરિવર્તન મંત્રાલયની Genetic Engineering Appraisal સમિતિએ સ્વદેશી રીતે વિકસિત આનુવંશિક રીતે સંશોધિત ની વ્યાપારી ખેતી માટે પર્યાવરણીય મંજૂરી આપી છે ?
- (A) કાકડી (Cucumber) (B) રાઈના બીજ (Mustard seeds)
(C) ચણ (Chick pea) (D) લીલા વટાણા (Green pea)
004. સંયુક્ત રાષ્ટ્રએ 31મી ઓક્ટોબરના રોજ World Cities Day 2022 ની ઉજવણી કરી. આ દિવસનું મુખ્ય વિષયવસ્તુ (theme) હતું.
- (A) વધુ સારા શહેરો : ટકાઉ શહેરો, SMART શહેરો (Better Cities : Sustainable Cities, SMART cities)
(B) વધુ સારા શહેરો, વધુ સારું જીવન : ટકાઉ શહેરો (Better Cities, Better Life: Sustainable Cities)
(C) વધુ સારા શહેરો, વધુ સારું જીવન : સ્થાનિક રહો, વૈશ્વિક બનો (Better Cities, Better Life: Stay Local, Go Global)
(D) વધુ સારા શહેરો, વધુ સારું જીવન : વૈશ્વિક બનવા સ્થાનિક કાર્ય કરો. (Better Cities, Better Life: Act Local to Go Global)
005. નીચેનામાંથી કયું રાજ્ય / કેન્દ્રશાસિત પ્રદેશ કર્મચારી ભવિષ્યનિધિ સંસ્થા (Employee Provident Fund Organization) ની યાદીમાં સંસ્થાના સામાજિક સુરક્ષા દાયરામાં EPFને આવરી લેતા ક્ષેત્રમાં ટોચ ઉપર છે ?
- (A) દિલ્હી (B) ગુજરાત (C) કર્ણાટક (D) હરિયાણા
006. Benjamin Netanyahu (બેન્જામીન નેતાન્યાહુ) ઈઝરાઈલના પ્રધાનમંત્રી બન્યા છે. Netanyahu (નેતાન્યાહુ) પક્ષના છે.
- (A) Yes Atid (B) Bakul Atid
(C) Likud (D) ઉપરોક્ત પૈકી એક પણ નહીં
007. ભારતીય હવાઈ દળ અને રીપબ્લીક સીંગાપુર એર ફોર્સ વચ્ચે 11મી સંયુક્ત લશ્કરી તાલીમ કવાયત કલાઈકુંડા મથક ખાતે યોજાઈ. આ સ્થળ ખાતે સ્થિત છે.
- (A) તમિલનાડુ (B) કર્ણાટક (C) પંજાબ (D) પશ્ચિમ બંગાળ
008. Forbesની વિશ્વના શ્રેષ્ઠ નોકરીદાતા રેંકીંગ 2022 માં ભારતની નીચેના પૈકી કઈ કંપની 20મા ક્રમે આવી છે ?
- (A) રીલાયન્સ (B) TATA Sons (C) ઈન્ફોસીસ (D) ભારતીય રેલ્વે

001. Which of the following statements is/are correct regarding Gujarat?
1. Recently Prime Minister has inaugurated the aircraft manufacturing unit in Vadodara.
 2. This manufacturing unit will produce C-295 transport aircraft.
 3. This unit will be set up by the Tata Advanced Systems Limited with the collaboration of Spain's Airbus Defence and Space.
- (A) 1, 2 and 3 (B) 2 and 3 only
(C) 1 and 3 only (D) 1 and 2 only
002. _____ edition of Defence Expo was conducted in Gandhinagar, Gujarat
- (A) 10th (B) 11th
(C) 12th (D) 13th
003. Genetic Engineering Appraisal Committee of Ministry of Environment, Forests & Climate Change has granted environmental clearance for indigenously developed genetically modified _____ for commercial cultivation.
- (A) Cucumber (B) Mustard seeds
(C) Chick pea (D) Green pea
004. United Nations has celebrated World Cities Day 2022 on 31st October, the theme of this day was _____.
- (A) Better Cities : Sustainable Cities, SMART cities
(B) Better Cities, Better Life : Sustainable Cities
(C) Better Cities, Better Life : Stay Local, Go Global
(D) Better Cities, Better Life : Act Local to Go Global
005. Which of the following States/Union Territories has topped the list of Employee Provident Fund Organization on EPFO coverage under social security ambit of the organization?
- (A) Delhi (B) Gujarat
(C) Karnataka (D) Haryana
006. Benjamin Netanyahu becomes Israel's Prime Minister. Netanyahu belongs to _____ party.
- (A) Yes Atid (B) Bakul Atid
(C) Likud (D) None of the above
007. 11th Joint military training exercise between Indian Air Force and Republic Singapore Air Force was conducted at Kalaikunda station, this is located in _____.
- (A) Tamil Nadu (B) Karnataka
(C) Punjab (D) West Bengal
008. Which of the following Indian companies ranked 20th in the Forbes' World Best Employer Rankings 2022?
- (A) Reliance (B) TATA Sons
(C) Infosys (D) Indian Railways

009. ભારતના માતૃભાષા સર્વેક્ષણ વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
- (A) આ સર્વેક્ષણ ભારત સરકારના ગૃહમંત્રાલય દ્વારા હાથ ધરવામાં આવ્યું હતું.
 (B) આ સર્વેક્ષણે ભારતભરમાં 500થી વધુ ભાષાઓ અને બોલીઓની વીડીયોગ્રાફી કરી હતી.
 (C) (A) તથા (B) બંને
 (D) (A) અથવા (B) પૈકી એક પણ નહીં
010. ભારત સરકાર વચ્ચે 4000 કિ.મી. લાંબા નદી વિહાર (River Cruise) પ્રવાસ શરૂ કરવાનું આયોજન કરી રહી છે.
- (A) વારાણસી થી સોમનાથ (B) વારાણસી થી દિબ્રુગઢ
 (C) ચેન્નાઈ થી હૈદરાબાદ (D) કોલકત્તા થી બેંગલોર
011. સંયુક્ત રાષ્ટ્રના ખાદ્ય અને કૃષિ સંગઠન (Food and Agricultural Organization)ના તાજેતરના અહેવાલ અનુસાર વૈશ્વિક ખાદ્ય આયાતબિલ અંદાજે US ડોલર સુધી પહોંચી ગયું છે.
- (A) 1 ટ્રિલીયન (B) 2 ટ્રિલીયન (C) 3 ટ્રિલીયન (D) 4 ટ્રિલીયન
012. ભારત સરકારે આધાર કાયદા (Aadhar Laws)માં ફેરફાર કર્યો છે કે આધારધારકોએ નોંધણી તારીખથી પછી ઓછામાં ઓછા એક વખત સહાયક દસ્તાવેજો અપડેટ કરવા પડશે.
- (A) 5 વર્ષ (B) 6 વર્ષ (C) 8 વર્ષ (D) 10 વર્ષ
013. સંયુક્ત રાષ્ટ્રના વિશ્વ વસ્તીની સંભાવનાઓ 2022 (World Population Prospects 2022) અનુસાર, વર્ષ સુધીમાં ભારત વિશ્વના સૌથી વધુ વસ્તી ધરાવતા દેશ તરીકે ચીનને પાછળ છોડી દેશે.
- (A) 2023 (B) 2024 (C) 2025 (D) 2030
014. NASA એ Artemis કાર્યક્રમના ભાગરૂપે પર વિશ્વના સૌથી શક્તિશાળી રોકેટ અને ઓરીયન અવકાશયાન પ્રક્ષેપણ કર્યા છે.
- (A) શુક્ર (B) મંગળ
 (C) ચંદ્ર (D) ઉપરોક્ત પૈકી એક પણ નહીં
015. સંયુક્ત રાષ્ટ્ર કયા દિવસે World Toilet Day (વિશ્વ શૌચાલય દિવસ) ઉજવે છે ?
- (A) 19મી નવેમ્બર (B) 25મી નવેમ્બર (C) 30મી નવેમ્બર (D) 5મી ડિસેમ્બર
016. સમાજવાદના સંદર્ભમાં નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
- (A) રાષ્ટ્રીય સમાજવાદ (State Socialism) જેમાં ઉત્પાદન અને વિતરણના તમામ માધ્યમોનું રાષ્ટ્રીયકરણ અને ખાનગી મિલકતને નાબૂદ કરવાનો સમાવેશ.
 (B) બીજી તરફ, લોકશાહી સમાજવાદ, મિશ્ર અર્થતંત્રમાં વિશ્વાસ ધરાવે છે, જ્યાં જાહેર અને ખાનગી ક્ષેત્રો બંને સાથે સહઅસ્તિત્વ ધરાવે છે.
 (C) (A) તથા (B) બંને
 (D) (A) અથવા (B) પૈકી એક પણ નહીં

009. Which of the following statements is/are correct regarding the Mother Tongue Survey of India?
(A) This survey was conducted by the Ministry of Home Affairs, Government of India
(B) This survey had done the videography of more than 500 languages and dialects across the country
(C) Both A and B
(D) Neither A nor B
010. Government of India is planning to launch 4000 km long River Cruise tour between _____.
(A) Varnasi and Somnath
(B) Varnasi and Dibrugarh
(C) Chennai and Hyderabad
(D) Kolkata and Bangalore
011. According to the recent report of the Food and Agricultural Organization of United Nations, the Global Food Import Bill has reached approximately _____ US dollars.
(A) 1 trillion
(B) 2 trillion
(C) 3 trillion
(D) 4 trillion
012. The Government of India has changed the Aadhar laws to state that supporting documentation must be updated at least once by Aadhar holders after _____ from the enrolled date.
(A) 5 years
(B) 6 years
(C) 8 years
(D) 10 years
013. According to the United Nations World Population Prospects 2022, India will surpass China as world's most populated country by the year _____.
(A) 2023
(B) 2024
(C) 2025
(D) 2030
014. NASA has launched world's most powerful rocket and Orion spacecraft to the _____ as part of the Artemis Programme.
(A) Venus
(B) Mars
(C) Moon
(D) None of the above
015. On which day United Nations celebrates World Toilet Day?
(A) 19th November
(B) 25th November
(C) 30th November
(D) 5th December
016. With reference to Socialism, which of the following statements is/are correct?
(A) State Socialism which involves the nationalization of all means of production and distribution and abolition of the private property
(B) Democratic socialism on the other hand, holds faith in a mixed economy, where both public and private sectors coexist side by side
(C) Both A and B
(D) Neither A nor B

017. 1947ના ભારતીય સ્વતંત્રતા અધિનિયમ દ્વારા બંધારણ સભામાં નીચેના પૈકી કયો ફેરફાર કરવામાં આવ્યો હતો ?
- (A) બંધારણ સભા સંપૂર્ણ સાર્વભૌમ સંસ્થા તરીકે બનાવવામાં આવી.
 (B) આ અધિનિયમે બંધારણ સભાને ધારાકીય સભા પણ બનાવી.
 (C) બંધારણ સભાએ રાષ્ટ્રગીત અપનાવ્યું.
 (D) ઉપરોક્ત તમામ
018. બે સરકારો વચ્ચે થયેલા કરાર અને તેના પ્રોટોકોલ (રાજદ્વારી શિષ્ટાચાર)ના અનુસંધાનમાં ભારત દ્વારા અમુક પ્રદેશોના હસ્તાંતરણ અને અમુક પ્રદેશોને બાંગ્લાદેશમાં સ્થાનાંતરિત કરવા માટે કયો બંધારણીય સુધારા અધિનિયમ ઘડવામાં આવ્યો હતો ?
- (A) 99 (B) 100 (C) 101 (D) 84
019. જો કોઈ વ્યક્તિ, 26મી જાન્યુઆરી 1950 ના રોજ અથવા તે પછી, પરંતુ 10મી ડિસેમ્બર પહેલાં ભારતની બહાર જન્મેલ હોય, પરંતુ જો તેના પિતા તે વ્યક્તિના સમયે ભારતના નાગરિક હોય, તો તે વ્યક્તિ વંશજ તરીકે ભારતના નાગરિક છે.
- (A) 1990 (B) 1991 (C) 1992 (D) 1995
020. નીચેના પૈકી કયું વિધાન / કયા વિધાનો ભારતના બંધારણ હેઠળ સમાનતાના અપવાદ (Exceptions to Equality) છે ?
1. કલમ-361 અંતર્ગત રાષ્ટ્રપતિ અને રાજ્યોના રાજ્યપાલોને રક્ષણ મળે છે.
 2. રાષ્ટ્રપતિ અથવા રાજ્યપાલ વિરુદ્ધ તેમના હોદ્દાની મુદત દરમિયાન તેમણે કરેલા કોઈપણ કાર્ય માટે કોઈપણ પ્રકારની દીવાની કાર્યવાહી સંસ્થાપિત કરી શકાશે નહિ કે ચાલુ રાખી શકાશે નહિ.
 3. રાષ્ટ્રપતિ વિરુદ્ધ કોઈપણ અદાલત દ્વારા કોઈપણ ફોજદારી કાર્યવાહી સંસ્થાપિત કરી શકાશે નહિ કે ચાલુ રાખી શકાશે નહિ, પરંતુ સર્વોચ્ચ અદાલત દ્વારા રાજ્યપાલ વિરુદ્ધ ફોજદારી કાર્યવાહી ચાલુ રાખી શકાય છે.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2
021. કુટુંબની આવકને ધ્યાનમાં લીધા વિના, નીચેના પૈકી કઈ અસ્કયામત ધારકોને EWS તરીકે સુનિશ્ચિત કરવામાં આવે, તેમાંથી બાકાત રાખવામાં આવ્યા છે ?
1. જો તેઓ 5 એકર કે તેથી વધુ ખેતીની જમીન ધરાવતા હોય.
 2. જો કોઈ વ્યક્તિ 1000 ચો. ફૂટ કે તેથી વધુ ક્ષેત્રફળ ધરાવતા રહેણાંક ફ્લેટ ધરાવતી હોય.
 3. જો કોઈ વ્યક્તિ સૂચિત (notified) નગરપાલિકાઓમાં 100 ચો.યાર્ડ કે તેથી વધુ ક્ષેત્રફળ ધરાવતો રહેણાંક પ્લોટ ધરાવતી હોય.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2
022. 97મા બંધારણીય સુધારા કાયદા, 2011 હેઠળ ભારતના બંધારણના માર્ગદર્શક સિધ્ધાંતોમાં ઉમેરવામાં આવ્યું હતું.
- (A) રાજ્ય રમતગમત સંગઠનોની સ્વૈચ્છિક રચના, સ્વાયત્ત કામગીરીને પ્રોત્સાહિત કરે.
 (B) રાજ્ય મહિલા સ્વ-સહાય જૂથોની સ્વૈચ્છિક રચના, સ્વાયત્ત કામગીરીને પ્રોત્સાહિત કરે.
 (C) રાજ્ય સહકારી મંડળીઓની સ્વૈચ્છિક રચના, સ્વાયત્ત કામગીરીને પ્રોત્સાહિત કરે.
 (D) ઉપરોક્ત પૈકી એક પણ નહીં.

017. Which of the following changes were made by the Indian Independence Act of 1947 to the Constituent Assembly?
- (A) The Constituent Assembly was made as fully sovereign body
(B) The Act made Constituent Assembly also as legislative body
(C) The Constituent Assembly has adopted the National Anthem
(D) All of the above
018. Which of the Constitutional Amendment Act was enacted to give effect to the acquiring of certain territories by India and transfer certain territories to Bangladesh in pursuance of the agreement and its protocol entered into between the two governments?
- (A) 99 (B) 100 (C) 101 (D) 84
019. A person born outside India on or after January 26th 1950, but before 10th December _____ is a citizen of India by descent, if his father was citizen of India at the time of his birth.
- (A) 1990 (B) 1991
(C) 1992 (D) 1995
020. Which of the following statements is/are correct regarding Exceptions to Equality under Constitution of India?
1. The President and Governors of States enjoy the immunities under Article 361 of the Indian Constitution.
 2. No civil proceedings shall be instituted or continued against the President and Governor in any court during his/her term of office in respect of any act done by him.
 3. No criminal proceedings shall be instituted or continued against the President by any court, but criminal proceedings can be continued against the Governor by Supreme Court.
- (A) 1, 2 and 3 (B) 2 and 3 only
(C) 1 and 3 only (D) 1 and 2 only
021. Which of the following asset holders are excluded from being identified as EWSs, irrespective of the family income?
1. If they possess 5 acres of the agricultural land and above
 2. If anyone possesses a residential flat of 1000 Sq ft and above
 3. If anyone possesses residential plot of 100 sq yards and above in notified municipalities
- (A) 1, 2 and 3 (B) 2 and 3 only
(C) 1 and 3 only (D) 1 and 2 only
022. The 97th Constitutional Amendment Act of 2011 had added _____ Directive Principle to the Constitution of India.
- (A) State to promote voluntary formation, autonomous functioning of Sports associations
(B) State to promote voluntary formation, autonomous functioning of Women Self-help groups
(C) State to promote voluntary formation, autonomous functioning of Cooperative Societies
(D) None of the above

023. ભારતના બંધારણના નીચેના પૈકી કયા ઘટકોને ભારતીય બંધારણના મૂળભૂત માળખાના ભાગ તરીકે ગણવામાં આવે છે ?
1. કાયદાનું શાસન
 2. કલ્યાણ રાજ્ય (સામાજિક આર્થિક ન્યાય)
 3. વ્યક્તિ સ્વાતંત્ર્ય અને ગૌરવ (Dignity)
 4. મૂળભૂત અધિકારો અંતર્ગત સિધ્ધાંતો
 5. બંધારણની સર્વોપરિતા
- (A) માત્ર 1, 2, 3 અને 4 (B) માત્ર 2, 3, 4 અને 5 (C) માત્ર 1, 4 અને 5 (D) 1, 2, 3, 4 અને 5
024. ભારતીય બંધારણ સાથે સંબંધિત, નીચેના પૈકી કયો અધિનિયમ / સુધારો / ઠરાવ એ ત્રણ પ્રકારની ગણના (Threefold enumeration) અર્થાત ત્રણ યાદીઓ પ્રદાન કરે છે ?
- (A) હેતુલક્ષી ઠરાવ (B) ભારત સરકાર અધિનિયમ 1935
(C) બીજો બંધારણીય સુધારા અધિનિયમ 1953 (D) ઉપરોક્ત પૈકી એક પણ નહીં
025. ભારતના સંસદમાં સભા મોકૂફીની દરખાસ્ત (Adjournment Motion) વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. સભા મોકૂફીની દરખાસ્ત લોકસભામાં રજૂ કરવા માટે આ દરખાસ્તને સ્વીકારવા ઓછામાં ઓછા 50 સભ્યોનું સમર્થન જરૂરી છે.
 2. સભા મોકૂફીની દરખાસ્ત રાજ્યસભામાં રજૂ કરવા માટે આ દરખાસ્તને સ્વીકારવા ઓછામાં ઓછા 25 સભ્યોનું સમર્થન જરૂરી છે.
 3. સભા મોકૂફીની દરખાસ્ત બે થી વધુ મુદ્દાઓનો સમાવેશ કરી શકે નહિ.
- (A) 1, 2 અને 3 (B) માત્ર 1 (C) માત્ર 2 અને 3 (D) માત્ર 1 અને 3
026. ભારતમાં અંદાજપત્ર બાબતે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. અંદાજપત્રમાં બે પ્રકારના ખર્ચનો સમાવેશ થાય છે. એક ખર્ચ ભારતના એકીકૃત ભંડોળ પર આકારવામાં આવે છે.
 2. બીજો ખર્ચ ભારતના એકીકૃત ભંડોળમાંથી આકારવામાં આવે છે.
 3. આ ખર્ચની વસૂલી (charged expenditure) સંસદ દ્વારા મતદાનપાત્ર છે.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2
027. વિભાગીય સ્થાયી સમિતિ (Departmental Standing Committees) વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. પ્રત્યેક સ્થાયી સમિતિ 35 સદસ્યોની - 20 સદસ્યો લોકસભામાંથી અને 15 સદસ્યો રાજ્યસભામાંથી, બનેલી હોય છે.
 2. કોઈપણ મંત્રી કોઈપણ સ્થાયી સમિતિના સદસ્ય માટે નામાંકિત (nominated) થવા માટે પાત્રતા ધરાવતા નથી.
 3. પ્રત્યેક સ્થાયી સમિતિની મુદત તેની રચનાની તારીખથી એક વર્ષ માટેની હોય છે.
- (A) માત્ર 1 અને 2 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) 1, 2 અને 3

023. Which of the following components of the Indian Constitution is considered as part of the Basic Structure of the Indian Constitution?
1. Rule of Law
 2. Welfare State (Socio Economic Justice)
 3. Freedom and Dignity of the Individual
 4. Principles underlying fundamental rights
 5. Supremacy of the Constitution
- (A) 1, 2, 3 and 4 only (B) 2, 3, 4 and 5 only
(C) 1, 4 and 5 only (D) 1, 2, 3, 4 and 5
024. Which of the following Act/amendment/resolution related to the Indian Constitution provides for the threefold enumeration i.e three lists?
- (A) Objective resolution
 - (B) Government of India Act 1935
 - (C) 2nd Constitutional Amendment Act of 1953
 - (D) None of the above
025. Which of the following statements is/are correct regarding the Adjournment Motion in Indian Parliament?
1. To introduce the adjournment motion in the Lok Sabha, a minimum of 50 members' support is required to admit the motion
 2. To introduce the adjournment motion in the Rajya Sabha, a minimum of 25 members' support is required to admit the motion
 3. The adjournment motion should not cover more than two issues
- (A) 1, 2 and 3 (B) 1 only (C) 2 and 3 only (D) 1 and 3 only
026. Which of the following statements is/are correct regarding Budget in India?
1. The Budget consists of two types of expenditures: first one, the expenditure is charged on the Consolidated Fund of India.
 2. Second one, Expenditure is made from the Consolidated Fund of India
 3. The charged expenditure is votable by the Parliament
- (A) 1, 2 and 3 (B) 2 and 3 only
(C) 1 and 3 only (D) 1 and 2 only
027. Which of the following statements is/are correct regarding Departmental Standing Committees?
1. Each Standing Committee consists of 35 members, 20 from Lok Sabha and 15 members from Rajya Sabha
 2. A Minister is not eligible to be nominated as a member of any of the Standing Committee
 3. The term of office of each Standing Committee is one year from the date of its constitution
- (A) 1 and 2 only (B) 2 and 3 only
(C) 1 and 3 only (D) 1, 2 and 3

028. ભારતના બંધારણની 393મી કલમ ની સ્પષ્ટતા કરે છે.
 (A) ભારતનું બંધારણ 'ભારતના લોકોનો દસ્તાવેજ' કહેવાય છે.
 (B) ભારતનું બંધારણ 'ભારતનો સર્વોચ્ચ કાનૂની દસ્તાવેજ' કહેવાશે.
 (C) ભારતનું સંવિધાન 'ભારતનું સંવિધાન' કહેવાશે.
 (D) ઉપરોક્ત તમામ
029. જો કોઈ સદસ્યએ ગૃહની પરવાનગી વિના તેની તમામ બેઠકોમાં થઈને દિવસની મુદત સુધી ગેરહાજર રહે, તો રાજ્ય વિધાનસભા ગૃહ તે સભ્યની બેઠક ખાલી પડેલ હોવાનું જાહેર કરી શકશે.
 (A) 30 દિવસ (B) 60 દિવસ (C) 90 દિવસ (D) 180 દિવસ
030. નીચેના પૈકી કઈ સમિતિઓ ભારતમાં પંચાયતી રાજ સંસ્થાઓ સાથે સંબંધિત છે ?
 1. પી. કે. શુંગન સમિતિ 2. નચિકેતા સમિતિ
 3. વી. એન. ગાડગીલ સમિતિ 4. શ્રીમતી દયા ચોબે સમિતિ
 (A) માત્ર 1, 2 અને 4 (B) માત્ર 1 અને 3 (C) માત્ર 1, 3 અને 4 (D) માત્ર 2 અને 4
031. અર્થતંત્રના અંગભૂત ઘટકો વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
 (A) NDP રાષ્ટ્રના આર્થિક ઉત્પાદનનું વાર્ષિક માપન (annual measure) છે જે અવમૂલ્યનના ખાતામા સમાયોજિત થાય છે અને GDP માંથી અવમૂલ્યન બાદ કરીને તેની ગણતરી કરવામાં આવે છે.
 (B) NNP આપેલ સમયગાળામાં દેશના નાગરિકોએ દેશ અને વિદેશમાં ઉત્પાદિત કરેલ તૈયાર માલ અને સેવાનું નાણાંકિય મૂલ્ય છે.
 (C) (A) તથા (B) બંને
 (D) (A) અથવા (B) પૈકી એક પણ નહીં
032. નીચેના પૈકી કયા એ બહુ પરિમાણવીય ગરીબી સૂચકાંક (Multi-Dimensional Poverty Index) હેઠળના નિર્દેશકો છે ?
 1. વીજળી 2. આવાસ 3. પીવાનું પાણી
 4. રસોઈ ઈંધણ 5. શાળાકીય શિક્ષણના વર્ષો
 (A) 1, 2, 3, 4 અને 5 (B) માત્ર 3, 4 અને 5 (C) માત્ર 1, 2 અને 5 (D) માત્ર 1, 2 અને 3
033. બેરોજગારીના પ્રકારો વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
 1. પ્રચ્છન્ન બેરોજગારી (Disguised Unemployment) – જો કોઈ વ્યક્તિ ઉત્પાદન પ્રક્રિયામાં ફાળો આપતો ન હોય.
 2. વેપારચક્રીય બેરોજગારી (Cyclical Unemployment) – તે કામચલાઉ અને ટૂંકાગાળાની ઘટના છે.
 3. દીર્ઘકાલીન બેરોજગારી (Chronic Unemployment) – જ્યારે બેરોજગારી એ દેશનું લાંબા સમયગાળા માટેનું લક્ષણ હોય છે.
 (A) માત્ર 1 અને 2 (B) માત્ર 2 અને 3
 (C) માત્ર 1 અને 3 (D) 1, 2 અને 3

028. Article 393 of the Indian Constitution explains _____.
- (A) The Constitution of India may be called the 'Peoples Document of India'
(B) The Constitution of India may be called the 'Supreme legal document of India'
(C) The Constitution of India may be called the 'Constitution of India'
(D) All of the above
029. A House of the state legislature can declare the seat of a member vacant, if He/She absents from all its meetings for a period of _____ days without its permission.
- (A) 30 days (B) 60 days
(C) 90 days (D) 180 days
030. Which of the following committees are related to the Panchayat Raj Institutions in India?
1. P. K. Thungan Committee
 2. Nachiketa Committee
 3. V. N. Gadgil Committee
 4. Smt. Daya Choubey Committee
- (A) 1, 2 and 4 only (B) 1 and 3 only
(C) 1, 3 and 4 only (D) 2 and 4 only
031. Which of the following statements is/are correct regarding the components of Economy?
- (A) NDP is an annual measure of the economic output of a nation that is adjusted to account for depreciation and is calculated by subtracting depreciation from the GDP
(B) NNP is the monetary value of finished goods and services produced by a country's citizens, overseas and domestically in a given period
(C) Both A and B
(D) Neither A nor B
032. Which of the following are the indicators under Multi-Dimensional Poverty Index?
1. Electricity 2. Housing 3. Drinking water 4. Cooking Fuel 5. Years of Schooling
- (A) 1, 2, 3, 4 and 5 (B) 3, 4 and 5 only
(C) 1, 2 and 5 only (D) 1, 2 and 3 only
033. Which of the following statements is/are correct regarding the types of Unemployment?
1. Disguised Unemployment - if a person does not contribute in the production process
 2. Cyclical Unemployment - it is a temporary and short term phenomenon
 3. Chronic Unemployment - When unemployment tends to be a long term feature of a country
- (A) 1 and 2 only (B) 2 and 3 only
(C) 1 and 3 only (D) 1, 2 and 3

034. રાજકોષીય નીતિ (Fiscal Policy) હેઠળ, સરકાર (RBI નહિ) નીચેના પૈકી કઈ રીતે કુગાવાને અંકુશમાં લે છે ?
1. ખાનગી ખર્ચમાં ઘટાડો કરીને
 2. બિન વિકાસ લક્ષી સરકારી ખર્ચમાં ઘટાડો કરીને
 3. કલ્યાણલક્ષી પ્રવૃત્તિઓ માટે વધુ ભંડોળ ફાળવીને
- (A) 1, 2 અને 3 (B) માત્ર 1 અને 2 (C) માત્ર 2 અને 3 (D) માત્ર 1 અને 3
035. રાજકોષીય નીતિમાં ત્રણ પાસાઓનો સમાવેશ થાય છે જે છે.
1. સરકારી આવક
 2. સરકારી ખર્ચ
 3. બેંકો સાથે જાહેર ધિરાણ
 4. જાહેર દેવું
- (A) માત્ર 1, 2 અને 3 (B) માત્ર 2, 3 અને 4 (C) માત્ર 1, 3 અને 4 (D) માત્ર 1, 2 અને 4
036. નીચેના પૈકી કઈ જોડી / જોડીઓ યોગ્ય રીતે જોડાયેલી છે ?
1. મહેસૂલી આવક – કરવેરા આવક, બિન કરવેરા આવક
 2. મૂડી આવક – લોનની વસૂલાત, મૂડીક્ષય (Disinvestments)
 3. કરવેરા આવક – ફી, લાયસન્સ અને પરવાના, વિશેષ આકારણી ફી
- (A) માત્ર 1 અને 2 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) 1, 2 અને 3
037. નીચેના પૈકી કયા રાજ્ય કરવેરાઓ વસ્તુ અને સેવા કર માં શામેલ થઈ ગયા ?
1. ખરીદી વેરા (Purchase tax)
 2. વૈભવ કર (Luxury tax)
 3. સેવા કર (Service tax)
 4. મંદી કર (Mandi tax)
- (A) 1, 2, 3 અને 4 (B) માત્ર 2, 3 અને 4 (C) માત્ર 1, 2 અને 4 (D) માત્ર 1 અને 3
038. વિવિધ પ્રકારની ખાધ વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. અંદાજપત્રીય ખાધ = અંદાજપત્રીય ખર્ચ – અંદાજપત્રીય આવક
 2. મહેસૂલી ખાધ = જનતા પાસેથી ઉધાર લઈને અથવા તો મૂડીક્ષય (disinvestment) દ્વારા તે ભંડોળ પૂરું પાડવામાં આવે છે.
 3. રાજકોષીય ખાધ = તે સરકારની કુલ આવક અને કુલ ખર્ચ વચ્ચેનો તફાવત છે.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3
(C) માત્ર 1 અને 2 (D) માત્ર 1 અને 3
039. અંદાજપત્રના પ્રકારો વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
- (A) શૂન્ય આધારિત અંદાજપત્ર શરૂઆતથી શૂન્યને આધાર લઈને તૈયાર કરવામાં આવે છે.
 - (B) અંદાજપત્ર – આ અંદાજપત્રમાં છેલ્લા વર્ષના અંદાજપત્રને આધાર તરીકે લેવામાં આવે છે.
- (C) (A) તથા (B) બંને
(D) (A) અથવા (B) પૈકી એક પણ નહીં

040. ભારતમાં આયોજનની પ્રયુક્તિઓ બાબતે નીચેના પૈકી કઈ જોડી / જોડીઓ યોગ્ય રીતે જોડાયેલી છે ?
1. હરોડ-ડોમાર મોડેલ (Harrod-Domar Model) – તેનાથી રાષ્ટ્રીય આવકમાં વધારો થયો. (માંગ તરફની ભૂમિકા)
 2. નેહરુ-મહાલનોબીસ મોડેલ (Nehru-Mahalanobis Model) – આ પ્રયુક્તિ બે ક્ષેત્રના મોડેલ આધારિત હતી. - વપરાશની ચીજવસ્તુઓ ક્ષેત્ર (Consumer goods) અને મૂડીની ચીજવસ્તુઓ (Capital goods) ક્ષેત્ર
 3. ગાંધી પ્રયુક્તિ – વિનોબા ભાવે દ્વારા મુસદ્દો તૈયાર કરવામાં આવ્યો હતો.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2
041. ભારતીય રીઝર્વ બેંક (RBI) વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. શેરધારકોની કંપની તરીકે RBIનો પ્રારંભ કરવામાં આવ્યો હતો, પરંતુ 1949માં તેનું રાષ્ટ્રીયકરણ કરવામાં આવ્યું.
 2. મનમોહન સિંઘ ઉપરાંત મોરારજીભાઈ દેસાઈ, જેઓ પ્રધાનમંત્રી હતા, તેઓએ RBIના ગવર્નર તરીકે ફરજો બજાવી હતી.
 3. RBIનું પ્રતીક સિંહ અને લીમડાનું વૃક્ષ છે.
- (A) 1, 2 અને 3 (B) માત્ર 2 (C) માત્ર 1 (D) માત્ર 2 અને 3
042. કુગાવાને ઘટાડવા માટે,
1. રોકડ અનામત અનુપાતમાં વધારો કરવો.
 2. રેપો દરમાં ઘટાડો કરવો.
 3. બેંક દરમાં વધારો કરવો.
- (A) માત્ર 1 અને 2 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) 1, 2 અને 3
043. જાહેર ક્ષેત્રની બેંકો વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. ભારત સરકારે, 2019માં, જાહેર ક્ષેત્રની 12 બેંકોની, જાહેર ક્ષેત્રની 6 બેંકોમાં વિલીનીકરણ કરવાની પ્રક્રિયા પૂર્ણ કરી.
 2. હાલમાં ભારતમાં જાહેર ક્ષેત્રની કુલ 12 બેંકો અસ્તિત્વમાં છે.
 3. વિલીનીકરણ બાદ, પંજાબ નેશનલ બેંક એ જાહેર ક્ષેત્રની બીજા ક્રમની સૌથી મોટી બેંક બની છે.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2
044. તિજોરી વિધેયક (Treasury Bills (T-Bills)) વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. આ વિધેયક એ જોખમ મુક્ત ગણવામાં આવે છે અને તે અત્યંત તરલ (રોકડ) (liquid) હોય છે.
 2. કેન્દ્ર સરકાર અને રાજ્ય સરકારો એ T-Bills જારી કરવા માટે પાત્રતા ધરાવે છે.
 3. T-Bills ત્રણ પ્રકારના હોય છે. – 91 દિવસ, 182 દિવસ, 364 દિવસના વિધેયક
- (A) માત્ર 1 અને 3 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 2 (D) 1, 2 અને 3
045. પ્રધાનમંત્રી અન્નદાતા આય સંરક્ષણ અભિયાન (PM-AASHA) વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
- (A) આ યોજના કઠોળ, તેલિબિયાં અને કોપરાની ખેતી કરતાં ખેડૂતોને લાભદાયી ભાવ સુનિશ્ચિત કરવા માટે છે.
- (B) આ સંરક્ષણ (umbrella) યોજના 3 ઘટકો ધરાવે છે. - ટેકાના ભાવની યોજના, ભાવની ઘટની ચૂકવણી યોજના તથા નીજ પ્રાપ્તિ અને સ્ટોકીસ્ટ યોજનાનો પાયલોટ
- (C) (A) તથા (B) બંને
- (D) (A) અથવા (B) પૈકી એક પણ નહીં

046. ગાંધાર કળા શૈલી બાબતે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. ગાંધાર કળા શૈલીનો વિકાસ પંજાબના પશ્ચિમ સીમાવર્તી પ્રદેશમાં, કે જે અર્વાચીન સમયમાં પેશાવર અને અફઘાનિસ્તાનની નજીક છે ત્યાં થયો હતો.
 2. ગાંધાર કળા શૈલીની એક શાળા વાદળી રાખોડી રેતીયા પથ્થર (Bluish Grey Sandstone)નો ઉપયોગ કરતી હતી.
 3. આ શૈલીમાં ત્યાર પછીના સમયગાળામાં શિલ્પકામ માટે માટી અને સાગોળ (stucco) નો ઉપયોગ કરવામાં આવતો હતો.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3
(C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2
047. સોલંકી સ્થાપત્ય કળા વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય નથી ?
- (A) સ્થાપત્યની આ કળા શૈલી એ ગુજરાત અને રાજસ્થાનમાં વિકસી હતી.
(B) મંદિરની દિવાલો કોઈપણ પ્રકારની કોતરણી ધરાવતી ન હતી.
(C) આ કળાનું અજોડ લક્ષણ એ પગથીયા ધરાવતી ટાંકી (step tank) હતી.
(D) ઉપરોક્ત પૈકી એક પણ નહીં
048. નીચેના પૈકી કયા સ્થળો અશોકના મુખ્ય શિલાલેખ ફરમાનના સ્થાનો છે ?
1. માનેશ્રા (Maneshra)
 2. સન્નતી (Sannati)
 3. ધૌલી (Dhauri)
 4. બોધાન (Bodhan)
- (A) 1, 2, 3 અને 4 (B) માત્ર 1, 2 અને 3
(C) માત્ર 2, 3 અને 4 (D) માત્ર 1 અને 4
049. અપભ્રંશ (Apabhramsa) લઘુચિત્ર ચિત્રકળા શૈલી વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
- (A) આ શૈલીનો ઉદ્ભવ ગુજરાત તથા રાજસ્થાનના મેવાડ ક્ષેત્રમાં થયો હતો.
(B) આ શૈલીમાં, પ્રારંભમાં જૈન સમયમાં તાડના પર્ણ ઉપર ચિત્રો દોરવામાં આવતા હતા, પરંતુ ત્યાર પછીના સમયમાં તે કાગળ ઉપર દોરવામાં આવતા હતા.
(C) (A) તથા (B) બંને
(D) (A) અથવા (B) પૈકી એક પણ નહીં
050. નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. ગુજરાતની તંગાલીયા (Tangalia) શાલ ટપકાંવાળુ અને વણાટવાળું કાપડ છે.
 2. કચ્છી શાલ મુખ્યત્વે કચ્છ ક્ષેત્રમાં વણકર અને મેઘવાલ સમુદાય દ્વારા વણાતુ કાપડ છે.
 3. તંગાલીયા શાલ એક માત્ર એવી શાલ છે કે જેણે ભૌગોલિક નિર્દેશો પ્રાપ્ત કર્યા છે.
- (A) માત્ર 1 અને 3 (B) માત્ર 2 અને 3
(C) માત્ર 1 અને 2 (D) 1, 2 અને 3

046. Which of the following statements is/are correct regarding Gandhara School of Art?
1. The Gandhara School of Art developed in the western frontiers of Punjab, near modern day Peshawar and Afghanistan
 2. One school of Gandhara School of Art used Bluish Grey Sandstone
 3. The later school used mud and stucco for making the sculptures
- (A) 1, 2 and 3
(B) 2 and 3 only
(C) 1 and 3 only
(D) 1 and 2 only
047. Which of the following statements is/are INCORRECT regarding Solanki School of Architecture?
- (A) This school of Architecture flourished in Gujarat and Rajasthan
(B) The temple walls were devoid of any carvings
(C) The unique feature of this school is the presence of a step tank
(D) None of the above
048. Which of the following sites are the location for the Major Rock edicts of Ashoka?
1. Maneshra 2. Sannati 3. Dhauli 4. Bodhan
- (A) 1, 2, 3 and 4
(B) 1, 2 and 3 only
(C) 2, 3 and 4 only
(D) 1 and 4 only
049. Which of the following statements is/are correct regarding the Apabhramsa school of miniature paintings?
- (A) This school traces its origin to Gujarat and the Mewar region in Rajasthan
(B) In this school, the early Jain phase, the paintings were made on palm leaf but in the later period they were executed on paper
(C) Both A and B
(D) Neither A nor B
050. Which of the following statements is/are correct?
1. Tangalia shawl of Gujarat is a dotted and woven textile
 2. Kachchhi shawl is mainly woven by the Vankar and Meghwal community in the Kachchh region
 3. Tangalia shawl is the only shawl which has received the Geographical Indication
- (A) 1 and 3 only
(B) 2 and 3 only
(C) 1 and 2 only
(D) 1, 2 and 3

051. નીચેના પૈકી કઈ જોડી / જોડીઓ યોગ્ય રીતે જોડાયેલી છે ?

1. અજરાખા (Ajrakha) ચિત્રો – બ્લોક પ્રિન્ટેડ ટેક્સટાઈલ
2. માતાની પછેડી – લાલ રંગ મુખ્ય રંગ તરીકે વપરાય છે.
3. પાટણ પટોળા – કીમતી હાથશાળ સિલ્ક સાડી
4. આરી ભરતકામ – ગુજરાત

(A) 1, 2, 3 અને 4

(B) માત્ર 2, 3 અને 4

(C) માત્ર 1, 2 અને 3

(D) માત્ર 1 અને 4

052. નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?

1. સંખેડાનું રાયરચીલું (ફર્નીચર) 100% પરિપક્વ સાગના લાકડામાંથી બને છે.
2. આ સંખેડાના રાયરચીલા (ફર્નીચર)એ ભૌગોલિક નિર્દેશો પ્રાપ્ત કર્યા છે.
3. ઉત્પાદકો દ્વારા વસ્ત્રો ઉપર પ્રિન્ટીંગ માટે પેથાપુર પ્રિન્ટીંગ બ્લોકનો ઉપયોગ કરવામાં આવે છે.

(A) માત્ર 1 અને 2

(B) માત્ર 1 અને 3

(C) માત્ર 2 અને 3

(D) 1, 2 અને 3

053. રાણી કી વાવ વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?

1. વર્ષ 2000માં આ સ્થળ વિશ્વ ધરોહર સ્થળ તરીકે જાહેર કરવામાં આવ્યું હતું.
2. તે સરસ્વતી નદીના કાંઠે સ્થિત છે.
3. તે મારુગુર્જર (Maru-Gurjara) સ્થાપત્ય શૈલીમાં બાંધવામાં આવી છે.

(A) માત્ર 1 અને 2

(B) માત્ર 2 અને 3

(C) માત્ર 1 અને 3

(D) 1, 2 અને 3

054. સમુદાયો અને સંગીત સાથેના તેમના સંબંધો વિશે નીચે આપેલ કયું વિધાન / કયા વિધાનો સત્ય છે ?

- (A) લંઘા (Langha) મુસ્લિમ આદિવાસી સમુદાય મુખ્યત્વે ગુજરાત અને રાજસ્થાનમાં સ્થિત છે.
- (B) બારોટ, ચારણ અને ગઢવી મુખ્યત્વે ગુજરાતના વાર્તા કહેનારા (story telling) સમુદાયો છે.

(C) (A) તથા (B) બંને

(D) (A) અથવા (B) પૈકી એક પણ નહીં

055. લોકનૃત્યો અને તેમના રાજ્યોની નીચે આપેલી જોડીઓને યોગ્ય રીતે જોડો.

યાદી - I

યાદી - II

1. કોલાટમ (Kolattam)

a. આંધ્રપ્રદેશ

2. રાઉત નાચ (Raut Nacha)

b. છત્તીસગઢ

3. બિહુ (Bihu)

c. આસામ

4. જત-જતીન (Jat-Jatin)

d. બિહાર

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

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

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

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

- 051. Which of the following pairs is/are correctly matched?**
1. Ajrakha Paintings – Block Printed textile
 2. Mata Ni Pachedi – Red is the main colour used
 3. Patan Patola – Rich handloom silk sarees
 4. Aari Embroidery – Gujarat
- (A) 1, 2, 3 and 4 (B) 2, 3 and 4 only
(C) 1, 2 and 3 only (D) 1 and 4 only
- 052. Which of the following statements is/are correct?**
1. Sankheda furniture is made from 100% seasoned teakwood
 2. This Sankheda furniture has received Geographical Indication
 3. Pethapur Printing Blocks are used by manufacturers for printing on garments
- (A) 1 and 2 only (B) 1 and 3 only
(C) 2 and 3 only (D) 1, 2 and 3
- 053. Which of the following statements is/are correct regarding Rani Ki Vav?**
1. This site was recognized as World Heritage Site in 2000
 2. This is situated on the banks of Saraswati river
 3. Built in *Maru-Gurjara* architectural style
- (A) 1 and 2 only (B) 2 and 3 only
(C) 1 and 3 only (D) 1, 2 and 3
- 054. Which of the following statements is/are correct regarding the communities and their relation with music?**
- (A) Langha Muslim Tribal Community mainly located in Gujarat and Rajasthan
(B) Barot, Charan and Gadhvi are mainly story-telling communities of Gujarat
(C) Both A and B
(D) Neither A nor B
- 055. Match the following folk dances and their states:**
- | List-I | List-II |
|---------------|-------------------|
| 1. Kolattam | a. Andhra Pradesh |
| 2. Raut Nacha | b. Chhattisgarh |
| 3. Bihu | c. Assam |
| 4. Jat-Jatin | d. Bihar |
- (A) 1 - a, 2 - b, 3 - c, 4 - d (B) 1 - b, 2 - c, 3 - d, 4 - a
(C) 1 - c, 2 - d, 3 - a, 4 - b (D) 1 - d, 2 - a, 3 - b, 4 - c

056. ભારતમાં લોક રંગભૂમિ (Folk Theatre) વિશે નીચેના પૈકી કઈ જોડીઓ યોગ્ય રીતે જોડાયેલી છે ?
1. ભાઓના (Bhaona) – આસામ
 2. રામલીલા – ઉત્તર પ્રદેશ
 3. બાયલતા (Bayalata) – બિહાર
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3
(C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2
057. ભારતમાં લશ્કરી કળા (Martial Arts) વિશે નીચેના પૈકી કઈ જોડી / જોડીઓ યોગ્ય રીતે જોડાયેલી નથી ?
- (A) Sqay (સ્કવાય) – મહારાષ્ટ્ર
 - (B) Paikha Akhada (પાઈખા અખાડા) – ઓરિસ્સા
 - (C) Adimurai (આદિમુરાઈ) – તામિલનાડુ, કેરળ
 - (D) Mukna (મુકના) – મણિપુર
058. નીચેના પૈકી કઈ ભાષા / ભાષાઓને ભારતની પ્રશિષ્ટ ભાષા / ભાષાઓ તરીકે માન્યતા આપવામાં આવી છે ?
- (A) તમિલ (B) તેલુગુ
 - (C) ઓડિયા (D) ઉપરોક્ત તમામ
059. વેદો વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. તમામ વેદો અથવા સંહિતાઓ, યજ્ઞને પ્રાધાન્ય આપે છે.
 2. ઋગ્વેદ ચાર વેદો પૈકીનો સૌથી પ્રાચીન વેદ છે.
 3. ઋગ્વેદ મુખ્યત્વે સાંસારિક સમૃદ્ધિ અને કુદરતી સૌંદર્યની બાબતો ઉપર કેન્દ્રીત છે.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3
(C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2
060. નીચેના પૈકી કયું સ્થળ ચાલ્કોલિથિક (Chalcolithic) સ્થળ નથી ?
- (A) ગિલુન્ડ (Gilund) (B) માલવા (Malwa)
 - (C) સોનપુર (Sonpur) (D) મહાડહા (Mahadaha)
061. પ્રખ્યાત હડપ્પન સ્થળો વિશે નીચે આપેલી કઈ જોડી / જોડીઓ યોગ્ય રીતે જોડાયેલી છે ?
1. હડપ્પા – રાવી
 2. મોહેં-જો-દારો – સિંધુ
 3. રંગપુર – મદાર (Madar)
 4. કાલીબંગાન – સિંધ
- (A) 1, 2, 3 અને 4 (B) માત્ર 1, 2 અને 3
(C) માત્ર 1 અને 4 (D) માત્ર 2, 3 અને 4

056. Which of the following pairs are correctly matched regarding Folk Theatre in India?
1. Bhaona - Assam
 2. Ramlila - Uttar Pradesh
 3. Bayalata - Bihar
- (A) 1, 2 and 3 (B) 2 and 3 only
(C) 1 and 3 only (D) 1 and 2 only
057. Which of the following pairs is/are INCORRECTLY matched regarding Martial Arts in India?
- (A) Sqay – Maharashtra
 - (B) Paikha Akhada – Odisha
 - (C) Adimurai – Tamil Nadu, Kerala
 - (D) Mukna – Manipur
058. Which of the following language/languages is/are recognized as the classical language/languages of India?
- (A) Tamil (B) Telugu
(C) Odia (D) All of the above
059. Which of the following statements is/are correct regarding Vedas?
1. All the Vedas or Samhitas give prominence to Yagna
 2. The Rig Veda is the oldest existing veda amongst the four
 3. The focus of Rig Veda is on worldly prosperity and natural beauty
- (A) 1, 2 and 3 (B) 2 and 3 only
(C) 1 and 3 only (D) 1 and 2 only
060. Which of the following site is not a Chalcolithic Sites?
- (A) Gilund (B) Malwa
(C) Sonpur (D) Mahadaha
061. Which of the following pairs is/are correctly matched regarding famous Harappan sites?
1. Harappa – Ravi
 2. Mohenjo-daro – Indus
 3. Rangpur – Madar
 4. Kalibangan – Sindh
- (A) 1, 2, 3 and 4 (B) 1, 2 and 3 only
(C) 1 and 4 only (D) 2, 3 and 4 only

062. મહાજનપદ વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
- (A) અસ્સાકા (Assaka) મહાજનપદ હાલના આંધ્રપ્રદેશ રાજ્યમાં સ્થિત હતું.
 (B) પ્રખ્યાતનગર કનોજ એ પાંચાલ મહાજનપદમાં સ્થિત હતું.
 (C) (A) તથા (B) બંને
 (D) (A) અથવા (B) પૈકી એક પણ નહીં
063. રુદ્રદામન-પહેલા વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
- (A) તેણે કાઠીયાવાડ ક્ષેત્રમાં સ્થિત સુદર્શન તળાવની સુધારણા માટે સમારકામ હાથ ધર્યું હતું.
 (B) રુદ્રદામન-પહેલાએ ગૌતમીપુત્ર સાતકર્ણીને હરાવ્યો હતો તે બાબતનો ઉલ્લેખ ગિરનારના શિલાલેખમાં છે.
 (C) (A) તથા (B) બંને
 (D) (A) અથવા (B) પૈકી એક પણ નહીં
064. મૈત્રક રાજવંશ વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. મૈત્રક શાસકો, એ ગુપ્તશાસકોના સહાયક વડાઓ (tributary chiefs) હતા.
 2. મૈત્રક રાજવંશનો ધ્રુવસેન-બીજો એ હર્ષવર્ધનનો સમકાલીન હતો.
 3. મૈત્રકોએ વલ્લભીને પોતાની રાજધાની તરીકે વિકસાવી હતી કે જે એક બંદર પણ હતું.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3
 (C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2
065. પ્રતિહાર રાજવંશ વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. આ રાજ્યવંશ એ ગુર્જર પ્રતિહાર તરીકે પણ જાણીતો હતો.
 2. આ રાજવંશની સ્થાપના હરિશચંદ્ર દ્વારા જોધપુરમાં અને તેની આસપાસના વિસ્તારમાં કરવામાં આવી હતી.
 3. નાગભટ્ટ પહેલો આ રાજવંશનો પ્રસિધ્ધ શાસક હતો.
- (A) માત્ર 1 અને 2 (B) માત્ર 2 અને 3
 (C) માત્ર 1 અને 3 (D) 1, 2 અને 3
066. ગુજરાતના ચાલુક્ય શાસકો વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાન સત્ય છે ?
1. મૂળરાજ-પહેલાએ અણહિલવાડને રાજધાની બનાવી રાજ્યનું શાસન કર્યું.
 2. આ રાજવંશના ભીમ-પહેલાએ મોઢેરાનું સૂર્યમંદિર બંધાવ્યું.
 3. આ રાજવંશના કુમારપાળે સોમનાથ મંદિરનો જીર્ણોદ્ધાર કરાવ્યો.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3
 (C) માત્ર 1 અને 3 (D) માત્ર 1 અને 2

062. Which of the following statements is/are correct regarding Mahajanapada?
- (A) Assaka Mahajanapada was located in the present state of Andhra Pradesh
 (B) The famous city of Kannauj was situated in the Panchala Mahajanapada
 (C) Both A and B
 (D) Neither A nor B
063. Which of the following statements is/are correct regarding Rudradaman-I?
- (A) He undertook the repairs to improve the Sudarshan lake located in the Kathiawar region
 (B) The Girnar rock inscription mentioned that Rudradaman-I defeated Gautamiputra Satakarni
 (C) Both A and B
 (D) Neither A nor B
064. Which of the following statements is/are correct regarding Maitraka Dynasty?
1. The Maitrakas were tributary chiefs of the Guptas
 2. Dhruvasena II of the Maitraka Dynasty was the contemporary of Harshavardhana
 3. Maitrakas developed Vallabhi as their capital, which was also a port town
- (A) 1, 2 and 3 (B) 2 and 3 only
 (C) 1 and 3 only (D) 1 and 2 only
065. Which of the following statements is/are correct regarding the Pratihara Dynasty?
1. This dynasty also known as the Gurjara Pratiharas
 2. The dynasty was founded by Harichandra in and around Jodhpur
 3. Nagabhata I was a prominent ruler of this dynasty
- (A) 1 and 2 only (B) 2 and 3 only
 (C) 1 and 3 only (D) 1, 2 and 3
066. Which of the following statements is/are correct regarding the Chalukyas of Gujarat?
1. Mulraja-I ruled the kingdom with Anahilavada as capital
 2. Bhima-I of this dynasty has built the Modhera Sun temple
 3. Kumarapala of this dynasty has rebuilt the Somnath temple
- (A) 1, 2 and 3 (B) 2 and 3 only
 (C) 1 and 3 only (D) 1 and 2 only

067. મરાઠાઓ વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?

1. પેશ્વા બાલાજી વિશ્વનાથ મરાઠા રાજ્યના બીજા સ્થાપક તરીકે જાણીતા છે.
2. પેશ્વા બાલાજી બાજીરાવ નાના સાહેબ તરીકે પણ જાણીતા હતા.
3. નાના સાહેબ 1857ના વિપ્લવ દરમ્યાન નેતા હતા.
4. પાણિપતના ત્રીજા યુદ્ધમાં, ઔરંગઝેબ અને મરાઠાના લશ્કરી દળો પાણિપત ખાતે મળ્યા હતા.

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

068. ભારતમાં ડચ (Dutch) શાસકોની પ્રવૃત્તિઓ બાબતે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?

1. આંધ્રમાં મસુલીપટનમ ખાતે પ્રથમ ડચ ફેક્ટરી સ્થાપવામાં આવી હતી.
2. 1610માં, ડચ શાસકોએ ચંદ્રગીરીના રાજા સાથે સંધિ પર હસ્તાક્ષર કર્યા અને મેંગલોર ખાતે તેમનું મુખ્યાલય સ્થાપ્યું હતું.
3. બેદારા (Bedara)ના યુદ્ધથી ભારતમાં ડચ સત્તાનો અંત આવ્યો.

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

069. યાદી - I ને યાદી - II સાથે જોડો.

યાદી - I

1. સન્યાસી-ફકીર વિદ્રોહ
2. કોલ બળવો
3. રાંપા વિદ્રોહ
4. વાઘેરા વિદ્રોહ

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

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

યાદી - II

- a. બંગાળ અને બિહાર
- b. છોટા નાગપુર
- c. આંધ્ર
- d. ઓખા ક્ષેત્ર

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

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

070. યાદી - I ને યાદી - II સાથે જોડો.

યાદી - I

(1857ના વિપ્લવ દરમ્યાનનો વિસ્તાર)

1. લખનૌ
2. બરેલી
3. કાનપુર
4. દિલ્હી

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

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

યાદી - II

(નેતા)

- a. બેગમ હઝરતમુલ
- b. ખાન બહાદુર ખાન
- c. નાના સાહેબ અને તાત્યા ટોપે
- d. ભાક્ત ખાન

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

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

067. Which of the following statements is/are correct regarding the Marathas?

1. Peshwa Balaji Vishwanath is known as the second founder of the Maratha State
2. Peshwa Balaji Baji Rao was also known as Nana Sahib
3. Nana Sahib was a leader during the revolt of 1857
4. In the Third Battle of Panipat, the forces of Aurangzeb and Marathas met at Panipat

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

068. Which of the following statements is/are correct regarding the Dutch rulers' activities in India?

1. The first Dutch factory was established at Masulipatnam in Andhra
2. In 1610, the Dutch signed a treaty with the king of Chandragiri and established headquarters at Mangalore
3. Battle of Bedara ended the Dutch power in India

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

069. Match the following List-I with List-II:

List-I

1. Sanyasi-Fakir Rebellion
2. Kol Uprising
3. Rampa Rebellion
4. Waghera Rising

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

List-II

- a. Bengal and Bihar
- b. Chota Nagpur
- c. Andhra
- d. Okha Region

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

070. Match the following List-I with List-II:

List-I

(Region of Revolt during 1857)

1. Lucknow
2. Bareilly
3. Kanpur
4. Delhi

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

List-II

(Leader)

- a. Begum Hazratmul
- b. Khan Bahadur Khan
- c. Nana Saheb and Tatya Tope
- d. Bhakt Khan

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

071. રાજા રામમોહનરાય અને બ્રહ્મો સમાજ વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. તેમણે બંગાળમાં આત્મીય સભાની સ્થાપના કરી.
 2. બ્રહ્મો સમાજ અંધશ્રદ્ધાળુ પ્રથાઓ પરની સમગ્ર બ્રાહ્મણવાદી વ્યવસ્થાનો વિરોધ કરતો હતો.
 3. બ્રહ્મો સમાજ પુરોહિતોની મધ્યસ્થી વિના એક ભગવાનની ઉપાસના ઉપર આધારિત હતો.
- (A) 1, 2 અને 3 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 2 (D) માત્ર 1 અને 3
072. નીચેના પૈકી કઈ બાબતો મવાળવાદીઓની માંગો હતી ?
1. વિધાન પરિષદોમાં ભારતીયોની વધુ સત્તા અને વધુ પ્રતિનિધિત્વ સાથે તેનું વિસ્તરણ.
 2. મીઠા પરના કરની નાબૂદી
 3. સેનામાં સનદી હોદ્દા (commissioned rank) ઉપર ભારતીયોની નિમણૂંક
 4. પ્રાંતીય પરિષદોની નાબૂદી
- (A) 1, 2, 3 અને 4 (B) માત્ર 2, 3 અને 4
(C) માત્ર 1, 2 અને 3 (D) માત્ર 1 અને 4
073. નીચેના પૈકી કઈ જોડી / જોડીઓ યોગ્ય રીતે જોડાયેલી છે ?
1. અનુશિલન સમિતિ – ખુદીરામ ખોજ
 2. દિલ્હી ષડયંત્ર કેસ – સચિન્દ્ર સન્યાલ
 3. ગદરપક્ષ – લાલા હર દયાલ
 4. લાહોર ષડયંત્ર – રાજ ગુરૂ, ભગત સિંહ
- (A) 1, 2, 3 અને 4 (B) માત્ર 2, 3 અને 4
(C) માત્ર 1, 2 અને 3 (D) માત્ર 1 અને 4
074. ‘મારો સૌથી મજબૂત રક્ષક વ્યક્તિ ગયો.’ (My Strongest Bulwark is Gone) ગાંધીજીના આ શબ્દો વિશે હતા.
- (A) બાલ ગંગાધર તિલક (B) લાલા લજપતરાય
(C) ગોપાલ કૃષ્ણ ગોખલે (D) સુભાષચંદ્ર ખોજ
075. પ્રાચીન ભારતમાં વિજ્ઞાન અને તકનીકી વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
1. વરાહ મિહિરની ‘બૃહદ સંહિતા’ એ ખગોળશાસ્ત્રના ક્ષેત્રમાં પાયાનું પુસ્તક ગણવામાં આવે છે.
 2. આર્યભટ્ટના ‘આર્ય ભટ્ટીય’ તરીકે જાણીતા પુસ્તકમાં ગણિતના સારનો ઉલ્લેખ કરવામાં આવ્યો છે.
 3. સુશ્રુત એ આયુર્વેદ ચિકિત્સક હતા અને તેઓ આયુર્વેદ દવાઓના પિતા તરીકે જાણીતા હતા.
- (A) માત્ર 2 અને 3 (B) માત્ર 1 અને 3
(C) માત્ર 1 અને 2 (D) 1, 2 અને 3

071. Which of the following statements is/are correct regarding Raja Ram Mohan Roy and Brahma Samaj?
1. He formed Atmiya Sabha in Bengal
 2. Brahma Samaj was opposed to the entire Brahminical System on superstitious practices
 3. Brahma Samaj based itself on the worship of one God without the mediation of priests
- (A) 1, 2 and 3 (B) 2 and 3 only
(C) 1 and 2 only (D) 1 and 3 only
072. Which of the following were the demands of the Moderates?
1. Expansion of Legislative Councils with more powers and more representation of Indian in them
 2. Abolition of Salt tax
 3. Appointment of Indians to commissioned ranks in the army
 4. Abolition of Provincial Councils
- (A) 1, 2, 3 and 4 (B) 2, 3 and 4 only
(C) 1, 2 and 3 only (D) 1 and 4 only
073. Which of the following pairs is/are correctly matched?
1. Anushilan Samiti – Khudiram Bose
 2. Delhi Conspiracy Case – Sachindra Sanyal
 3. Gadar Party – Lala Har Dayal
 4. Lahore Conspiracy – Raj Guru, Bhagat Singh
- (A) 1, 2, 3 and 4 (B) 2, 3 and 4 only
(C) 1, 2 and 3 only (D) 1 and 4 only
074. 'My Strongest Bulwark is Gone' – these words from Gandhi were about _____.
- (A) Bal Gangadhar Tilak (B) Lala Lajpat Rai
(C) Gopal Krishna Gokhale (D) Subash Chandra Bose
075. Which of the following statements is/are correct regarding Science and Technology in ancient India?
1. Varaha Mihira's Brihat Samhita is considered as a pioneer work in the field of Astronomy
 2. The summary of Mathematics was mentioned in Aryabhata's book known as Aryabhatiya
 3. Susruta was an Ayurveda Physician and also known as the father of Ayurvedic medicine
- (A) 2 and 3 only (B) 1 and 3 only
(C) 1 and 2 only (D) 1, 2 and 3

076. નીચેના પૈકી કઈ જોડી / જોડીઓ યોગ્ય રીતે જોડાયેલી છે ?

1. રામન અસર – સાબિત કર્યું કે પ્રકાશ એ ફોટોન તરીકે ઓળખાતા કણોને બનેલો છે.
2. જગદીશ ચંદ્ર બોઝ – કેસ્કોગ્રાફની શોધ કરી.
3. હોમી જહાંગીર ભાભા – પરમાણુ ઊર્જા આયોગના પ્રથમ અધ્યક્ષ હતા.
4. સી.એન. આર. રાવ – ભૌતિકશાસ્ત્રના ક્ષેત્રમાં તેમના યોગદાનને લીધે ભારત રત્ન પ્રાપ્ત કર્યો.

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

077. વાયુઓ વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?

- (A) LPGમાં મહદ અંશે પ્રોપેન, પોપીલીન અને બ્યુટેનનો સમાવેશ થાય છે.
(B) પ્રાકૃતિક વાયુ કે જે સુપર કુલ્ડ પ્રવાહી તરીકે સંગ્રહિત કરવામાં આવે છે તે પ્રવાહીકૃત પ્રાકૃતિક વાયુ (Liquefied Natural Gas) તરીકે ઓળખાય છે.

- (C) (A) તથા (B) બંને
(D) (A) અથવા (B) એક પણ નહીં

078. FAME-2 યોજનાના નોંધપાત્ર લક્ષણો કયા છે ?

1. આ યોજનાનો ઉદ્દેશ ઈલેક્ટ્રીક ગતિશીલતાને વેગ આપવાનો અને વ્યાપારી વાહનોના કાફલાઓમાં ઈલેક્ટ્રીક વાહનોની સંખ્યામાં વધારો કરવાનો છે.
2. ઈલેક્ટ્રીક બસો માટે સરકાર પ્રોત્સાહન આપશે.
3. પ્લગ-ઈન હાઈબ્રીડ વાહનો અને મોટા લિથીયમ-આયન બેટરી તથા ઈલેક્ટ્રીક મોટર વાળા વાહનોનો પણ સમાવેશ કરવામાં આવશે.

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

079. મિથેનોલ વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?

- (A) મિથેનોલ એ સ્વચ્છ બળતું ઈંધણ છે કે જે ઓછા ધુમ્મસનું ઉત્સર્જન કરે છે.
(B) પરંતુ વ્યાપારી ધોરણે કોલસામાંથી મિથેનોલનું ઉત્પાદન ભાગ્યેજ થાય છે.
(C) (A) તથા (B) બંને
(D) (A) અથવા (B) એક પણ નહીં

080. સૌર કોષોમાં કયા તત્વનો ઉપયોગ થાય છે ?

- (A) સિલીકોન (Silicon) (B) સેરીયમ (Cerium)
(C) એસ્ટાટીન (Astatine) (D) વેનેડીયમ (Vanadium)

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

1. Raman Effect – proved that light is made up of particles known as photons
2. Jagadish Chandra Bose – invented Crescograph
3. Homi Jahangir Bhaba – First Chairman of Atomic Energy Commission
4. CNR Rao – received Bharat Ratna for his contributions in the field of Physics

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

077. Which of the following statements is/are correct regarding Gases?

- (A) LPG consists mostly of propane, propylene and butane
(B) A natural gas stored as a super cooled liquid is termed as Liquefied Natural Gas
(C) Both A and B
(D) Neither A nor B

078. Which of the following are the salient features of the FAME-2 Scheme?

1. This scheme aims to boost electric mobility and increase the number of electric vehicles in commercial fleets
2. The government will offer incentives for electric buses
3. Plug-in hybrid vehicles and those with a sizeable lithium-ion battery and electric motor will also be included

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

079. Which of the following statements is/are correct regarding Methanol?

- (A) Methanol is a clean burning fuel that produces fewer smog causing emissions
(B) But, Methanol is very rarely produced on commercial scale from coal
(C) Both A and B
(D) Neither A nor B

080. Which one of the following elements is used in solar cells?

- (A) Silicon (B) Cerium
(C) Astatine (D) Vanadium

081. ભારતના ત્રણ તબક્કાના નાગરિક પરમાણુ કાર્યક્રમ વિશે નીચેના પૈકી કયું વિધાન/કયા વિધાનો સત્ય નથી ?
- (A) પ્રથમ તબક્કામાં ઈંધણ તરીકે પ્રાકૃતિક યુરેનીયમ વપરાયું હતું અને દબાણયુક્ત ભારે પાણી રીએક્ટરનો ઉપયોગ થયો હતો.
- (B) બીજા તબક્કામાં ઈંધણ તરીકે પ્લુટોનિયમ વપરાયું હતું અને Fast Breeder રીએક્ટરનો ઉપયોગ થયો હતો.
- (C) ત્રીજા તબક્કામાં પણ ઈંધણ તરીકે પ્લુટોનિયમ વપરાયું હતું અને Fast Breeder રીએક્ટરનો ઉપયોગ થયો હતો.
- (D) ઉપરોક્ત પૈકી એક પણ નહીં
082. કિરણોત્સર્ગી વિઘટન (Radioactive decay) એ છે.
- (A) નિયંત્રીત માધ્યમમાં પરમાણુ સામગ્રીનું વિઘટન
- (B) પરમાણુ સામગ્રીનું સ્વયં સામગ્રીનું વિઘટન
- (C) (A) તથા (B) બંને
- (D) (A) અથવા (B) એક પણ નહીં
083. Scramjet વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
- (A) Scramjet એ Ramjet એર બ્રેથીંક જેટ એંજિનનો એક પ્રકાર છે જ્યાં સુપર સોનીક હવા પ્રવાહમાં દહન થાય છે.
- (B) દહન પહેલાં આવતી હવાને બળપૂર્વક સંકુચિત કરવા માટે Scramjet એ વાહનની ગતિ ઉપર આધાર રાખે છે.
- (C) (A) તથા (B) બંને
- (D) (A) અથવા (B) એક પણ નહીં
084. મોબાઈલ ફોનમાં ઉપયોગમાં લેવામાં આવે છે તે 'SIM' શબ્દનું પૂરું નામ છે.
- (A) Subscriber Identity Module
- (B) Subscriber Identity Membership
- (C) Subscriber Identification Method
- (D) Subscriber International Membership
085. QR કોડ વિશે નીચેના પૈકી કયું વિધાન/કયા વિધાનો સત્ય છે ?
1. QR કોડનો અર્થ Quick Response Code થાય છે.
2. બારકોડ કે જે એક પરિમાણવીય હોય છે તેનાથી વિપરીત QR કોડ એ દ્વિ પરિમાણવીય કોડ છે.
3. બારકોડ એ QR કોડથી વધુ માહિતી સંચય કરી શકે છે.
- (A) 1, 2 અને 3
- (B) માત્ર 1 અને 3
- (C) માત્ર 2 અને 3
- (D) માત્ર 1 અને 2
086. ડીજીટલ ઘડિયાળમાં કયા પ્રકારના કોમ્પ્યુટર હોય છે ?
- (A) Embedded Computer
- (B) Mainframe
- (C) (A) તથા (B) બંને
- (D) (A) અથવા (B) એક પણ નહીં

081. Which of the following statements is/are INCORRECT regarding India's three stage Civil Nuclear Programme?
- (A) In the first stage, Natural Uranium was used as Fuel and Pressurised Heavy water Reactor was used.
 - (B) In the second stage, Plutonium was used as fuel and Fast Breeder Reactor was used
 - (C) In the third stage also Plutonium was used as fuel and Fast Breeder Reactor was used
 - (D) None of the Above
082. Radioactive decay is _____.
- (A) Decay of nuclear material in a controlled medium
 - (B) Spontaneous decay of nuclear material
 - (C) Both A and B
 - (D) Neither A nor B
083. Which of the following statements is/are correct regarding Scramjet?
- (A) Scramjet is a variant of Ramjet air breathing jet engine where combustion takes place in supersonic airflow
 - (B) Scramjet relies on vehicle speed to forcefully compress the incoming air before combustion
 - (C) Both A and B
 - (D) Neither A nor B
084. Full form of SIM which is used in a mobile phone is _____.
- (A) Subscriber Identity Module
 - (B) Subscriber Identity Membership
 - (C) Subscriber Identification Method
 - (D) Subscriber International Membership
085. Which of the following statements is/are correct regarding QR code?
1. QR code means Quick Response Code
 2. QR code is a two-dimensional code unlike bar code, which is one-dimensional
 3. Barcodes can store more information than QR codes
- (A) 1, 2 and 3
 - (B) 1 and 3 only
 - (C) 2 and 3 only
 - (D) 1 and 2 only
086. Which type of computer could be found in a digital watch?
- (A) Embedded Computer
 - (B) Mainframe
 - (C) Both A and B
 - (D) Neither A nor B

087. Golden Rice (સોનેરી ચોખા) એ સૌથી વધુ માત્રામાં ધરાવે છે.
 (A) વિટામીન C (B) વિટામીન K
 (C) વિટામીન B (D) વિટામીન A
088. માનવ મૂત્રપિંડમાં પથરીના નિર્માણ માટે કઈ ખનીજ જવાબદાર છે ?
 (A) કેલ્શીયમ એસીટેટ (B) કેલ્શીયમ ઓક્સેલેટ
 (C) સોડીયમ એસીટેટ (D) ઉપરોક્ત તમામ
089. ગુજરાતમાં જંગલો વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
 1. જ્યાં 1200 મી.મી. થી વધુ વાર્ષિક વરસાદ થતો હોય તેવા ક્ષેત્રોમાં ઉષ્ણ કટિબંધીય અતિપાનખર જંગલ જોવા મળે છે અને રાજ્યમાં તે સૌથી દક્ષિણના ભાગમાં જોવા મળે છે.
 2. આવા જંગલો સુરત, વલસાડ અને ડાંગ જિલ્લાઓમાં આવેલા છે.
 3. સાગ, હલ્દુ (Haldu), સીસમ, ખેર, કટાસ (Katas), મનવેલ (Manvel) વગેરે ઉષ્ણ કટિબંધીય અતિપાનખર જંગલોની મુખ્ય પ્રજાતિઓ છે.
 (A) 1, 2 અને 3 (B) માત્ર 2 અને 3
 (C) માત્ર 1 અને 2 (D) માત્ર 1 અને 3
090. વાંસદા રાષ્ટ્રીય ઉદ્યાન વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
 (A) આ રાષ્ટ્રીય ઉદ્યાન 1990માં સ્થાપવામાં આવ્યો હતો.
 (B) ચિત્તો, હાયના (Hyena), ચિતલ, ચૌસિંગા (Chausinga), પક્ષીઓ, ઉભયસૃપ પ્રાણીજાત (Herpetofauna) એ આ ઉદ્યાનની મુખ્ય પ્રજાતિઓ છે.
 (C) (A) તથા (B) બંને
 (D) (A) અથવા (B) એક પણ નહીં
091. ગુજરાતમાં ખનીજ સંશોધન (exploration) વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
 (A) રાજ્યમાં કચ્છ અને જામનગર જિલ્લાઓ વિપુલ માત્રામાં બોક્સાઈટના અનામત ક્ષેત્રો ધરાવે છે.
 (B) કચ્છનું પ્રાન્થ્રો, ભરૂચનું ભૂરિ, ભાવનગરનું ઘોઘા, સુરતનું તાડકેશ્વર એ રાજ્યમાં લિગ્નાઈટ અનામતના મુખ્ય ક્ષેત્રો ધરાવે છે.
 (C) (A) તથા (B) બંને
 (D) (A) અથવા (B) એક પણ નહીં
092. ગુજરાત રાજ્યમાં બનાસ નદી વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
 1. બનાસ નદી અરવલ્લીની ટેકરીઓમાંથી ઉદ્ભવે છે.
 2. આ નદી કચ્છના નાના રણને મળે છે.
 3. સીપુ અને ખારીએ આ નદીની મુખ્ય ઉપનદીઓ છે.
 (A) માત્ર 1 અને 2 (B) માત્ર 2 અને 3 (C) માત્ર 1 અને 3 (D) 1, 2 અને 3

087. Golden Rice has the highest quantity of _____
- (A) Vitamin C (B) Vitamin K
(C) Vitamin B (D) Vitamin A
088. Which among the following minerals are responsible for the formation of stones in human kidneys?
- (A) Calcium Acetate (B) Calcium Oxalate
(C) Sodium Acetate (D) All of the above
089. Which of the following statements is/are correct regarding forests in Gujarat?
1. Tropical Most Deciduous Forests occur in the regions having an annual rainfall of over 1200 mm and are found in the Southernmost part of the State
 2. These forests are located in Surat, Valsad and Dang Districts
 3. Teak, Haldu, Sisam, Khair, Katas, Manvel etc. are the main species of Tropical Most Deciduous forests.
- (A) 1, 2 and 3 (B) 2 and 3 only
(C) 1 and 2 only (D) 1 and 3 only
090. Which of the following statements is/are correct regarding Vansada National Park?
- (A) This National Park was established in the year 1990
(B) Leopard, Hyena, Chital, Chausinga, Birds, Herpetofauna are the major species of this park
(C) Both A and B
(D) Neither A nor B
091. Which of the following statements is/are correct regarding the mineral exploration in Gujarat?
- (A) Kuchchh and Jamnagar districts have the major Bauxite deposits of the state
(B) The Panandro in Kuchchh and Bhuri in Bharuch, Ghogha in Bhavnagar, Tadkeshwar in Surat are the main Lignite deposits of the state.
(C) Both A and B
(D) Neither A nor B
092. Which of the following statements is/are correct regarding Banas River in Gujarat State?
1. Banas River originates from Aravalli Hills
 2. This River meets into Little Rann of Kuchchh
 3. Sipu and Khari are the main tributaries of the river
- (A) 1 and 2 only (B) 2 and 3 only
(C) 1 and 3 only (D) 1, 2 and 3

093. ઉકાઈ બહુહેતુક જળબંધ એ નદી ઉપર બાંધવામાં આવ્યો છે.
 (A) નર્મદા (B) તાપી (C) સાબરમતી (D) શેત્રુંજી
094. ગુજરાતના આદિજાતિ સમુદાયો વિશે નીચેના પૈકી કયું વિધાન / કયા વિધાનો સત્ય છે ?
 1. 2011ની વસ્તી ગણતરી અનુસાર, ST વસ્તીનો અસરકારક સાક્ષરતા દર 62.5% છે.
 2. ગુજરાત એ દેશની અનુસૂચિત જનજાતિ વસ્તીના 8.1% વસ્તી ધરાવે છે.
 3. રાજ્યની વસ્તીનો 21.8% હિસ્સો ગુજરાતની આદિજાતિ વસ્તીનો છે.
 (A) 1, 2 અને 3 (B) માત્ર 2 અને 3
 (C) માત્ર 1 અને 2 (D) માત્ર 1 અને 3
095. પૃથ્વી ગૃહના બંધારણમાં આવરણની નીચે સૌથી અંદરનો ભાગ મુખ્યત્વે શેનો બનેલો છે ?
 (A) એલ્યુમિનિયમ (B) કોબીયમ
 (C) લોહ (Iron) (D) સીલીકોન
096. નીચેના પૈકી કયું એ અન્ય ત્રણની સરખામણીમાં સૂર્યપ્રકાશને વધુ પરાવર્તિત કરે છે ?
 (A) સદા હરિત જંગલો (B) પાનખર જંગલો (C) મેદાનો (D) રેતીનું રણ
097. નીચે આપેલા ભારતના રાજ્યોની જોડી પૈકી કઈ જોડી સૌથી પૂર્વીય અને સૌથી પશ્ચિમી રાજ્યો દર્શાવે છે ?
 (A) આસામ અને રાજસ્થાન (B) અરુણાચલ પ્રદેશ અને રાજસ્થાન
 (C) અરુણાચલ પ્રદેશ અને ગુજરાત (D) ઉપરોક્ત પૈકી એક પણ નહીં
098. 'Biomining' (જૈવ ખાણકામ) એ શબ્દ ના સંદર્ભે છે.
 (A) સૂક્ષ્મજીવોમાં મહત્વપૂર્ણ માહિતીનું નિષ્કર્ષણ
 (B) અશુદ્ધિઓ કાઢવા માટે સૂક્ષ્મજીવોનો ઉપયોગ
 (C) સૂક્ષ્મજીવોનો ઉપયોગ કરીને કાચીધાતુમાંથી ધાતુઓનું નિષ્કર્ષણ
 (D) ઔદ્યોગિક રસાયણોના વ્યાવસાયિક નિષ્કર્ષણ માટે ઉત્સેચકોનો ઉપયોગ
099. નીચેના પૈકી કયું એ જૈવ વિવિધતા હોટસ્પોટનું વિશિષ્ટ લક્ષણ નથી ?
 (A) 1500 થી વધુ સંવાહક (vascular) છોડની પ્રજાતિઓ
 (B) મોટી સંખ્યામાં વિદેશી પ્રજાતિઓ
 (C) સ્થાનિક પ્રજાતિઓની વિપુલતા
 (D) કેટલાક અંશે નિવાસ સ્થાન માટે જોખમ
100. સાયબેરીયન કેન, એક અત્યંત જોખમમાં મુકાયેલ સ્થળાંતર પક્ષી એ નીચેના પૈકી કયા રાષ્ટ્રીય ઉદ્યાન / પક્ષી અભયારણ્યનું કાયમી મુલાકાતી છે ?
 (A) વાંસદા રાષ્ટ્રીય ઉદ્યાન (B) કીઓલાડો (Keoladeo) રાષ્ટ્રીય ઉદ્યાન
 (C) વેળાવદર રાષ્ટ્રીય ઉદ્યાન (D) સુલતાનપુર પક્ષી અભયારણ્ય

093. Ukai multipurpose water dam is constructed on the river _____.
- (A) Narmada (B) Tapi
(C) Sabarmati (D) Shetrunji
094. Which of the following statements is/are correct regarding tribal communities of Gujarat?
1. As per the 2011 census, the effective literacy rate is 62.5% in ST population
 2. Gujarat accounts for 8.1% of the Scheduled Tribe population of the country
 3. The tribal population of Gujarat constitutes 21.8% of the state's population
- (A) 1, 2 and 3 (B) 2 and 3 only
(C) 1 and 2 only (D) 1 and 3 only
095. In the structure of the planet Earth, below the mantle, the core is mainly made up of which of the following?
- (A) Aluminium (B) Chromium
(C) Iron (D) Silicon
096. Which of the following reflects back more sunlight as compared to other three?
- (A) Evergreen forests (B) Deciduous forests
(C) Steppes (D) Sand desert
097. Which one of the following pairs of states of India indicates the easternmost and westernmost states?
- (A) Assam and Rajasthan (B) Arunachal Pradesh and Rajasthan
(C) Arunachal Pradesh and Gujarat (D) None of the Above
098. The term 'Biomining' refers to _____.
- (A) Extraction of important information in the microorganisms.
(B) Use of microorganisms for extracting impurities.
(C) Extraction of metals from ores using microorganisms.
(D) Use of enzymes for commercial extraction of industrial chemicals.
099. Which one of the following is not a Major characteristic feature of biodiversity hotspot?
- (A) More than 1500 vascular plant species.
(B) Large number of exotic species.
(C) Abundance of endemic species.
(D) Certain degree of threat to the habitat.
100. The Siberian crane, an endangered migratory bird is a regular visitor to which of the following national park/bird sanctuary?
- (A) Vansda National Park (B) Keoladeo National Park
(C) Velavadar National Park (D) Sultanpur Bird Sanctuary

101. Which of the following holds true for the greatest integer function $f(x) = [x]$?
- (A) It is continuous everywhere.
(B) It is right continuous, but not left continuous at every integer point.
 (C) It is left continuous, but not right continuous at every integer point.
 (D) None of these
102. Let $f(x) = \left| \sin x - \frac{1}{2} \right|$. The maximum value attained by f is
- (A) $\frac{1}{2}$ **(B)** $\frac{3}{2}$
 (C) $\frac{2}{3}$ (D) $3\pi/2$
103. The limit of the series $f(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \dots$ as x approaches $\pi/2$ is:
- (A) $\frac{2\pi}{3}$ **(B)** $\frac{\pi}{2}$
 (C) $\frac{\pi}{3}$ **(D)** 1
104. The series $\sum 1/n^{p-1}$ is
- (A) Divergent, if $p > 2$ **(B)** Divergent, if $p \leq 2$
 (C) Convergent, if $p = 1$ (D) Convergent, if $p = 0$
105. The integrating factor for the differential equation $(x+1)\frac{dy}{dx} - y = e^{3x}(x+1)^2$, is
- (A)** $\frac{1}{x+1}$ (B) $x+1$
 (C) $\frac{1}{x^2+1}$ (D) x^2+1
106. The solution of $\frac{dy}{dx} = y^2, y(0) = 1$, exists for all
- (A)** $x \in (-\infty, 1)$ (B) $x \in [0, a]$ where $a > 1$
 (C) $x \in (-\infty, \infty)$ (D) $x \in [1, a]$, where $a > 1$
107. The initial value problem $x\frac{dy}{dx} = y, y(0) = 0, x \geq 0$ has
- (A) no solution **(B)** a unique solution
 (C) exactly two solutions **(D)** uncountable many solutions
108. The solution of $\frac{dy}{dx} = \frac{(1-x)}{y}$ represents
- (A)** a family of circle, centre at $(1,0)$ (B) a family of circle, centre at $(0,0)$
 (C) a family of circle, centre at $(-1,0)$ (D) a family of straight line with slope -1

109. The solution of ordinary differential equation of n^{th} order contains
 (A) n arbitrary constants (B) more than n arbitrary constants
 (C) no arbitrary constants (D) None of the above
110. The sum of eigen values of $\begin{pmatrix} -1 & -2 & -1 \\ -2 & 3 & 2 \\ -1 & 2 & -3 \end{pmatrix}$ is
 (A) -3 (B) -1
 (C) 3 (D) 1
111. The eigen values of a skew-symmetric matrix are
 (A) negative (B) real
 (C) absolute value of 1 (D) purely imaginary or zero
112. Suppose that the eigen values of matrix A are 1, 2, 4. The determinant of $(A^{-1})^T$ is
 (A) $1/8$ (B) 1
 (C) $1/4$ (D) 2
113. The order of convergence of the Secant method is
 (A) 1.235 (B) 3.141
 (C) 1.618 (D) 2.792
114. Which is the faster convergence method?
 (A) Gauss-Seidel method (B) Gauss-Jacobi method
 (C) Gauss-Jordan method (D) Gauss elimination method
115. Simpson's $1/3^{\text{rd}}$ rule is used only when _____
 (A) The ordinates are even (B) n is multiple of 3
 (C) n is odd (D) n is even
116. Which of the following method(s) is/are example(s) of 'Ex-situ conservation of Biodiversity'?
 i. Botanical Garden ii. Wetlands iii. National Parks
 (A) Only (i) (B) (i) and (ii)
 (C) (ii) and (iii) (D) (i), (ii) and (iii)
117. Which of the following is the appropriate method for cryopreservation?
 (A) Over solid carbon dioxide (at -79°C)
 (B) Low-temperature deep freezers (at -80°C)
 (C) In vapor phase nitrogen (at -150°C)
 (D) In liquid nitrogen (at -196°C)

118. Preserving germplasm in the frozen state is
(A) Cryopreservation (B) Cold storage
(C) In situ preservation (D) Vernalisation
119. The Government of India has notified National Ambient Air Quality Standards 2009 envisaging how many pollutants to indicate the levels of air quality for the protection of public health, vegetation and property?
(A) 04 (B) 08
(C) 12 (D) 16
120. Which of the following statement(s) is/are false with reference to vehicular emissions?
i. The Supreme Court of India has banned the sale and registration of motor vehicles conforming to the emission standard Bharat Stage IV in the entire country from 1 April 2020.
ii. Since October 2010, Bharat Stage (BS) III norms have been enforced across the country.
iii. In 13 major cities, Bharat Stage IV emission norms have been in place since April 2010 and it has been enforced for entire country since April 2017.
iv. In 2016, the Indian Government announced that the country would skip the BS V norms altogether and adopt BS VI norms by 2020.
(A) Only (i) (B) (i) and (ii)
(C) (iii) and (iv) (D) None of the above
121. Which of the following is/are technique(s) of Ex-situ bioremediation?
i. Bioventing ii. Biopiling iii. Land-forming iv. Composting
(A) (i) and (ii) (B) (iii) and (iv)
(C) (i), (ii) and (iii) (D) (ii), (iii) and (iv)
122. Which of the following is a sub-type of Phytoremediation?
(A) Rhizofiltration (B) Mycoremediation
(C) Bioventing (D) Biosparging
123. The ozone gas present in the lower atmosphere is known as
(A) Good Ozone (B) Bad Ozone
(C) Columnar Ozone (D) Anthropogenic Ozone
124. Which of the following statement(s) is / are false for the Chlorofluorocarbon compounds?
i. These compounds are highly reactive, flammable and toxic organic molecules
ii. These are popularly used in refrigerators, air conditioners, in the production of plastic foam and by the electronic industry for cleaning computer parts
iii. When these chemicals reach the earth's stratosphere, they react with Ultraviolet radiation which cause them to breakdown
(A) Only (i) (B) (ii) and (iii)
(C) (i), (ii) and (iii) (D) None of the above

125. Carbon tetrachloride

- i. is a sedative gas
- ii. is a ozone depleting substance
- iii. is used in fire extinguishers
- iv. is used to kill insects in grains

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

126. Which of the following refers to Carbon Sinks?

- i. Green Carbon
- ii. Blue Carbon
- iii. Black Carbon

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

127. Which of the following statements are true with reference to Green Climate Fund (GCF)?

- i. Most of the African countries have missed out on finance for adaptation through the GCF.
- ii. One of the largest vehicles for climate finance connected to the UNFCCC is GCF
- iii. The UN Environment Programme expects annual adaptation costs in developing countries to reach \$140 to 300 billion per year by 2030

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

128. Which of the following statements are true?

- i. Maitri is India's first scientific research base station established in Antarctica
- ii. The freshwater lake around Maitri was named as Lake Priyadarshini

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

129. Biopiracy

- (A) is the situation where indigenous knowledge of nature, originating with indigenous people is used by others for profit without permission from and with little or no compensation or recognition to the indigenous people
- (B) is an umbrella term describing the process of discovery and commercialization of product based on biological resources
- (C) is the exploration, extraction and screening of biological diversity and indigenous knowledge for commercially valuable genetic and biochemical resources
- (D) is the process of collection of biological samples for medical and other scientific research

130. The provisions of the Basel convention on hazardous wastes centered around which of the following principle(s)?
- reduction of the hazardous waste generation and the promotion of environmentally sound management of hazardous waste near the place of disposal
 - a regulatory system applying to cases where transboundary movements are permissible
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
131. How many cities of India are covered under Atal Mission for Rejuvenation and Urban Transformation (AMRUT)?
- (A) 100 (B) 500 (C) 1000 (D) 1500
132. Which of the following cities of Gujarat are covered under the National Heritage Development and Augmentation Yojana (HRIDAY)?
- (A) Dwarka (B) Somnath (C) Porbandar (D) Pavagadh
133. Which of the following statement(s) is/are true?
- Delhi Metro is India's first Mass Rapid Transit System (MRTS) to earn carbon credits
 - It has offset 1 million tons of CO_{2-e} annually during 2012-18
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
134. The National Solar Mission targets installing _____ grid-connected solar power plants by the year 2022
- (A) 1000 MW (B) 10000 MW
(C) 100000 MW (D) 1000000 MW
135. In GRIHA (Green Rating for Integrated Habitat Assessment), the stages of the life cycle which have been identified for evaluation are
- pre-construction stage
 - building planning and construction stage
 - building operating and maintenance stage
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
136. A gardener has 1050 pots of plants. He wants to plant them in such a way that the number of rows and the number of columns remain the same. What is the minimum number of pots that he needs to remove for this purpose?
- (A) 12 (B) 26 (C) 32 (D) 36
137. If '3, 8, 27, X, 565, 3396' is a mathematical series, then what will be the value of X ?
- (A) 96 (B) 112 (C) 122 (D) 124

138. If 18 men take 20 days to complete a job working 12 hours a day, then how many days will 12 men take to complete the same task if they work 10 hours a day.
(A) 18 (B) 32 (C) 36 (D) 72
139. In a clock, at 12 noon both hour and minute hands were pointing towards North East Direction. At what direction the hour hand will be pointing at 1.30 pm?
(A) South-east (B) South-west (C) East (D) West
140. If FLATTER is coded as 7238859 and MOTHER is coded as 468159, then how is FLOATER coded?
(A) 7263859 (B) 7268359 (C) 7263598 (D) 7269583
141. Sagar left home and cycled 12 km southwards, turned right and cycled 6 km, then turned right and cycled 12 km and then turned left and cycled 12 km. How many kilometres will he have to cycle to reach his home straight ?
(A) 06 km (B) 12 km (C) 18 km (D) 24 km
142. Find the odd one out.
(A) Flute (B) Violin (C) Cello (D) Guitar
143. The ratio of the numbers of pencils with Sita and Gita is 19:13. If Sita gives Gita 30 pencils, both will have equal number of pencils. The total number of pencils will be.
(A) 130 (B) 190
(C) 320 (D) None of the above
144. If 5 kg of rice costing of Rs. 10 per kg is mixed with 10 kg of rice costing Rs. 25 per kg, then the cost of the resulting mixture per kg will be ?
(A) Rs. 15.0 (B) Rs. 17.5 (C) Rs. 20.0 (D) Rs. 300
145. Raj would walk down from his house to office to reach there by 9.00 am. If he walks at a speed of 4 km/hr then he reaches 15 minutes early while if he walks at a speed of 3 km/hr then he reaches 45 minutes late. Estimate the distance between his house and office.
(A) 11 km (B) 12 km (C) 13 km (D) 14 km
146. Paw : Cat :: Hoof : ?
(A) Lamb (B) Horse (C) Elephant (D) Tiger
147. Pointing to a photograph, a man said, "I have no brother or sister but that man's father is my father's son." Whose photograph was it?
(A) His own (B) His Son
(C) His Father (D) His Grandfather
148. A, B, C, D, E and F are sitting in a row. E and F are in the center while A and B are at the ends. If D is sitting to the right of B, then who is to the left of A?
(A) E (B) C (C) F (D) D

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149. If SMART is written as 191311820, then the last digit of PEACOCK will be
(A) 1 (B) 2 (C) 3 (D) 4
150. In a group of 200 persons, 108 people like tea, 90 people like coffee while 48 like both tea and coffee. How many people didn't like neither tea nor coffee?
(A) 48 (B) 50 (C) 52 (D) 60
151. The iterative design and management method Plan-Do-Check-Act (PDCA) is also known as the
(A) Shewhart cycle (B) Deming cycle
(C) Crosby cycle (D) Taguchi cycle
152. Fishbone diagram is also known as
i. cause and effect diagram ii. Ishikawa diagram
(A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
153. Which Quality control tool(s) will help you to identify a possible relationship between two process variables?
i. Scatter diagram ii. Pareto analysis iii. Flow chart
(A) Only (i) (B) (i) and (ii) (C) (ii) and (iii) (D) (i) and (iii)
154. A Pareto chart shows
i. the vital few from the trivial many
ii. the degree of control for a process
iii. the fraction defective
(A) Only (i) (B) (i) and (ii) (C) (ii) and (iii) (D) (i) and (iii)
155. The Malcolm Baldrige National Quality Award (MBNQA) is an award conferred to the companies that
(A) have implemented successfully the quality management systems.
(B) have implemented the environmental management guidelines outlined in ISO
(C) have excelled in risk management
(D) have excelled in customer satisfaction
156. The principle of the Total Quality Management is
(A) continuous process improvement
(B) continuous increase in the benefit : cost ratio
(C) continuous decrease in the defects
(D) continuous value enhancement
157. Six Sigma talks about
i. accuracy ii. precision iii. tolerance
(A) Only (i) (B) (i) and (ii) (C) (ii) and (iii) (D) (i), (ii) and (iii)

158. Which of the following is not related to Six Sigma?
 (A) Black Belt (B) Green Belt (C) Blue Belt (D) Yellow Belt
159. Balance delay is the ratio of
 (A) the total idle time and the total time spent by the product in moving from the beginning to the end of the line
 (B) the total idle time and the cycle time of the product manufacturing
 (C) the actual cycle time and the optimized cycle time of the product manufacturing
 (D) the total station time to total work content time
160. The early failure period in a reliability study is sometimes called
 (A) wear-out period (B) infant mortality period
 (C) spin-up period (D) warm-up period
161. Which of the following maintenance scheme is used for urgent repairs when failure has occurred?
 (A) Predictive maintenance (B) Preventive maintenance
 (C) Breakdown maintenance (D) Reactive maintenance
162. In a Bathtub Curve, in which of the phase there is a decreasing failure rate?
 (A) infant mortality period (B) useful period
 (C) wear-out period (D) not fixed and it depends on the product
163. In an industry, electricity is provided by the 'main' power generator and in case of failure, the electricity is provided by 'back-up' power generator. If the reliability of the 'main' power generator is 90% while that of the 'back-up' power generator is 95%, then what will be reliability of the total system?
 (A) 90.0% (B) 92.5% (C) 95.0% (D) 99.5%
164. In a Non Destructive Test (NDT), eddy current test is used for
 i. crack detection
 ii. determining material hardness
 iii. determining coating thickness measurements
 (A) Only (i) (B) (i) and (ii) (C) (ii) and (iii) (D) (i), (ii) and (iii)
165. Which of the following statements are true?
 i. Magnetic particle testing is a non-destructive process used to detect surface and subsurface discontinuities in ferromagnetic materials like nickel, cobalt, iron and their alloys.
 ii. Magna fluxing is the popular name used for magnetic particle inspection.
 (A) Only (i) (B) Only (ii)
 (C) Both (i) and (ii) (D) Neither (i) nor (ii)
166. Which of the following will have a S-curve?
 (A) potential to add value v/s project time (B) influence of cost v/s project time
 (C) level of effort v/s project time (D) cumulative expenditure v/s project time

167. For assessing the demand of new products, which of the following forecasting method is used?
 (A) Moving average method (B) Weighted Moving average method
 (C) Naive method (D) Opinion survey method
168. Delphi technique is primarily used when
 i. the available knowledge is incomplete or subject to uncertainty
 ii. other methods that provide higher levels of evidence cannot be used.
 (A) Only (i) (B) Only (ii)
 (C) Both (i) and (ii) (D) Neither (i) nor (ii)
169. Dummy activity
 (A) consumes resources but no time (B) consumes no resources but time
 (C) consumes both resources and time (D) neither consumes resources nor time
170. A project manager uses _____ to identify issues, define impact on project, assign the ownership and establish action plan
 (A) Issue Log (B) Risk Register
 (C) Status Report (D) Progress Report
171. _____ is the money that has already been spent and cannot be recovered
 (A) Sunk cost (B) Debt (C) Opportunity cost (D) Shadow cost
172. Project crashing
 i. is done by increasing the resources to the project
 ii. is done to shorten the duration of a project by reducing the time of one or more tasks
 iii. is done to reduce the cost of the project due to unexpected financial emergencies
 (A) Only (i) (B) (i) and (ii) (C) (ii) and (iii) (D) (i), (ii) and (iii)
173. Collusive tendering
 i. is a situation in which companies share information illegally among themselves when offering to supply goods or services, in order to control the price
 ii. deprives customers of the benefits of competition
 (A) Only (i) (B) Only (ii) (C) Both (i) and (ii) (D) Neither (i) nor (ii)
174. To-Complete Performance Index (TCPI) is the ratio of
 (A) the cost to finish the outstanding work to the remaining budget.
 (B) the cost to finish the outstanding work to the revised budget
 (C) the cost to finish the outstanding work to the total budget
 (D) the finished work to the budget utilized
175. If PV = Planned Value of the Work, EV = Earned Value of the work and AC = Actual Cost of the work, then Cost Variance will be
 (A) $EV - AC$ (B) $EV - PV$ (C) EV / AC (D) EV / PV

176. A defect in the molecule of crystalline solids where an atom or ion moved out of their own lattice site making it vacant while occupying another intermediary vacant site on the same crystal is known as
(A) Frenkel defect (B) Schottky defect
(C) van der Waals defect (D) Crystalline defect
177. The property of the metals and non-metals to have more than one crystal structure is called
(A) Polymorphism (B) Polytophy (C) Allotropy (D) Polythermy
178. Doping in a semiconductor is done to increase _____
(A) electrical resistance (B) electrical conductance
(C) thermal resistance (D) thermal conductance
179. Which of the following statements are false?
i. The Hall effect is the production of a voltage difference across an electrical conductor that is transverse to an electric current in the conductor and to an applied magnetic field perpendicular to the current.
ii. Hall effect is used to determine whether the semiconductor is n-type or p-type?
(A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
180. Which of the following yields in blue colour in glass?
(A) Cobalt Oxide (B) Sulphur Oxide
(C) Copper Oxide (D) Chromium Oxide
181. The main raw material for making cement is
(A) CaSO_4 (B) MgO (C) CaO (D) Fe_2O_3
182. The material which has nearly zero coefficient of thermal expansion is
(A) Stainless Steel (B) Mild Steel (C) Invar (D) Cast iron
183. Which of the following statement(s) is/are true?
i. The ability of a material to absorb energy in both elastic and plastic range till the point of fracture is known as Toughness
ii. It is indicated by the area under the stress-strain curve till the point of elastic limit
(A) Only (i) (B) Only (ii) (C) Both (i) and (ii) (D) Neither (i) nor (ii)
184. Materials whose properties do not vary with the directions are
(A) homogeneous (B) isotropic
(C) anisotropic (D) orthotropic
185. Izod impact strength test is an ASTM standard method of determining the _____ of materials
(A) impact resistance (B) toughness (C) hardness (D) ductility

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186. Brass is an alloy of
(A) copper and zinc (B) copper and iron
(C) zinc and tin (D) tin and aluminium
187. Which of the following statements are true?
i. Smelting is a form of extractive metallurgy to produce a metal from its ore.
ii. Smelting uses heat and a chemical reducing agent to decompose the ore, driving off other elements as gases or slag and leaving just the metal behind.
iii. The reducing agent commonly used in smelting is a source of carbon such as coke, charcoal, and coal.
(A) Only (i) (B) (i) and (ii) (C) (ii) and (iii) (D) (i), (ii) and (iii)
188. Which of the following elements when added to carbon steel helps it to become non-porous?
(A) Silicon (B) Phosphorus (C) Manganese (D) Chromium
189. Which of the following statements are false?
i. Quenching infers to the rapid cooling, as by immersion in oil or water, of a metal object from the high temperature at which it has been shaped.
ii. Quenching is undertaken to maintain mechanical properties that would be lost upon slow cooling.
(A) Only (i) (B) Only (ii) (C) Both (i) and (ii) (D) Neither (i) nor (ii)
190. Which of the following statements are true?
i. Curie temperature is the temperature above which the magnetic materials lose their ferromagnetic properties.
ii. Curie temperature is the temperature above which the non-magnetic materials gain ferromagnetic properties
(A) Only (i) (B) Only (ii) (C) Both (i) and (ii) (D) Neither (i) nor (ii)
191. The output quality of a printer is measured in
(A) Dots per inch (B) Dots per square centimetre
(C) Dots printed per second (D) Dots printed per pixel
192. Which of the following statements are true for M-Kavach?
i. It is a comprehensive mobile device security solution addressing emerging threats related to Android-based mobile devices.
ii. Its major emphasis is on advising the users against security misconfigurations, detection of hidden/banned apps and scanning the device for potential malicious apps installed on the user's mobile device.
iii. It intimates unauthorized SIM changes to trusted mobile number through SMS
(A) (i) and (ii) (B) (ii) and (iii) (C) (i) and (iii) (D) (i), (ii) and (iii)

193. Which of the following statements are true for SWAN?
- It is the abbreviation of State Wide Area Network
 - It is envisaged as the converged backbone network for data, voice and video communications throughout a State/UT
- (A) Only (i) (B) Only (ii) (C) Both (i) and (ii) (D) Neither (i) nor (ii)
194. The crime of stealing the password is known as
- (A) Spoofing (B) Hacking (C) Spamming (D) Swipping
195. What is SWIFT in context of Digital India?
- It is an interface which tells the shortest and fastest route between source and destination
 - It is an interface for facilitating trade at a single point
 - It is an interface facilitating Direct Benefit Transfer
 - It is an interface for e-tendering of Government projects
196. Which of the following statement(s) is/are true for UMANG?
- It is the abbreviation of Unified Management Application for National Governance
 - It is an initiative by Ministry of Electronics and Information Technology of Government of India
 - Its core platform is integrated with Aadhaar, DigiLocker, etc
- (A) Only (i) (B) (i) and (ii) (C) (ii) and (iii) (D) (i), (ii) and (iii)
197. Which of the following statements are true for e-KRANTI?
- It is an initiative by Ministry of Labour and Employment of Government of India
 - The main objective of e-Kranti is to accelerate e-governance across India and achieve its vision to: “Ensure government-wide transformation by delivering all government services electronically to citizens via integrated, interoperable systems through multiple modes.”
- (A) Only (i) (B) Only (ii) (C) Both (i) and (ii) (D) Neither (i) nor (ii)
198. NIKSHAY is a web-based solution for monitoring patients suffering from
- (A) Polio (B) AIDS (C) Tuberculosis (D) Dengue
199. What does NPTEL stand for?
- National Programme on Technology Enhanced Learning
 - National Project on Tele Education and Learning
 - National Project on Total Education and Leadership
 - New Programs on Technology Education and Leadership
200. Which of the statements is true for DIKSHA?
- It is an initiative of the National Council of Educational Research and Training (Ministry of Education, Govt of India)
 - It is a portal where the doctoral research scholar submits his/her thesis
- (A) Only (i) (B) Only (ii) (C) Both (i) and (ii) (D) Neither (i) nor (ii)

BDZ-2

PROVISIONAL ANSWER KEY

Name of The Post	Gujarat Engineering Service (Civil), Class-1 and Class-2
Advertisement No	19/2022-23
Preliminary Test Held On	22-01-2023
Que. No.	001-300
Publish Date	24-01-2023
Last Date to Send Suggestion (S)	02-02-2023

Instructions / સૂચના (Physical Submission)

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 નહીં.
- (5) ઉમેદવારે જે પ્રશ્નના વિકલ્પ પર વાંધો રજૂ કરેલ છે અને વિકલ્પ રૂપે જે જવાબ સૂચવેલ છે એ જવાબ ઉમેદવારે પોતાની ઉત્તરવહીમાં આપેલ હોવો જોઈએ. ઉમેદવારે સૂચવેલ જવાબ અને ઉત્તરવહીનો જવાબ ભિન્ન હશે તો ઉમેદવારે રજૂ કરેલ વાંધા-સૂચન ધ્યાનમાં લેવાશે નહીં.
- (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 નહીં.
- (7) પરીક્ષામાં હાજર રહેલ ઉમેદવાર જ વાંધા - સૂચન રજૂ કરી શકશે .
- (8) ઉમેદવારે વાંધા-સૂચન સાથે પોતાની જવાબવહીની નકલ બિડાણ કરવાની રહેશે.

M

001. A great circle considering the earth as a true sphere is
(A) a circle obtained by a cutting plane passing through the centre
(B) a circle obtained by a cutting plane passing through one of the poles
(C) a circle obtained by any cutting plane
(D) the equatorial circle
002. A celestial sphere has
(A) the sun as the centre having finite radius
(B) the sun as the centre having infinite radius
(C) earth as the centre having finite radius
(D) earth as the centre having infinite radius
003. Zenith is a point on the
(A) celestial sphere (B) great circle
(C) small circle (D) Meridian circle
004. Azimuth of a heavenly body is
(A) the angle between the observer's meridian and the vertical circle passing through the body
(B) the angle between the observer's meridian and the great circle passing through the body
(C) its angular distance from the pole
(D) its angular distance from the equator measured along the meridian
005. Terrestrial photogrammetry is taking photographs of
(A) celestial bodies from the earth
(B) celestial bodies from the aircraft
(C) the terrain of the earth from cameras on the ground
(D) the terrain of the earth from an aircraft
006. The scale of the photograph taken from an aircraft essentially depends upon
(A) the distance of the object from the cameras
(B) the focal length of the lens in the camera used
(C) the aperture of the camera lens
(D) the speed of the film used
007. Overlap in aerial photography refers to
(A) the overlap of the ground features due to inclination of cameras
(B) the overlap of the ground features due to difference in elevations of objects
(C) the same ground features taken from two camera positions
(D) the blurring due to lack of focus in photographs

008. Distortions in aerial photographs is caused by
(A) tilt and ground relief
(B) faulty camera lens
(C) lack of focus during photography
(D) large distance between camera and the object
009. Parallax in aerial photographs is an error due to
(A) movement of camera and ground relief
(B) overlap in photographs
(C) distortion caused by camera lens
(D) distortion due to lack of focus
010. Temporal resolution in remote sensing refers to
(A) the frequency of the receiving radiations
(B) sensitivity of the system to small changes in the radiation
(C) the amount of time needed to revisit and acquire data for the exact same location
(D) the wavelengths to which the remote sensing system is sensitive
011. Which of the following statement(s) is / are correct for Normalized Difference Vegetation Index?
i. It is dimensionless index
ii. It always ranges between -1 and $+1$.
iii. It quantifies vegetation by measuring the difference between near-infrared and red light.
(A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
012. Which of the following statement(s) is / are true for Healthy vegetation?
i. It reflects more near-infrared and green light compared to other wavelengths.
ii. It absorbs more red and blue light.
(A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
013. Which of the following statement(s) is / are true for the LANDSAT?
i. It is the longest-running enterprise for acquisition of satellite imagery of Earth.
ii. It is a joint NASA / USGS program.
iii. The most recent, Landsat 9, was launched in the year 2021.
(A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)

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

- i. Dust, smoke or pollen exhibits Rayleigh scattering
- ii. Sky appears to be blue due to Mie scattering

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

015. The human eye can detect wavelengths in the range of

- (A) 300 – 600 nanometers (B) 400 – 700 nanometers
(C) 400 – 900 nanometers (D) 700 – 900 nanometers

016. Which of the following is/are direct method of counterung?

- i. Tachometric method
- ii. Grid method
- iii. Cross-section method

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

017. Two contours

- i. will not intersect except in special cases
- ii. will intersect in case of a ridge of valley

Which of the above statements is/are true?

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

018. Which of the following statements should be true for a Transition curve?

- (A) It should meet the straight line part of the road tangentially.
- (B) Its curvature should be infinity at the beginning and should gradually become zero.

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

019. Clinometer can be used for measuring

- i. Vertical angle
- ii. Slope
- iii. Height of the tree

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

020. Which of the following statements are true?
- Eidograph is an instrument used to enlarge or reduce plans.
 - Pantograph is an improved version of the Eidograph.
- (A) Only (i)
(B) Only (ii)
(C) Both (i) and (ii)
(D) Neither (i) nor (ii)
021. The stepwell at Adalaj has a/an _____ shape.
- (A) pentagon (B) hexagon
(C) heptagon (D) octagon
022. What type of Indian ancient architecture is used in Akshardham temple at Gandhinagar?
- (A) Vesara Architecture
(B) Nagara Architecture
(C) Dravidian Architecture
(D) Kalinga Architecture
023. The cross-section of the truss in Atal Bridge on the Sabarmati river resembles a
- (A) Rhombus (B) Pentagon
(C) Hexagon (D) Triangle
024. Which village is given the status of India's first 24×7 solar-powered village?
- (A) Modhera (B) Madhavpur
(C) Mithapur (D) Khavda
025. Which is India's first hotel built over a railway station?
- (A) The Leela (B) Hyatt Regency
(C) Taj Palace (D) JW Marriot
026. Which of the following port in Gujarat operates in a Special Economic Zone?
- (A) Kandla (B) Mundra
(C) Navlakhi (D) Jamnagar
027. The 'Statue of Unity' is located on the Narmada river island named
- (A) Sadhu-Bet (B) Sahu
(C) Saras (D) Kevadia

028. Which of the following statements are true for the Sardar Sarovar Project?
- The dam will be the third highest concrete dam (163 meters) in India
 - In terms of the volume of concrete involved for gravity dams, Sardar Sarovar dam will be ranking as the second largest in the world
 - The Narmada Main Canal would be the largest irrigation canal in the world.
- (A) (i) and (ii) (B) (i) and (iii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
029. Which Man-made lake in Gujarat was recently included in the Ramsar list of 'Wetlands of International importance'?
- (A) Thol Lake (B) Rudrasagar Lake
(C) Hamirsar Lake (D) Lakhota Lake
030. _____ is also known as Acropolis of Ahmedabad
- (A) Jama mosque
(B) Sarkhej Roza
(C) Sidi Saiyyed Mosque
(D) Pirana Imam Sahah Darga
031. _____ shows great variation in water yielding capacity
- (A) Sandstone (B) Granite
(C) Basalt (D) Marble
032. Rocks behave as _____ masses towards operating stresses.
- (A) Inelastic (B) Elastic
(C) Isotropic (D) Anisotropic
033. To avoid shearing, dam has to be placed as far as possible from _____
- (A) Joints (B) Folds
(C) Intrusions (D) Faults
034. Which of the following are the examples of Igneous Rocks?
- Pumice
 - Shale
 - Slate
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)

035. Which of the following statements are true?

- i. A dike is formed when the magma moves vertically through the fissures, cutting through various rock layers.
- ii. Magma, when it moves in a horizontal fashion along a bed of older rocks through fissures and cracks, is referred to as a sill.

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

036. Which of the following meteorological parameters will affect the air pollution?

- i. Dry Adiabatic Lapse Rate
- ii. Environmental Lapse Rate
- iii. Atmospheric Stability
- iv. Mixing Height

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

037. Which of the following statements are true for Stack sampling?

- i. Under isokinetic sampling conditions, parallel air streams flow into the sample inlet, carrying with them particles of all diameters capable of being carried by the stream flow
- ii. Isokinetic condition exists when the velocity in stack is less than the velocity at the top of probe nozzle

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

038. In the National Ambient Air Quality Standards, which of the following heavy metals are included?

- i. Nickel
- ii. Arsenic
- iii. Cadmium
- iv. Mercury

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

039. Which of the following statements are true for the air quality monitoring?

- i. For annual arithmetic mean, minimum 52 measurements in a year at a particular site should be taken
- ii. 24 hourly or 08 hourly or 01 hourly monitored values, as applicable shall comply with the standards for 90% of the time in a year

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

040. National Clean Air Program (NCAP) outlined by Ministry of Environment, Forest and Climate Change of Government of India outlines the national level target of reducing the annual concentration of $PM_{2.5}$ and PM_{10} by _____ by 2024 keeping the base year as 2017
- (A) 5-10% (B) 10-20%
(C) 20-30% (D) 30-40%
041. From a Wind Rose Diagram, we get to know about the _____ of wind
- i. direction
ii. duration
iii. intensity
- (A) Only (i) (B) (i) and (ii)
(C) (i) and (iii) (D) (i), (ii) and (iii)
042. The air pollutants not responsible for acid rain within and downwind areas of major industrial emissions
- i. SO_2
ii. NO_x
iii. H_2S
iv. CH_4
- (A) Only (i) (B) (i) and (ii)
(C) (iii) and (iv) (D) (i), (ii), (iii) and (iv)
043. Pneumoconiosis is caused due to the inhalation of which of the following?
- i. Asbestos fibers
ii. Silica dust
iii. coal mine dust
- (A) Only (i) (B) (i) and (ii)
(C) (i) and (iii) (D) (i), (ii) and (iii)
044. Carbon monoxide will affect which of the following?
- (A) Building materials (B) Respiratory system
(C) Blood Haemoglobin (D) Vegetation
045. Which of the following statements are true for Wet scrubbers?
- i. Wet scrubbers remove dust particles by capturing them in liquid droplets.
ii. Wet scrubbers do not remove gaseous pollutants
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)

046. As per the Drinking Water Quality standards (BIS 10500 – 2012), E. coli or thermotolerant coliform bacteria shall not be detectable in any _____ sample.
- (A) 10 ml (B) 100 ml
(C) 500 ml (D) 1000 ml
047. Which of the following statements are true regarding Thermal stratification in water bodies?
- i. Thermal stratification develops in lakes and reservoirs when the surface water begins to warm.
ii. The water temperature difference causes variation in water densities which create resistance to mixing and ultimately results in anaerobic conditions in the lower zones
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
048. Which of the following are the examples of a Non Rigid Dam?
- i. Masonry Dam
ii. Earthen Dam
iii. Rockfill Dam
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
049. Which of the following features of the reservoir should be examined to determine to what extent the water impounded by the dam would constitute a danger to the safety of the dam or a hazard to human life or property?
- i. Shoreline
ii. Sedimentation
iii. Backwater flooding
iv. Watershed Runoff potential
v. Surface evaporation
- (A) (i) and (ii) (B) (iii), (iv) and (v)
(C) (i), (ii), (iii) and (iv) (D) (i), (ii), (iii), (iv) and (v)
050. Arrange in descending order the chemical incrustations affecting the yield of a well
- i. Deposition of soil materials (Mechanical Incrustation).
ii. Precipitation of carbonates, sulphates and silicates of calcium and magnesium.
iii. Precipitation of hydroxides, oxides and other compounds of iron and manganese.
iv. Slime produced by iron bacteria and other slime producing organisms.
- (A) (i), (ii), (iii), (iv) (B) (ii), (iii), (iv), (i)
(C) (iii), (ii), (i), (iv) (D) (ii), (i), (iii), (iv)

057. Excess of Fluorides in drinking water can cause
- i. arthritis
 - ii. osteoporosis
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
058. Which of the following is / are provided to protect the pipeline against water hammer?
- i. Surge tank
 - ii. Guard pond
 - iii. Sedimentation tank
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
059. After the softening of the water through the Soda-lime process, which gas is passed in the water for dissolving the precipitates of Calcium and Magnesium?
- (A) Chlorine (B) Oxygen
(C) Carbon-di-oxide (D) Radon
060. Which of the following statements are true regarding Residual chlorine in drinking water?
- i. Residual chlorine should be around 0.2 mg/l at the receiving reservoir of a transmission system
 - ii. Absence of residual chlorine confirms the presence of heavy contamination in the transmission system.
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
061. Pumping storm water is usually done by employing :
- (A) Submersible pump
 - (B) Axial flow pump
 - (C) Centrifugal pump
 - (D) Turbine pump
062. Corrosion in concrete sewers is generally due to the
- (A) high velocity of sewage
 - (B) higher concentration of grits in sewage
 - (C) high pH of the sewage
 - (D) septic condition of the sewage

063. Sewage sickness relates to :
- (A) toxicity of sewage interfering with response to treatment.
 - (B) destruction of aquatic flora and fauna due to gross pollution of receiving bodies of water by sewage.
 - (C) reduction in the waste purifying capacity of the soil.
 - (D) clogging of pores in soil due to excessive application of sewage to land, obstructing aeration and leading to septic conditions.
064. One litre of sewage, when allowed to settle for 30 minutes gives sludge of 27 cm^3 . If the dry weight of sludge is 3.0 gm, then its sludge volume index will be :
- (A) 9
 - (B) 24
 - (C) 30
 - (D) 81
065. Self cleansing velocity is
- (A) the minimum velocity of flow required to maintain a certain amount of solids in the flow
 - (B) the maximum velocity of flow required to maintain a certain amount of solids in the flow
 - (C) such a flow velocity that would be sufficient to flush out any deposited solids in the sewer
 - (D) such a flow velocity that would be sufficient to ensure that sewage does not remain in the sewer.
066. Fresh sludge has moisture content of 99% and, after thickening, its moisture content is reduced to 96%. The reduction in volume of sludge is :
- (A) 3%
 - (B) 5%
 - (C) 75%
 - (D) 97.5%
067. The correct sequence of the sludge digestion steps is :
- (A) Acid formation, hydrolysis, methane formation.
 - (B) Methane formation, acid formation, hydrolysis.
 - (C) Hydrolysis, methane formation, acid formation.
 - (D) Hydrolysis, acid formation, methane formation.
068. Sludge bulking can be controlled by :
- (A) chlorination
 - (B) coagulation
 - (C) aeration
 - (D) denitrification.
069. In a sanitary plumbing of buildings, a two-pipe system signifies :
- (A) separate soil-pipe and waste pipe without vent pipes
 - (B) a soil cum waste pipe and a ventilating pipe
 - (C) separate soil and waste pipe and a common ventilating pipe
 - (D) separate soil pipe and waste pipe, each with its own vent pipe

070. Deep ponds, in which oxygen is absent except, perhaps across a relatively thin surface layer, are called.
- (A) Aerobic ponds (B) Anaerobic ponds
(C) Facultative ponds (D) Polishing ponds
071. Which of the following is not a rule published in India?
- (A) Industrial Waste Management Rules
(B) Battery Waste Management Rules
(C) Bio-medical Waste Management Rules
(D) Construction and Demolition Waste Management Rules
072. Which of the following is not a biological process for treatment of biodegradable waste?
- (A) Bio-methanation (B) Composting
(C) Sanitary Landfill (D) Vermicomposting
073. As per Solid Waste Management Rules, 2016 landfill site is not permitted:
- i. In zone of coastal regulation
ii. At 100 meters away from river
iii. In sensitive eco-fragile areas
iv. At 200 meters away from Highways
- (A) (i), (ii) and (iii) (B) (i) and (iii)
(C) (i), (iii) and (iv) (D) (ii) and (iv)
074. As per Solid Waste Management Rules, 2016 the CO₂ concentration in the tail gas of incinerators shall not be more than
- (A) 5% (B) 7%
(C) 10% (D) 15%
075. What is 'leachate' in solid waste management?
- (A) The ash generated from an incinerator
(B) The tail gas generated from an incinerator with high concentration of CO₂
(C) The sludge produced in a bio-methanation process
(D) The liquid that seeps through solid waste
076. When the air temperature is saturated with water vapour then
- i. the dry bulb temperature and wet bulb temperature become same
ii. the saturation deficit becomes 100%
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)

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077. 1 millibar is equal to
(A) 0.1 N / m^2 (B) 1.0 N / m^2
(C) 10 N / m^2 (D) 100 N / m^2
078. Thermohygrograph gives a continuous record of
i. temperature
ii. relative humidity
iii. solar radiation
(A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
079. Most of the rainfall in India comes through as
(A) frontal cyclonic precipitation
(B) non-frontal cyclonic precipitation
(C) convective precipitation
(D) orographic precipitation
080. A line joining places of equal rainfall is called
(A) isohyet (B) isobar
(C) isotherm (D) isopleths
081. Transpiration is measured by
(A) lysimeter (B) pyranometer
(C) phytometer (D) hygrometer
082. The transpiration ratio is the ratio of
(A) the mass of water transpired to the mass of dry matter produced
(B) the mass of water transpired to mass of living matter produced
(C) the mass of water transpired to the mass of water uptake
(D) the mass of water given to the mass of water retained
083. The S-curve is used to
(A) alter a unit hydrograph of specified duration into a unit hydrograph of desired duration
(B) develop a synthetic unit hydrograph
(C) derive the unit hydrograph of a complex storm
(D) estimate the peak flood flow of a basin from the given storm

084. Which of the following statements are true for Double Mass Curves (DMC)?
- DMC is used to check the consistency of many kinds of hydrologic data by comparing data for a single station with that of a pattern composed of the data from several other stations in the area.
 - DMC cannot be used to adjust the inconsistent precipitation data
 - DMC is used for estimating the infiltration pattern of a given area
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
085. Find the optimum number of rain gauge stations required if the coefficient of variation of the rainfall for the 5 rain gauge stations in the catchment was found to be 25% while the admissible error is 5%.
- (A) 10 (B) 15
(C) 20 (D) 25
086. Which of the following statements are true for leaching?
- Leaching is a process by which alkali salts present in the soil are dissolved and drained
 - Acidic soils are reclaimed by leaching
- (A) Only (i) (B) Only(ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
087. If the base period of a crop is 100 days and its delta is 100 cm, then the duty would be
- (A) 8640 hectare / cumec (B) 864 hectare / cumec
(C) 86.4 hectare / cumec (D) 8.64 hectare / cumec
088. Which of the following statement(s) is / are true for Furrow method of irrigation?
- Only $1/2 - 1/5$ of the irrigated land surface is wetted
 - It is adapted to hilly areas with steep slopes
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
089. Which of the following statement(s) is / are true for Berms?
- Berms help in controlling the soil erosion by intercepting and diverting rainwater on the downstream slope of the dam
 - Berm on the upstream slope of a dam serves to support the foundation of the riprap
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)

090. Which of the following statement(s) is/are true for Phreatic Line in an Earthen Dam?
- i. Phreatic line is the top flow line which separates saturated zone from unsaturated zone
 - ii. The hydrostatic pressure on the line itself is atmospheric
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
091. Which of the following can be a part of the Ideal Bridge Site Characteristics?
- i. There should be no confluence of large tributaries in the vicinity of the bridge site
 - ii. The stream at the bridge site should be well defined and as wide as possible
 - iii. There should be minimum obstruction of the natural waterway so as to have maximum afflux
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
092. What shape of the tunnel would be best suited for soft rocks?
- (A) Segmental roof section (B) Horse-shoe section
(C) Circular (D) Egg-shaped
093. Which of the following method(s) can be used for tunnelling in soft soil?
- i. Forepoling method
 - ii. Needle beam method
 - iii. Heading and benching method
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
094. Which of the following statement(s) is / are true for a Wing Wall in a bridge?
- i. They are adjacent to the abutments and act as retaining walls.
 - ii. They can either be attached to the abutment or be independent of it.
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
095. Which of the following statement(s) is / are true for Bearings in Bridges?
- i. Fixed bearings allow both rotation and translation
 - ii. Bearings are provided in bridges to transmit the load from superstructure to the sub-structure
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)

096. To connect the villages in India with all-weather roads, the Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched in the year _____.
- (A) 2000 (B) 2003
(C) 2007 (D) 2013
097. The National Highway (NH) project “Golden Quadrilateral (GQ)” by Ministry of Road Transport and Highways, Government of India connects:
- (A) Kedarnath, Badrinath, Yamunothri & Gangothri
(B) Delhi, Kolkata, Chennai & Mumbai
(C) Kashmir, Kanyakumari, Kutch & Arunachal Pradesh
(D) North, South, East & West
098. Which of the following mix is considered to be most suitable for asphaltting over the bridge deck?
- (A) Mastic asphalt (B) Semi-dense bituminous mix
(C) Dense bituminous mix (D) Bituminous concrete
099. In flexible pavement construction, the interface treatment tack coat is applied over
- (A) Granular Sub Base layer (B) Wet Mix Macadam layer
(C) Bituminous layer (D) None of the above
100. Select the method(s) for measuring spot speeds in traffic surveys
- i. Enoscope method
ii. Short-base method
iii. Radar speed method
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
101. In an O-D (Origin-Destination) traffic survey, the thickness of the desire lines represents:
- (A) Connection between two zones (B) Number of trips
(C) Number of modes (D) Number of trucks
102. As per recent IRC 37-2018 guidelines, the analysis of strains in flexible pavement is performed based on material strength in terms of:
- (A) California Bearing Ratio (CBR)
(B) Resilient Modulus (Mr)
(C) Modulus of subgrade reaction (k)
(D) Unconfined Compressive Strength (UCS)

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103. In flexible pavements, wheel loads from the surface layer are transferred to the subgrade by
(A) Grain to grain transfer (B) the Slab action
(C) the Bitumen adhesion (D) the Air voids
104. As per IRC 58-2015 guidelines, the design of rigid pavement is said to be safe if the cumulative fatigue damage due to _____
(A) Bottom Up Cracking is less than 1
(B) Top Down Cracking is less than 1
(C) Bottom Up Cracking is less than 1 and Top Down Cracking is less than 1
(D) Bottom Up Cracking and Top Down Cracking is less than 1
105. The tie bars in rigid pavements are provided at:
(A) Contraction joints (B) Expansion joints
(C) Longitudinal joints (D) Transverse joints
106. For a National Highway (NH) construction, tunnelling is preferred, if the cutting of existing ground exceeds _____ m.
(A) 10.0 (B) 15.0
(C) 20.0 (D) 25.0
107. In tunnelling, recommended explosive for blasting of soft rocks is
(A) Ammonia dynamite (B) Blasting gelatin
(C) Special gelatin 10 to 30% (D) Semi-gelatin
108. Select the most suitable method of tunnelling in rocky ground
(A) Army method (B) Austrian method
(C) Drift method (D) English method
109. Redirecting of water entering the tunnel is called as
(A) Drainage work during construction
(B) Perpetual drainage work
(C) Pre-drainage work
(D) Post-drainage work
110. The most popular lighting method used in tunneling operations is
(A) Acetylene gas lighting
(B) Coal gas lighting
(C) Electric lighting
(D) Lanterns with lamp burning oil

111. Which of the following will have a finite slope?
i. Embankment
ii. Earth dam
iii. Canal
(A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
112. For a pure cohesive soil, the friction circle is a
(A) point (B) circle
(C) line (D) circular arc
113. In slope stability analysis, the most critical slip circle has the
(A) Lowest factor of safety (B) Highest factor of safety
(C) Moderate factor of safety (D) Depends upon type of slope
114. The friction circle method is based on
(A) Effective stress analysis (B) Mohr-Coulomb analysis
(C) Total stress analysis (D) Elastic-plastic analysis
115. Rankine's theory considers the stress in a soil mass when it reaches a state of
(A) Stable equilibrium (B) Neutral equilibrium
(C) Elastic equilibrium (D) Plastic equilibrium
116. In standard penetration test, the split-spoon sampler is penetrated into the soil stratum by giving blows from a drop weight whose weight (in kg) and free fall (in cm) are, respectively,
(A) 30 and 60 (B) 60 and 30
(C) 65 and 75 (D) 75 and 65
117. The maximum gross intensity of loading that the soil can support before it fails in shear is called
(A) Bearing capacity (B) Ultimate bearing capacity
(C) Net safe bearing pressure (D) Allowable bearing pressure
118. Which of the following factors affect the bearing capacity of a soil?
i. Cohesion and angle of internal friction
ii. Inclination factors
iii. Depth of footing
(A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)

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119. A raft foundation is provided if the foundation area exceeds the plan area of the building by
(A) 10% (B) 20%
(C) 30% (D) 50%
120. In very soft clayey soils, the most common type of shear failure is
(A) General shear failure (B) Local shear failure
(C) Punching shear failure (D) Wedge failure
121. Negative skin friction on a pile develops when
(A) The groundwater table rises
(B) The soil near the tip is clay
(C) The soil in which it is driven is sandy
(D) The surrounding soil settles more than the pile
122. Skempton's bearing capacity theory is valid for
(A) Clayey soils (B) Sandy soils
(C) Silty soils (D) Gravel soils
123. The bentonite used as suspension in stabilization of bore holes should have a liquid limit
(A) Less than 100% (B) Between 100 % and 300%
(C) Between 300 % and 450% (D) More than 500%
124. The structure of a geocell is
(A) 2D honeycombed (B) 2D floccular
(C) 3D floccular (D) 3D honeycombed
125. Lime stabilization is very effective in treating
(A) Sandy soil (B) Silty soil
(C) Non-plastic soils (D) Plastic clayey soils
126. Amongst the given soils, _____ has the highest specific surface area
(A) Gravel (B) Sand
(C) Silt (D) Clay
127. Match List I (Deposit) with List II (Soil structure) and select the correct answer using the codes given below
- | List-I | List-II |
|------------------------|--------------------|
| a. Coarse-grained soil | 1. Flocculated |
| b. Silt Deposit | 2. Cohesive matrix |
| c. Clay Deposit | 3. Honeycomb |

d. Composite Soil

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

4. Single Grained

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

128. A soil has liquid limit of 65%, plastic limit of 30%, and it has a natural moisture content of 45%. The liquidity index of soil is
 (A) 1.50 (B) 1.25
 (C) 1.00 (D) 0.60
129. According to Atterberg limits, the soil is said to be of medium plasticity if the plasticity index (PI) is:
 (A) $0 < PI < 7$ (B) $7 \leq PI \leq 17$
 (C) $17 < PI < 27$ (D) $PI \geq 27$
130. The soils transported and deposited by a river is called
 (A) Lacustrine Soils (B) Alluvial Soils
 (C) Marine Soils (D) Aeolian Soils
131. If the bulk unit weight of a soil is 15 kN/m^3 and water content in the soil is 50%, then the dry unit weight will be _____.
 (A) 25 kN/m^3 (B) 20 kN/m^3
 (C) 10 kN/m^3 (D) 5 kN/m^3
132. In Kaolinite clay minerals, the combined silica-alumina sheets are held together by
 (A) Covalent bond (B) Hydrogen bond
 (C) Ionic bond (D) Molecular bond
133. A soil has a liquid limit of 30. The corresponding plasticity index given by the A-line is
 (A) 9.8 (B) 8.5
 (C) 7.3 (D) 3.6
134. The flow index in soils indicates
 (A) Shear strength variation with water content
 (B) Variation of liquid limit
 (C) Rate of flow of water through the soil
 (D) Ratio of liquid limit to plastic limit
135. The soil is said to be impermeable when the coefficient of permeability is
 (A) $< 10^{-7} \text{ cm/sec}$ (B) $< 10^{-5} \text{ cm/sec}$
 (C) $< 10^{-3} \text{ cm/sec}$ (D) $< 10^{-1} \text{ cm/sec}$

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136. Which of the following is a method used in the field to determine soil permeability?
- (A) Pumping out of well method
(B) Oedometer test
(C) Constant head permeameter test
(D) Falling head permeameter test
137. Consider different types of soils i.e. Fine sand (F), Homogeneous clay (C), Coarse gravel (G), Silty clays (S). Arrange the soils in the increasing order of their permeability (low to high values).
- (A) C, F, S, G
(B) S, C, F, G
(C) C, S, F, G
(D) S, C, G, F
138. Which of the following statements are true for the Coefficient of Permeability (C_p) of a soil?
- i. C_p of a soil increases with the increase in temperature
ii. C_p of a soil decreases with the increase in specific surface area
- (A) Only (i)
(B) Only (ii)
(C) Both (i) and (ii)
(D) Neither (i) nor (ii)
139. If the void ratio of a soil sample is 0.25, then its porosity will be
- (A) 10%
(B) 20%
(C) 25%
(D) 50%
140. An isobar is an imaginary line which connects all points below the ground surface at which
- (A) the vertical pressure is the same
(B) the atmospheric pressure is the same
(C) the hydrostatic pressure is the same
(D) the electrical conductivity is the same
141. Which of the following is least incompressible fluid?
- (A) Kerosene
(B) Gasoline
(C) Helium
(D) Mercury
142. One cubic centimeter of water is equivalent to
- (A) 0.100 liter
(B) 0.250 liter
(C) 0.010 liter
(D) 0.001 liter
143. Which of the following parameter(s) exist for rotational flows?
- i. Vorticity
ii. Stream function
iii. Velocity potential
- (A) Only (i)
(B) (i) and (ii)
(C) (ii) and (iii)
(D) (i), (ii) and (iii)

144. Uniform flow is possible in which of the following case(s)?
- flow in the middle of a long prismatic channel
 - frictionless sloping channel
 - flow at a channel entrance
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
145. Given the x-component of the velocity $u = 5xy - 2x^2$, the y-component is given by
- (A) $5y^2 - 4xy + C$ (B) $-4xy + 2.05x^2 + C$
(C) $5x^2 - 2xy + C$ (D) $4xy - 2.5y^2 + C$
146. The kinetic energy correction factor for flow between parallel plates under ideal conditions, would approximately be
- (A) 0.5 (B) 1.0
(C) 2.0 (D) None of the above
147. If the relationship between discharge and head for a measuring equipment is given by $Q = kH^{7/2}$, and error in the head measurement is 4.2%, then the error in discharge measurement would be
- (A) 28.5% (B) 21.5%
(C) 14.7% (D) 7.7%
148. Bernoulli's theorem deals with the law of conservation of
- (A) Mass (B) Momentum
(C) Energy (D) All of the above
149. Piezometer is used to measure
- (A) pressure difference (B) intensity of pressure
(C) potential head (D) both (A) and (B)
150. An air vessel is provided at the summit in a syphon to
- (A) avoid interruption in the flow (B) increase discharge
(C) maintain pressure difference (D) all of the above
151. According to IS: 7356 – 2002, the outside diameter of porous piezometer installed in earthen embankments for measurement of pressure should be
- (A) 12.0 mm (B) 15.0 mm
(C) 13.5 mm (D) 9.5 mm

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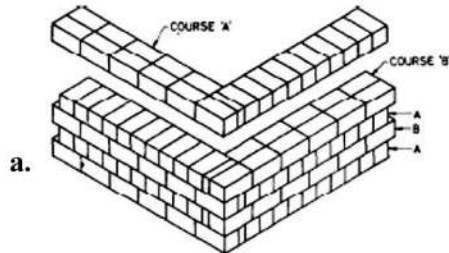
152. Two identical pipes of length L , diameter D and friction factor f , are connected in parallel between two points. The length of a single pipe of diameter D and the same friction factor f , equivalent to the above pair is
- (A) $4L$ (B) L
(C) $L/2$ (D) None of the above
153. In a pipeline, the hydraulic grade line above the pipe centre line in the longitudinal section is at point A and below the pipe centre line there is another point B. From this it can be inferred that
- (A) Vacuum pressure prevails at B (B) Vacuum pressure prevails at A
(C) No vacuum pressure anywhere (D) Cannot say anything
154. The minor loss due to sudden contraction is due to
- (A) Vacuum
(B) Flow contraction
(C) Boundary static friction
(D) Expansion of flow after sudden contraction
155. Cavitation is likely to occur if
- i. pressure at specific point falls below vapour pressure
ii. the temperature becomes low
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
156. Which of the following part of Pelton turbine actively helps in meeting the variable demand of power?
- (A) Casing (B) Breaking jet
(C) Nozzle spear arrangement (D) Wheel assembly
157. The load on a hydel power plant varies from a minimum of 12000 kW to a maximum of 28000 kW. Two turbo-generators of capacities 20000 kW each have been installed. The plant utilization factor would be
- (A) 0.70 (B) 0.30
(C) 1.40 (D) 0.60
158. A Pumped Storage Plant is a
- (A) Lean load plant (B) Peak load plant
(C) High head plant (D) Low head plant
159. The hydro power plant which does not store the water and uses the water as it flows, is called
- (A) Runoff river plant (B) Offshore plant
(C) Closed loop plant (D) Open loop plant

160. For a 135° blade angle at the outlet, what would be the maximum hydraulic efficiency of an impulse turbine?

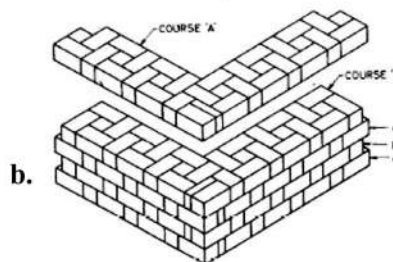
- (A) 29.4%
- (B) 100%
- (C) 32.7%
- (D) 14.7%

161. Match the various types of brick masonry bonds with their respective pattern:

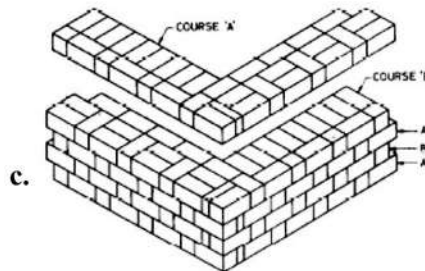
1. Stretcher Bond



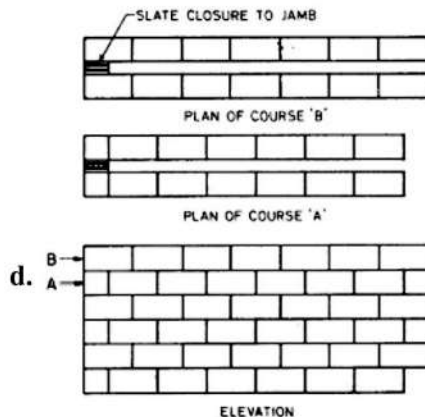
2. Single Flemish Bond



3. English Bond



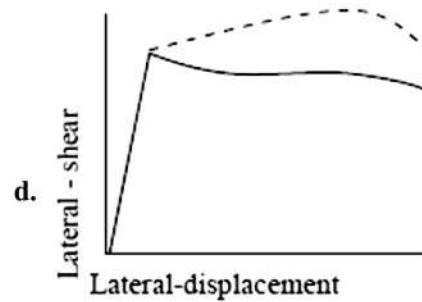
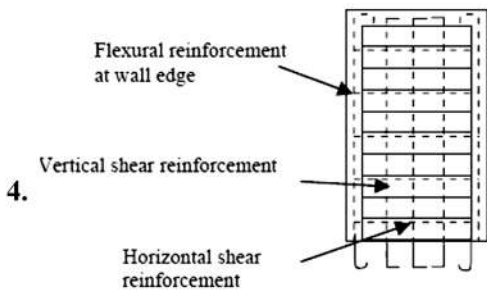
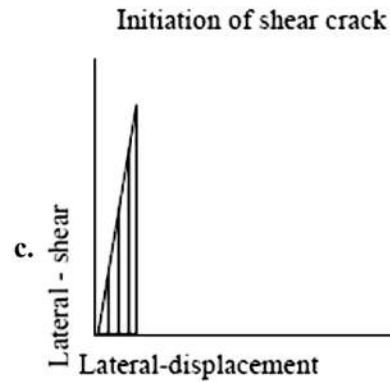
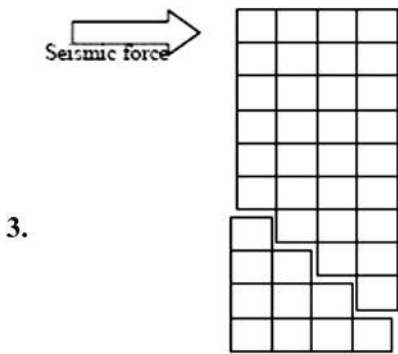
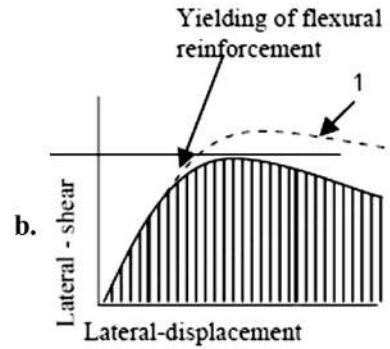
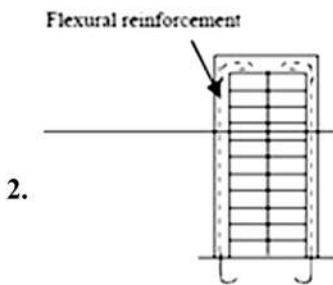
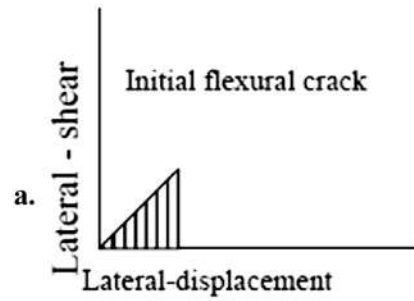
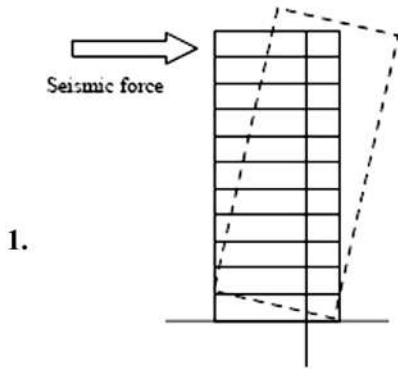
4. Double Flemish Bond



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

162. Which of the following statement is correct for Header Bond?
- (A) Header bond is the strongest of all bonds
 - (B) Header bricks are used in one layer and stretcher in another layer
 - (C) Only Header are used in all course with lapping of half brick width**
 - (D) None of the above
163. Match the correct ones for various types of mortars:
- | | |
|----------------------------------|--|
| 1. Lime-pozzolana mixture mortar | a. Should be used within 0.5 hours of mixing |
| 2. Lime Mortar | b. Should be used within 2 hours of mixing |
| 3. Cement Mortar | c. Should be used within 4 hrs to 12 hrs of mixing |
| 4. Cement -lime Mortar | d. Should be used within 4 hrs to 24 hrs of mixing |
- (A) 1 - a, 2 - b, 3 - c, 4 - d **(B) 1 - d, 2 - c, 3 - a, 4 - b**
(C) 1 - c, 2 - d, 3 - b, 4 - a (D) 1 - b, 2 - a, 3 - d, 4 - c
164. Which of the following statement is correct for a stone masonry work ?
- i. Random rubble masonry has rough finish and is not very strong
 - ii. Random rubble masonry is used for low height and low-cost structure
 - iii. In Course rubble masonry stones are laid in header and stretcher alternatively
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) **(D) (i), (ii) and (iii)**
165. Which of the following statement is incorrect for a cavity wall?
- (A) Cavity wall can be load bearing or non-load bearing walls
 - (B) Cavity wall is built using cavity bricks to make the structure light weight**
 - (C) Cavity wall are built with stretcher bond
 - (D) Cavity wall can be built with Flemish Bond using snap header
166. Which of the following is / are true with respect to the order of suitability for the parameter mentioned ?
- (A) Strength: Cavity Wall > Brick Wall > Stone Wall
 - (B) Insulation: Cavity Wall > Stone Wall > Brick Wall**
 - (C) Height: Brick Wall > Cavity Wall > Stone Wall
 - (D) All of the above
167. Which of the following statements are false for Reinforced Brick Masonry (RBM) ?
- (A) RBM can replace the requirement of column in a multi-level building**
 - (B) RBM is required to take greater shear stresses
 - (C) RBM is required to take better axial load
 - (D) RBM is required to take better bending strength

168. Match the following for reinforced brick masonry walls:



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

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

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

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

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169. _____ is used for cutting soft bricks.
- (A) Jointer (B) Scutch
(C) Axe (D) Trowel
170. Green building practice includes:
- i. energy efficiency
ii. usage of recycled materials
iii. environment protection
- (A) Only (i) (B) (i) and (ii)
(C) (ii) and (iii) (D) (i), (ii) and (iii)
171. The termites which are responsible for attack on wooden materials in building are well known as
- (A) Black Ants (B) Red Ants
(C) White Ants (D) None of the above
172. Science of sound insulation in building is known as:
- (A) Transmission (B) Vibration
(C) Acoustics (D) None of the above
173. Orientation of building is primarily done for achieving the following:
- (A) For adjusting the building according to Sun's path
(B) For adjusting the building according to Wind patterns
(C) For positioning living and sleeping areas to take advantage of sun and wind
(D) None of the above
174. Orientation in a building drawing is mentioned in the form of an arrow, this is to represent
- (A) South (B) East
(C) West (D) None of the above
175. What is the area of a house allotted under Pradhan Mantri Awas Yojna – Gramin?
- (A) 20 sqm (B) 25 sqm
(C) 30 sqm (D) 35 sqm
176. For low cost housing, which of the following material is not filler material in filler slabs?
- (A) Concrete (B) Brick
(C) Clay pot (D) None of the above
177. Which of the following is the most important criteria of a Low-Cost housing?
- (A) Use of low-cost material (B) Use of recycled material
(C) Use of local or natural material (D) Social acceptability

178. Which of the following are correct in case of Building Information Modelling?
- (A) BIM is used for creating only 2D drawings
(B) BIM model is created using REVIT Software
(C) BIM model is created using AutoCad Software
(D) None of the above
179. Which of the following is / are considered as Green Building material(s) ?
- (A) Flyash bricks (B) AAC blocks
(C) Bamboo (D) All of the above
180. Which of the following statement(s) is / are correct for bamboo?
- i. It has tensile strength in range of 100 – 300 MPa
ii. It can be used as a reinforcement in cement concrete for non-dynamic or static load conditions after proper treatment
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
181. In case of check for limit state of serviceability, which of the following is a correct combination of partial safety factors for Dead Load (DL) + Live Load (LL) + Wind Load (WL)?
- (A) 1.0 DL + 1.0 LL + 0.8WL (B) 1.0 DL + 0.8 LL + 0.8WL
(C) 1.0 DL + 1.0 LL + 1.0WL (D) 1.5 DL + 1.5 LL + 1.2WL
182. Which of the following is not a part of Limit State of Collapse?
- (A) Resistance to bending (B) Resistance to shear
(C) Resistance to torsion (D) Resistance to deflection
183. Which of the following is a correct statement for 'Characteristic Load'?
- (A) Value of load which has 90% probability of not being exceeded during service life of the structure
(B) Value of load which has 90% probability of not being exceeded during complete life of the structure
(C) Value of load which has 95% probability of not being exceeded during service life of the structure
(D) Value of load which has 95% probability of not being exceeded during complete life of the structure
184. Which of the following contributes maximum in resisting shear force in a beam ?
- (A) Concrete Section (B) Bent up bars
(C) Inclined Stirrups (D) Vertical Stirrups

185. Which of the following is not a mineral admixture for concrete ?
 (A) Pozzolanas
 (B) Fly-ash
 (C) Silica fumes
 (D) Ground Granulated Blast furnace Slag (GGBS)
186. In nomenclature steel reinforcement of Fe500 D, the letter 'D' stands for
 (A) Durable steel
 (B) Ductile steel
 (C) Deformed bars
 (D) Deformation
187. Compare the concreting conditions with required workability.
- | | |
|--------------------------------|-------------|
| 1. Mass Concrete | a. High |
| 2. Pavements | b. Medium |
| 3. Heavily reinforced concrete | c. Low |
| 4. In situ piling | d. Very low |
- (A) 1 - a, 2 - b, 3 - c, 4 - d
 (B) 1 - b, 2 - a, 3 - d, 4 - c
 (C) 1 - c, 2 - d, 3 - b, 4 - a
 (D) 1 - d, 2 - c, 3 - a, 4 - b
188. Compare the appropriate nominal cover values with exposure conditions to meet the durability requirement.
- | | |
|-------|----------------|
| 1. 50 | a. Moderate |
| 2. 75 | b. Mild |
| 3. 30 | c. Extreme |
| 4. 20 | d. Very Severe |
- (A) 1 - a, 2 - b, 3 - c, 4 - d
 (B) 1 - b, 2 - a, 3 - d, 4 - c
 (C) 1 - c, 2 - d, 3 - b, 4 - a
 (D) 1 - d, 2 - c, 3 - a, 4 - b
189. What is maximum tension reinforcement permissible in beam as per limit state design?
 (A) 2%
 (B) 3%
 (C) 4%
 (D) 5%
190. Compare the appropriate concrete strength values with their mix design
- | | |
|---|------------|
| Strength of Concrete (N/mm ²) | Mix Design |
| 1. 10 | a. 1:1.5:3 |
| 2. 15 | b. 1:1:2 |
| 3. 20 | c. 1:2:4 |
| 4. 25 | d. 1:3:6 |
- (A) 1 - a, 2 - b, 3 - c, 4 - d
 (B) 1 - b, 2 - a, 3 - d, 4 - c
 (C) 1 - c, 2 - d, 3 - b, 4 - a
 (D) 1 - d, 2 - c, 3 - a, 4 - b

191. An RCC lintel is provided in a brick wall opening of 2 m width for window. The height of the bottom of roof as well as window from the floor level are 2.9 m and 2.1 m respectively. Here, lintel beam is to be designed for which load condition?
- (A) Triangular load of brick wall
(B) UDL of wall
(C) UDL of wall + triangular load of roof
(D) Triangular load + load from roof
192. Which is a more suitable option for strengthening a 30 m long wall of 5 m height?
- (A) Providing richer mortar
(B) Providing reinforced brick masonry
(C) Providing buttress
(D) Providing stronger bricks
193. Under which zone, the design for seismic conditions is not mandatory for masonry construction?
- (A) Zone 1
(B) Zone 2
(C) Zone 1 and Zone 2
(D) Zone 1, Zone 2 and Zone 3
194. A 230 mm thick wall which is 6m long has a height of 4m. The Slenderness ratio of this wall will be _____
- (A) 11
(B) 13
(C) 15
(D) 17
195. Which of the following statement is true regarding RCC piles?
- (A) A pile is a slender member which transfers load through its friction
(B) Transfer of load in pile is initiated from depth greater than its diameter
(C) A pile is a member which transfers its load to its surrounding soil
(D) A pile is a member which transfers load through end bearing
196. In prestressed concrete, it is advisable to use
- (A) High strength steel with conventional concrete mix
(B) Conventional steel with conventional concrete mix
(C) High strength steel with high strength concrete mix
(D) Conventional steel with high strength concrete mix
197. If a simply supported prestressed concrete beam of 10 m span is carrying load of 40 kN/m and is having a prestress force of 2000 kN, then the central dip will be
- (A) 200 mm
(B) 250 mm
(C) 300 mm
(D) 350 mm

198. A simply supported prismatic concrete beam of rectangular cross-section, having a span of 6 m, is prestressed with an effective prestressing force of 500 kN. The eccentricity 'e' of the prestressing tendon is zero at supports and varies linearly to a value of 'e' at the mid-span. In order to balance an external concentrated load of 10 kN applied at the mid-span, the required value of 'e' (in mm, round off to the nearest integer) of the tendon, is
- (A) 20 mm (B) 25 mm
 (C) 30 mm (D) 35 mm

199. Assertion (A) : Losses in pre-stress of pre-tensioned beam are more than the losses in post-tensioned beam.

Reason (R) : This is partially due to the effect of elastic shortening.

- (A) both A and R are true and R is the correct explanation of A
 (B) both A and R are true but R is not a correct explanation of A
 (C) A is true but R is false
 (D) A is false but R is true
200. In case of design of water tanks as per IS 3370:2009 (Part II), the permissible stress in steel (HYSD) bar is
- (A) 110 MPa (B) 120 MPa
 (C) 130 MPa (D) 150 MPa

201. As per IS code specifications, maximum water content for 20 mm maximum nominal size of angular coarse aggregates is 186 kg per unit volume of concrete. Match the following lists of types of aggregates and respective approximate reduction in maximum water content value mentioned above (to produce same workability):

Type of Aggregates	Approx. Reduction in Max. Water Content
a. Gravel with some crushed particles	1. 25 kg
b. Rounded gravel	2. 10 kg
c. Sub-angular aggregates	3. 20 kg

- (A) a - 3, b - 1, c - 2 (B) a - 2, b - 1, c - 3
 (C) a - 3, b - 2, c - 1 (D) a - 1, b - 2, c - 3
202. Which one of the following durability tests for stones is prescribed by Bureau of Indian Standards?
- (A) Smith Test (B) Brard's Test
 (C) Crystallisation Test (D) Acid Test
203. The ability of a material to withstand prolonged action of high temperature without melting or losing shape is known as
- (A) Malleability (B) Hardness
 (C) Toughness (D) Refractoriness

204. According to IS Code provisions, minimum compressive strength of heavy-duty bricks required for masonry in heavy engineering works such as bridge structures and industrial foundations is
(A) 25 MPa (B) 30 MPa
(C) 35 MPa (D) 40 MPa
205. Which of the following types of iron is the most suitable one for making columns, base plates and door brackets?
(A) Pig iron (B) Cast iron
(C) Wrought iron (D) Malleable iron
206. As per IS Code for specifications of OPC 53 grade cement, what is the limit of addition of Fly Ash as a performance improver, in terms of percentage addition by mass?
(A) 5.0 (B) 7.5
(C) 10.0 (D) 12.5
207. Detachment of paint film from the surface is known as
(A) flaking (B) chalking
(C) blooming (D) grinning
208. Which of the following statement(s) is / are correct with reference to determination of Consistency of Concrete by Vee-Bee Consistometer method?
i. The slump of sample A is 40 mm and the same for sample B is 120 mm. Vee-bee degrees for sample A is less than that of sample B.
ii. If the number of Vee-bee degrees for a sample is 35, then there is a risk of segregation.
(A) Only (i) (B) Only (ii)
(C) Both (i) & (ii) (D) Neither (i) nor (ii)
209. Letter D in steel grade Fe 415D indicates the category with same specified minimum 0.2 percent proof stress/yield stress, but with
(A) slightly lesser nominal diameter of reinforcement bar as it denotes bar dia, including ribs
(B) slightly more nominal diameter of reinforcement bar as it denotes bar dia, excluding ribs
(C) enhanced specified carbon content
(D) enhanced specified minimum percentage elongation
210. Which one of the following classes of lime shall not be supplied as a quick lime?
(A) Class A (B) Class B
(C) Class C (D) Class D
211. A bulked sand sample measures 100 mm in a cylindrical glass container. After adding sufficient water, it comes down to 80 mm. What is the bulking in percentage?
(A) 20 (B) 25 (C) 75 (D) 80

212. Mainly used in its pure form, which of the following metals is the densest, weakest and softest compared to other given metals?
- (A) Tin (B) Nickel
(C) Lead (D) Aluminum
213. The equivalent cube strength of the concrete is determined by multiplying the corrected cylinder strength by
- (A) 3/4 (B) 4/5 (C) 4/3 (D) 5/4
214. The impurity in glass which gives the edge of glass sheet a greenish colour is
- (A) Silica (B) Cobalt Oxide
(C) Iron (D) Iron Oxide
215. What is the correct sequence of steps to be performed on a specimen of high strength deformed steel bar for Rebend Test?
- kept in boiling water at 100°C for 30 minutes
 - bent at an included angle of 157½°
 - bent at an included angle of 135°
 - allowed to get cool down
- (A) (i) - (iv) - (iii) - (ii) (B) (i) - (iv) - (ii) - (iii)
(C) (iii) - (i) - (iv) - (ii) (D) (ii) - (i) - (iv) - (iii)
216. The distortion of a piece of timber in which the face becomes concave or convex longitudinally is known as
- (A) Cup (B) Twist
(C) Spring (D) Bow
217. Aggregate crushing value for the aggregates to be used in concrete for wearing surfaces such as runways, roads, pavements, spillways, etc. shall not be more than
- (A) 10% (B) 20% (C) 25% (D) 30%
218. The property described by the word 'Intumescent' in Intumescent Painting is
- (A) Swelling (B) Efflorescence
(C) Ductility (D) Workability
219. Which of the following is/are correct with reference to Piezoelectric materials?
- When a piezoelectric material is deformed, it gives off a small but measurable electrical discharge.
 - When an electrical current is passed through a piezoelectric material it experiences increase in size.
- (A) Only (i) (B) Only (ii)
(C) Both (i) & (ii) (D) Neither (i) nor (ii)

220. Which of the following Precasting methods is the most suitable one for manufacturing exterior wall panels where special finishes are required on one face or for sandwich panel?
- (A) Individual mould method (B) Battery form method
 (C) Tilting mould method (D) Extrusion method
221. Which of the following properties of Structural Steel is / are correct as per IS:800-2007 provisions?
- i. Modulus of Elasticity $E = 200 \text{ kN/mm}^2$
 ii. Poisson's Ratio $\mu = 0.5$
 iii. Co-efficient of Thermal Expansion $\alpha = 12 \times 10^{-6} \text{ m} / ^\circ\text{C}$
- (A) Only (i) (B) (i) & (ii)
 (C) (ii) & (iii) (D) (i), (ii) & (iii)
222. Which one of the following types of failure is included in Limit State of Strength?
- (A) Failure by excessive deformation, rupture of the structure or any of its parts or components
 (B) Vibrations in the structure
 (C) Durability
 (D) Fire
223. In weld symbols of steel structural drawings, Field Weld is denoted by
- (A) Letter 'F' on arrow side
 (B) Letter 'F' with two cross lines at 90° to each other at the tail
 (C) a vertical line and a triangular pennant at the kink
 (D) a circle at the kink
224. Which of the following is/are correct with reference to types of elements as mentioned in IS:800-2007?
- i. Flange of Box Section is considered as an Internal element.
 ii. Web of Box Section is considered as an Internal element.
 iii. Stem of T-section is considered as an Outside element.
- (A) (i) & (ii) (B) (ii) & (iii)
 (C) (i) & (iii) (D) (i), (ii) & (iii)
225. According to IS:800-2007, yield stress of the grade of steel used in plastic method of analysis shall not exceed
- (A) 250 MPa (B) 415 MPa
 (C) 450 MPa (D) 500 MPa
226. What is the value of Partial Safety Factor for the Load causing stress fluctuation, while designing a steel structure for fatigue by Limit State method?
- (A) 1.0 (B) 1.15 (C) 1.2 (D) 1.5

234. Where the flanges are prevented from rotating in their own plane about an axis perpendicular to the flange, the restraint provided is
- (A) Torsional restraint (B) Warping restraint
(C) Prying restraint (D) Snug restraint
235. Which of the following is/are correct with reference to the Notional Horizontal Force considered in analysis of steel structures?
- i. It should not be combined with wind load for analysis.
ii. It should be taken to contribute to the net shear on the foundation.
- (A) Only (i) (B) Only (ii)
(C) Both (i) and (ii) (D) Neither (i) nor (ii)
236. Which of the following types of bracing is not permitted in Ordinary Concentrically Braced Steel Structural Frames to resist earthquake?
- (A) X-bracing (B) K-bracing
(C) V-bracing (D) Inverted V-bracing
237. Which of the following types of connection use same value of Partial Safety Factor for Materials?
- i. Rivets - Shop fabrications
ii. Rivets - Field fabrications
iii. Welds - Shop fabrications
- (A) (i) & (ii) only (B) (ii) & (iii) only
(C) (i) & (iii) only (D) (i), (ii) & (iii)
238. The permissible lateral relative displacement between rails supporting crane in case of gantry girder of 6 m span is
- (A) 6 mm (B) 10 mm
(C) 12 mm (D) 15 mm
239. The Elastic Critical Moment is affected by
- i. Moment gradient in the unsupported length
ii. Non-symmetric and non-prismatic nature of the member
iii. Location of transverse load with respect to shear centre
- (A) (i) & (ii) only (B) (ii) & (iii) only
(C) (i) & (iii) only (D) (i), (ii) & (iii)
240. Which type of bolts are to be used in Column Splice, if a column flange is subjected to significant tension or if the faces are not prepared for bearing?
- (A) Black bolts (B) Precision bolts
(C) Ribbed bolts (D) HSFG bolts

241. The ratio of hoop stress to the maximum shear stress in the walls of a cylindrical shell due to internal pressure is
 (A) 2 (B) 4 (C) 6 (D) 8
242. A circular shaft can transmit a torque of 5 kN-m. If the torque is reduced to 4 kN-m, then the maximum value of bending moment that can be applied to the shaft is
 (A) 1 kN-m (B) 2 kN-m
 (C) 3 kN-m (D) 4 kN-m
243. An open-coiled helical spring of mean diameter D , number of coils N and wire diameter d is subjected to an axial force P . The wire of the spring will be subject to the following:
 (A) Direct shear only
 (B) Combined shear and bending only
 (C) Combined shear, bending and twisting
 (D) Combined shear and twisting only
244. A circular shaft is subjected to a torque which is half of the bending moment applied, then the ratio of maximum bending stress and maximum shear stress is _____
 (A) 1.5 (B) 2.0 (C) 4.0 (D) 8.0
245. Pick up the incorrect statement from the following: The torsional resistance of a shaft is directly proportional to:
 (A) modulus of rigidity (B) angle of twist
 (C) reciprocal of the length of the shaft (D) moment of inertia of the shaft section
246. _____ is expected to have the least value of Young modulus of elasticity.
 (A) Wood (B) Glass
 (C) Copper (D) Aluminium
247. The relation between E (modulus of elasticity), G (shear modulus) and K (bulk modulus) is given by:
 (A) $\frac{1}{E} = \frac{3}{G} + \frac{9}{K}$ (B) $\frac{9}{E} = \frac{1}{G} + \frac{3}{K}$
 (C) $\frac{3}{E} = \frac{9}{G} + \frac{1}{K}$ (D) $\frac{9}{E} = \frac{3}{G} + \frac{1}{K}$
248. If the assembly of rigidly connected two bars of the same geometry but of different materials is heated, then
 (A) The bar with a higher thermal coefficient will have tensile stress
 (B) The bar with a higher thermal coefficient will have compressive stress
 (C) Both the bars will have the same tensile stress
 (D) Both the bars will have the same compressive stress

249. Isotropic material means
- (A) a material having same values of a property in all directions
 (B) uniform material composition throughout
 (C) mechanical properties are unique and independent in three mutually perpendicular directions
 (D) direction-dependent mediums that are made up of unsymmetrical crystalline structures
250. The ratio of the maximum shear stress for the square shaft to the circular shaft with the same area is
- (A) Greater than unity (B) Less than unity
 (C) Equal to unity (D) Cannot be specified
251. In a Mohr's circle of the σ - τ plane (σ = normal stress, τ = shear stress), the diametrically opposite points on the circle along the horizontal represent
- (A) Normal stress on the planes of maximum shear
 (B) Maximum shear stresses
 (C) Principal stresses
 (D) Minor and major stresses
252. The angle between the principal plane and the plane of maximum shear is
- (A) 90° (B) 135°
 (C) 180° (D) None of the above
253. If the bar of cross-sectional area A is loaded with the axial load W, then the maximum shear stresses would be
- (A) W/A (B) $W/2A$
 (C) $2W/A$ (D) Zero
254. The radius of gyration for the diamond section of area a^2 would be
- (A) $\frac{a}{\sqrt{6}}$ (B) $\frac{a}{2\sqrt{3}}$
 (C) $\frac{a}{\sqrt{3}}$ (D) $\sqrt{\frac{2}{3}}a$
255. Which of the statements are correct if the cantilever beam is carrying a concentrated moment at its free end?
- i. The beam is subjected to pure bending
 ii. The bending moment diagram will be rectangular
 iii. Beam won't be having a shear force
- (A) Only (i) (B) (i) and (ii)
 (C) (ii) and (iii) (D) (i), (ii) and (iii)

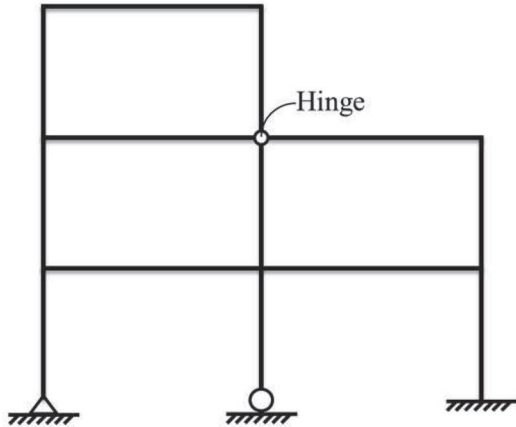
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256. Transverse force in a member produces
- (A) Only shear stress (B) Only bending stress
(C) Both shear and bending stress (D) Direct stresses
257. If an element is subjected to pure shearing stress τ_{xy} , the maximum principal stress is equal to:
- (A) $2\tau_{xy}$ (B) τ_{xy}
(C) $\tau_{xy}/2$ (D) $\sqrt{\tau_{xy}}$
258. If major and minor principal stresses at a point are 50 MPa (tensile) and 30 MPa (compressive), then maximum shear will be
- (A) 20 MPa (B) 30 MPa
(C) 40 MPa (D) 50 MPa
259. The maximum number of unknown forces that can be determined in a planer concurrent force system using the condition of equilibrium is
- (A) zero (B) 2
(C) 3 (D) 6
260. What is the theoretical oxygen demand of 360 mg / lit of glucose solution?
- (A) 180 mg / lit (B) 192 mg / lit
(C) 384 mg / lit (D) 720 mg / lit
261. For the three-hinged parabolic arch of span L and rise H , the maximum bending moment occurs when the isolated load is at a distance of _____ from the crown.
- (A) $L/\sqrt{2}$ (B) $L/2\sqrt{3}$
(C) $L/\sqrt{3}$ (D) $L/3\sqrt{2}$
262. The single-degree-of-freedom structure has a mass of 20 kg and stiffness of 80 N/m; then the period of the structure is
- (A) 4π (B) 2π
(C) $\pi/2$ (D) $\pi/4$
263. Modes of vibration of the multi-degree of freedom structure are
- i. Orthogonal to each other
ii. Linear combination of another
- (A) (i) is correct
(B) (ii) is correct
(C) Both (i) and (ii) are correct
(D) Both (i) and (ii) are incorrect

264. If structure of mass 4 kg and stiffness 9 N/m is having a damping ratio of 5%, then the structural damping coefficient will be

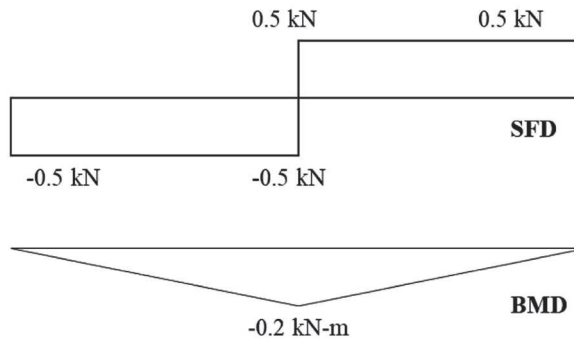
- (A) 0.05
- (B) 0.50
- (C) 0.06
- (D) 0.60

265. The degree of indeterminacy of the frame shown in the following figure is



- (A) 3
- (B) 7
- (C) 10
- (D) 11

266. The SFD and BMD of the beam are shown in the figure below. For which of the following beams is it applicable?



- (A)
- (B)
- (C)
- (D)

correct answer is C

267. If the state of stress in the material is given as follows, then the maximum shear stress would be
- $$\sigma = \begin{bmatrix} 60 & 0 \\ 0 & -20 \end{bmatrix} \text{MPa}$$
- (A) 20 MPa (B) 40 MPa
(C) 60 MPa (D) 80 MPa
268. If the cantilever beam is subjected to a concentrated load (w) at the mid-span ($l/2$) then the slope at the free end will be
- (A) $8wl^2/EI$ (B) $2wl^2/EI$
(C) $wl^2/8EI$ (D) $wl^2/2EI$
269. In three moments equation, in the beam analysis, a fixed end is replaced by an additional span of
- (A) infinite flexural rigidity (B) zero moments of inertia
(C) zero length (D) infinite length
270. If the real beam has intermediate support, then the corresponding conjugate beam will have
- (A) roller support (B) free end
(C) internal hinged (D) fixed support
271. A cantilever beam of span L carries a W -point load at its free end. For no vertical deflection condition, the moment to be applied at the free end will be
- (A) WL (B) $3WL/2$
(C) $2WL/3$ (D) $WL/6$
272. A concentrated vertical load P is supported by the free end of a quadrantal cantilever beam whose one end is fixed on the horizontal plane. If R is the radius and the EI is the flexural rigidity of the beam, then the vertical deflection at the free end would be
- (A) $\frac{\pi PR^3}{2EI}$ (B) $\frac{\pi PR^3}{4EI}$
(C) $\frac{\pi PR^3}{8EI}$ (D) $\frac{\pi PR^3}{16EI}$
273. The symmetry of the stress tensor at a point in the body under equilibrium is obtained from:
- (A) Conservation of energy (B) Moment equilibrium equations
(C) Force equilibrium equations (D) Mohr's circle
274. Two-wheel loads 100 kN and 50 kN spaced at 1 m apart move on the beam of the span 10 m. If any wheel load can lead to the other, then the maximum bending moment that can occur at the section 3 m from the left support will be
- (A) 105 kNm (B) 210 kNm
(C) 245 kNm (D) 300 kNm

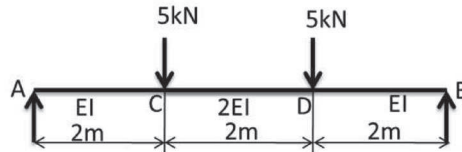
275. The third derivative of the equation of the elastic deform curve will give
 (A) Slope of equation (B) Bending moment
 (C) Shear force (D) Load intensity
276. If both the ends of the fixed beam settle by δ , then the moment developed at the fixed ends will be
 (A) $\frac{2EI\delta}{L^2}$ (B) $\frac{3EI\delta}{L^2}$
 (C) $\frac{6EI\delta}{L^2}$ (D) Zero
277. What are the dimensions of flexural rigidity of the beam elements?
 (A) MT (B) MT^{-2}
 (C) ML^3T^{-2} (D) MLT^{-2}
278. The resultant cuts the base of the circular column of diameter 'D' with an eccentricity equal to the 'D/4'. The ratio between the maximum and minimum stress in the section is
 (A) 3 (B) 4 (C) 5 (D) 6
279. The moment distribution is not dependent on
 (A) The span of the member (B) Flexural rigidity
 (C) Far-end boundary condition (D) Applied moment
280. The coefficient of active earth pressure for loose sand having an angle of internal friction of 30° is
 (A) 1/2 (B) 1/3
 (C) 2 (D) 3
281. Two identical cantilever beams, one with and another without propped supports, carry ULD over the entire span, then which of the following statement(s) is / are correct?
 1. Point of contra flexure must be in the cantilever beam
 2. Point of contra flexure must be in the propped cantilever beam
 (A) 1 is correct (B) 2 is correct
 (C) Both 1 and 2 are correct (D) Both 1 and 2 are incorrect
282. If M kN is the buckling load for a column hinged at both ends, then what would be the buckling load if both ends are fixed?
 (A) 0.5 M kN (B) 2.0 M kN
 (C) 4.0 M kN (D) 8.0 M kN
283. What is the unit of strain energy density in the SI system?
 (A) J / m s² (B) Erg / s²
 (C) kg / m s² (D) J / m³

M

284. If the depth of the beam is reduced to half, then the strain energy stored in the beam comes

- (A) 1/2
- (B) 1/4
- (C) 1/8**
- (D) 1/16

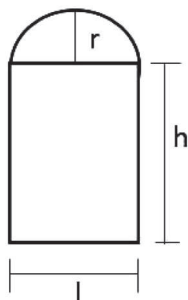
285. If the simply supported beam is loaded with two-point loads, as shown in the following figure, then the M/EI diagram will be



- (A)
- (B)
- (C)**
- (D)

correct answer is C

286. The total deduction in the segmental arch opening wall of the thickness 't' for the following figure with rise 'r' and height 'h' is given by



- (A) $[(l \times h) + (0.33 \times l \times r)] \times t$
- (B) $[(l \times h) + (0.40 \times l \times r)] \times t$
- (C) $[(l \times h) + (0.67 \times l \times r)] \times t$**
- (D) None of the above

287. In absence of detailed steel design, the percentage for steel of concrete for R.C.C Beams work may be taken as
(A) 0.50 to 0.60% (B) 0.70 to 1.0%
(C) 1.0 to 2.0% (D) 2.0 to 3.0%
288. The total length of bar with straight length of l meter with one bent up of 30 degree is equal to (here d is the diameter of the bar)
(A) $l + 0.43d$ (B) $l + 0.53d$
(C) $l + 0.63d$ (D) $l + 1.73d$
289. In estimating, the quantity of shallow, thin and surface works shall be taken in
(A) Running meter (B) square meter
(C) cubic meter (D) numbers
290. Size of standard modular brick is
(A) $19 \text{ cm} \times 9 \text{ cm} \times 9 \text{ cm}$ (B) $19 \text{ cm} \times 9 \text{ cm} \times 4 \text{ cm}$
(C) $20 \text{ cm} \times 10 \text{ cm} \times 10 \text{ cm}$ (D) $20 \text{ cm} \times 10 \text{ cm} \times 5 \text{ cm}$
291. Soak pit shall not be less than _____ cm in diameter and not less than _____ in depth below the invert level of the inlet pipe.
(A) 60 cm and 1.0 m respectively (B) 60 cm and 1.5 m respectively
(C) 90 cm and 1.5 m respectively (D) 90 cm and 1.0 m respectively
292. The standard spacing of manholes for the straight sewer line for the sewer of diameter above 40 cm is
(A) 45 meter (B) 60 meter
(C) 75 meter (D) 90 meter
293. If there are $n - 2$ number of dual role events in the networks diagram then the total number of events in network diagram will be
(A) $n - 1$ (B) n
(C) $n + 1$ (D) $n + 2$
294. The recommended height of wash basin from floor level to tap of wash basin is
(A) 70 cm to 75 cm (B) 75 cm to 80 cm
(C) 80 cm to 85 cm (D) None of the above
295. There are 2 parallel paths in a part of network diagram between a bursting node and next merging node with only one activity in each path in between. The minimum number of dummy arrows needed will be
(A) 3 (B) 2
(C) 1 (D) Zero

296. The standard requirement of Number of Water Closet in Office building is
- (A) 1 for every 15 persons or part thereof
 - (B) 1 for every 20 persons or part thereof
 - (C) 1 for every 25 persons or part thereof**
 - (D) 1 for every 30 persons or part thereof
297. Which of the following are correct rules for a network diagram?
- i. An event can occur only once.
 - ii. It is usual practice to show time flow from left to right.
 - iii. Network may have single initial and final event.
 - iv. No activity can start until its head end event has occurred.
- (A) Only (i) **(B) (i) and (ii)**
(C) (iii) and (iv) (D) (i), (ii), (iii) and (iv)
298. Which of the following data is necessary for updating of network diagram?
- (A) Original network calculation chart
 - (B) Point of updating
 - (C) Execution stage at point of updating
 - (D) All of the above**
299. Which of the following condition is necessary for an activity to be critical?
- (A) Earliest Occurrence Time should be zero.
 - (B) Latest Occurrence Time should be zero.
 - (C) Total Float should be zero.**
 - (D) Head Slack should be zero.
300. In Contract documents, Schedule B consists of
- i. Tender rate per unit quantity.
 - ii. Cost of each item.
 - iii. Total of all items.
- (A) Only (i) **(B) (i) and (ii)**
(C) (ii) and (iii) **(D) (i), (ii) and (iii)**
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