

BHE(CBRT)

PROVISIONAL ANSWER KEY

Name of the post	Physicist (Paramedical), Class-2 under the Health and Family Welfare Department
Advertisement No.	44/2023-24
Preliminary Test held	20-03-2024
Question No.	001-300
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Last Date to Send Suggestion(s) 28-03-2024

THE LINK FOR ONLINE OBJECTION SYSTEM WILL START FROM 22-03-2024; 04:00 PM ONWARDS

Instructions / સૂચન

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

- (1) All the suggestion should be submitted through **ONLINE OBJECTION SUBMISSION SYSTEM** only. Physical or submission through E- Mail of suggestions will not be considered.
- (2) Question wise suggestion to be submitted in the prescribed format (proforma) published on the website / online objection submission system.
- (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 / online objection submission system. 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 should be made on separate sheet. Objection for more than one question in single sheet shall not be considered.

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

- (1) ઉમેદવારે વાંધા-સૂચનો ફક્ત ઓનલાઈન ઓબ્જેક્શન સબમીશન સીસ્ટમ દ્વારા જ સબમીટ કરવાના રહેશે. રૂબરૂ અથવા ટપાલ અથવા ઇ-મેઇલ દ્વારા આયોગની કચેરીએ મોકલવા આવેલ વાંધા-સૂચનો ધ્યાને લેવામાં આવશે નહીં જેની ખાસ નોંધ લેવી.
- (2) ઉમેદવારે વાંધા-સૂચનો રજૂ કરવા વેબસાઈટ / ઓનલાઈન ઓબ્જેક્શન સબમીશન સીસ્ટમ પર પ્રસિધ્ધ થયેલ નિયત 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 પ્રશ્નપત્રમાં નિર્દિષ્ટ પ્રશ્ન અને વિકલ્પ સિવાયના વાંધા-સૂચનો ધ્યાને લેવામાં આવશે નહીં.
- (5) ઉમેદવારે 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-સૂચનો ધ્યાનમાં લેવાશે નહીં.
- (6) એક પ્રશ્ન માટે એક જ વાંધા-સૂચન પત્રક વાપરવું. એક જ વાંધા-સૂચનો પત્રકમાં એકથી વધારે પ્રશ્નોની રજૂઆત કરેલ હશે તો તે અંગેના વાંધા-સૂચનો ધ્યાને લેવાશે નહીં.

Website link for online objection submission system : <http://gpsc.safevaults.in/login/>

001. પ્રજાસત્તાક દિન 2024ની પરેડમાં ગુજરાતની ઝાંખી (ટેબ્લો)માં નિરૂપણ હતું.....

- (A) સરહદીય પ્રવાસન પર ધોરડો ગામની વૈશ્વિક ઓળખ
(B) રાષ્ટ્રીય એકતા માટે કેવડિયા સ્થિત સ્ટેચ્યૂ ઓફ યુનિટી
(C) સાંસ્કૃતિક પ્રવાસન પર પાટણની રાણીની વાવ વૈશ્વિક ઓળખ
(D) મીઠાના સત્યાગ્રહનું દાંડી રાષ્ટ્રીય સ્મારક

002. I વિભાગ (બંદરો)ને II (જિલ્લા) સાથે યોગ્ય રીતે જોડો.

I

II

- | | |
|------------------|-----------|
| i. હજીરા બંદર | a. સુરત |
| ii. તુના બંદર | b. કચ્છ |
| iii. સિક્કા બંદર | c. જામનગર |
| iv. ગોપનાથ બંદર | d. ભાવનગર |

(A) i - c, ii - d, iii - a, iv - b

(B) i - a, ii - b, iii - c, iv - d

(C) i - b, ii - c, iii - d, iv - a

(D) i - d, ii - a, iii - b, iv - c

003. ભારતમાં પ્રથમ ખાનગી દરિયાઈ બંદર કયું છે?

(A) મુન્દ્રા બંદર

(B) પીપાવાવ બંદર

(C) કંડલા બંદર

(D) કોચીન બંદર

004. ભારતીય બંધારણની પ્રસ્તાવનામાં 'સમાજવાદ' અને 'બિનસાંપ્રદાયિક' શબ્દો કયા બંધારણીય સુધારાથી દાખલ કરવામાં આવ્યા હતા?

(A) 42મો બંધારણીય સુધારો

(B) 43મો બંધારણીય સુધારો

(C) 44મો બંધારણીય સુધારો

(D) ઉપરનામાંથી એક પણ નહિ

005. ભારતીય બંધારણ મુજબ નીચેનામાંથી કઈ કઈ મૂળભૂત ફરજો છે?

i. ભારતીય બંધારણને માન આપવું

ii. દરેકને કામ પૂરું પાડવું

iii. આપણી સહિયારી સંસ્કૃતિના સમૃદ્ધ વારસાને જાળવવો

iv. રાષ્ટ્રધ્વજ અને રાષ્ટ્રગીતને માન આપવું

(A) ફક્ત i અને iv

(B) ફક્ત ii અને iv

(C) ફક્ત ii, iii અને iv

(D) ફક્ત i, iii અને iv

006. I વિભાગ (રાષ્ટ્રીય ઉદ્યાનો-નેશનલ પાર્ક)ને II (જિલ્લાઓ) સાથે જોડો.

I

II

- | | |
|--|--------------------|
| i. ગીર રાષ્ટ્રીય ઉદ્યાન (નેશનલ પાર્ક) | a. દેવભૂમિ દ્વારકા |
| ii. કાળિયાર રાષ્ટ્રીય ઉદ્યાન (નેશનલ પાર્ક)-વેળાવદર | b. ભાવનગર |
| iii. વાંસદા રાષ્ટ્રીય ઉદ્યાન (નેશનલ પાર્ક) | c. નવસારી |
| iv. દરિયાઈ રાષ્ટ્રીય ઉદ્યાન (નેશનલ પાર્ક) | d. જુનાગઢ |

(A) i - c, ii - d, iii - a, iv - b

(B) i - b, ii - a, iii - c, iv - d

(C) i - d, ii - b, iii - c, iv - a

(D) i - a, ii - c, iii - b, iv - d

001. In the Republic Day 2024 Parade, the Gujarat Tableau depicted _____
 (A) Dhordo Village's global identity on border tourism
 (B) Statue of Unity situated at Kevadia for national integration
 (C) Patan's Rani Ki Vav global identity on culture tourism
 (D) Dandi National Salt Satyagraha Memorial
002. Match I (Sea Ports) with II (District)
- | I | II |
|------------------|--------------|
| i. Hazira Port | a. Surat |
| ii. Tuna Port | b. Kutch |
| iii. Sikka Port | c. Jamnagar |
| iv. Gopnath Port | d. Bhavnagar |
- (A) i - c, ii - d, iii - a, iv - b
 (B) i - a, ii - b, iii - c, iii - d
 (C) i - b, ii - c, iii - d, iv - a
 (D) i - d, ii - a, iii - b, iv - c
003. Which is the first private seaport in India?
 (A) Mundra port
 (B) Pipavav port
 (C) Kandla port
 (D) Cochin port
004. Which constitutional amendment inserted 'Socialist' and 'Secular' words in the preamble of the Constitution of India?
 (A) 42nd Constitutional Amendment
 (B) 43rd Constitutional Amendment
 (C) 44th Constitutional Amendment
 (D) None of the above
005. Which among the following are fundamental duties according to the Constitution of India?
 i. To respect the Constitution of India
 ii. To provide work for everyone
 iii. To preserve the rich heritage of our composite culture
 iv. To respect the National Flag and the National Anthem
 (A) i and iv only
 (B) ii and iv only
 (C) ii, iii and iv only
 (D) i, iii and iv only
006. Match I (National Parks) with II (Districts)
- | I | II |
|--|--------------------|
| i. Gir National Park | a. Devbhumi Dwarka |
| ii. Blackbuck National Park, Velavadar | b. Bhavnagar |
| iii. Vansda National Park | c. Navsari |
| iv. Marine National Park | d. Junagadh |
- (A) i - c, ii - d, iii - a, iv - b
 (B) i - b, ii - a, iii - c, iv - d
 (C) i - d, ii - b, iii - c, iv - a
 (D) i - a, ii - c, iii - b, iv - d

007. ગિરનાર પર્વત પર આવેલો શિલાલેખ આશરે ઈ.સ. પૂર્વે 250માં ગુજરાતમાં કયા સમ્રાટનું સામ્રાજ્ય વિસ્તરેલું હતું તેનો પુરાવો છે?
- (A) સમ્રાટ ચંદ્રગુપ્ત મૌર્ય (B) ગુપ્ત સમ્રાટ સમુદ્રગુપ્ત
(C) મુઘલ સમ્રાટ અકબર (D) મૌર્ય સમ્રાટ અશોક
008. મહેસાણા જિલ્લામાં આવેલું મોઢેરાનું સૂર્યમંદિર કઈ નદીના કિનારે આવેલું છે?
- (A) નાગમતી નદી (B) પુષ્પાવતી નદી
(C) નાયરા નદી (D) ઓઝત નદી
009. ડાંગ દરબાર....
- (A) હોળીના તહેવાર સાથે સુસંગત ત્રિ-દિવસીય વાર્ષિક ભવ્યાતિભવ્ય સાંસ્કૃતિક ઉજવણી છે.
(B) હોળીની ઉજવણી પછી જીવનસાથી પસંદ કરવાનો આદિવાસી ઉત્સવ છે.
(C) કચ્છ જિલ્લાના ભયાઉ તાલુકાનો ત્રણ મહિના લાંબો તહેવાર છે.
(D) ઉપરનામાંથી એક પણ નહિ
010. સાબરમતી નદી અને વાત્રક નદીનું મિલન સ્થળ
- (A) સંગમ (B) સિરસથા
(C) દેવપ્રયાગ (D) વૌઠા
011. નીચેનામાંથી કયું/કયા વિધાન/વિધાનો સાચું/સાચાં છે?
- I. 1947માં ભારતની સ્વતંત્રતા બાદ સૌરાષ્ટ્ર અને કચ્છ સિવાય સમગ્ર ગુજરાત મુંબઈ રાજ્યનો ભાગ બન્યું.
II. 1 મે, 1960ના રોજ મુંબઈ રાજ્યનું મહારાષ્ટ્ર અને ગુજરાત રાજ્યમાં વિભાજન કરવામાં આવ્યું.
- (A) ફક્ત I સાચું છે. (B) ફક્ત II સાચું છે.
(C) I અને II બંને સાચાં છે. (D) I અને II બંને સાચાં નથી.
012. શ્રી તેજસ મધુસૂદન પટેલની કયા ક્ષેત્રમાં ઉત્કૃષ્ટ પ્રદાન બદલ પદ્મભૂષણ 2024 એવોર્ડ માટે પસંદગી કરવામાં આવી?
- (A) જાહેર સેવાઓ (B) સાહિત્ય
(C) દવા (મેડિસિન) (D) શાલેય શિક્ષણ
013. ભારતના રાષ્ટ્રપતિની ચૂંટણીની પ્રક્રિયા...
- (A) ઈંગ્લેન્ડ પદ્ધતિ પ્રમાણે
(B) કેનેડા પદ્ધતિ પ્રમાણે
(C) અમેરિકાની પ્રમુખ પદ્ધતિ પ્રમાણે
(D) મૌલિક છે, બીજું કોઈ બંધારણ સમાન પ્રક્રિયા ધરાવતું નથી.
014. ભારતના ઉપરાષ્ટ્રપતિ હોદ્દા પરથી દૂર થઈ શકે...
- (A) રાજ્યસભાનો ઠરાવ સભાના તમામ સભ્યોની બહુમતી દ્વારા પસાર કરવામાં આવ્યો હોય અને લોકસભા દ્વારા સંમત થયો હોય
(B) મહાભિયોગ પ્રક્રિયા શરૂ કરવા માટે સાદી બહુમતીથી રાજ્યસભાનો ઠરાવ પસાર કરવામાં આવ્યો હોય
(C) રાજ્યસભા અને લોકસભાનો સંયુક્ત ઠરાવ બે-તૃતીયાંશ બહુમતીથી પસાર થયો હોય
(D) બે-તૃતીયાંશ બહુમતીથી લોકસભાનો ઠરાવ પસાર થયો હોય અને સાદી બહુમતીના ટેકાથી રાજ્યસભામાં પસાર થયો હોય

007. The Rock Inscriptions in the Girnar Hills provides proof of which emperor extended his domain up to Gujarat in about 250 BC?
- (A) Emperor Chandragupta Maurya (B) Gupta Emperor Samudragupta
(C) Mughal emperor Akbar (D) Maurya Emperor Ashoka
008. Sun Temple at Modhera in Mehsana District situated on the banks of _____
- (A) Nagmati river (B) Pushpavati river
(C) Nayra river (D) Ozat river
009. Dangs Darbar is _____
- (A) A three-day annual cultural extravaganza coinciding with the Holi festivities
(B) Adivasi festival of choosing a life partner after Holi celebrations
(C) A three-month-long festival of Bhachau Taluka of Kachchh district
(D) None of the above
010. The place where Sabarmati River and Vatrak river meet is _____
- (A) Sangam (B) Sirastha
(C) Devprayag (D) Vautha
011. Which of the following statement(s) is/are TRUE?
- I. After the Indian Independence in 1947, all of Gujarat except Saurashtra and Kutchh became part of Bombay State.
II. On May 1, 1960, the Bombay State was split into the States of Maharashtra and Gujarat.
- (A) Only I is true (B) Only II is true
(C) Both I and II are true (D) Both I and II are not true
012. Shri Tejas Madhusudan Patel has been selected for the Padma Bhushan Award 2024 for his outstanding contribution in the field of _____
- (A) Public service (B) Literature
(C) Medicine (D) School Education
013. The process of election of the President of India is:
- (A) Borrowed from England
(B) Borrowed from Canada
(C) Borrowed from the American Presidential system
(D) Original and no other Constitution contains a similar procedure
014. The Vice President of India may be removed from office by:
- (A) A resolution of the Council of States passed by a majority of all the members of the Council and agreed to by the House of the People.
(B) A resolution of the Rajya Sabha passed by a simple majority for initiating the impeachment process.
(C) A joint resolution of the Rajya Sabha and Lok Sabha passed by a two-thirds majority.
(D) A resolution of the Lok Sabha passed by a two-thirds majority and seconded by a simple majority in the Rajya Sabha.

015. રાજ્ય જાહેર સેવા આયોગનો ખર્ચ...
- (A) સંબંધિત રાજ્ય સરકારના અંદાજપત્રમાં વસૂલવામાં આવે છે.
 (B) કેન્દ્ર સરકારના અંદાજપત્રમાં વસૂલવામાં આવે છે.
 (C) ભારતના એકીકૃત ભંડોળમાંથી વસૂલવામાં આવે છે.
 (D) રાજ્યના એકીકૃત ભંડોળમાંથી વસૂલવામાં આવે છે.
016. ભારતના બંધારણના કયા અનુચ્છેદમાં લોકસભામાં એન્જલો-ઈન્ડિયન સમુદાયના બે સભ્યોના નામાંકન માટેની જોગવાઈનો ઉલ્લેખ છે?
- (A) અનુચ્છેદ (આર્ટીકલ) 328 (B) અનુચ્છેદ (આર્ટીકલ) 329
 (C) અનુચ્છેદ (આર્ટીકલ) 330 (D) અનુચ્છેદ (આર્ટીકલ) 331
017. ભારતના બંધારણના અનુચ્છેદ 333 હેઠળ રાજ્યના રાજ્યપાલ એન્જલો-ઈન્ડિયન સમુદાયના કેટલા સભ્ય / સભ્યોને ધારાસભા (એસેમ્બલી)માં નામાંકિત કરી શકે છે ?
- (A) મહત્તમ 5 (B) મહત્તમ 3
 (C) મહત્તમ 2 (D) ફક્ત 1
018. મૂળભૂત ફરજોના સંદર્ભે કયું સાચું નથી?
- (A) તે રીટ દ્વારા લાદી શકાય છે.
 (B) તે બંધારણીય પદ્ધતિ દ્વારા પ્રેરિત કરી શકાય છે.
 (C) તે નાગરિકો પર ફરજિયાતપણે છે.
 (D) સંદિગ્ધ કાયદાઓના અર્થઘટન માટે તેનો ઉપયોગ કરી શકાય છે.
019. પંચાયત અને નગરપાલિકાઓમાં મહિલાઓ માટે 1/3 બેઠકો માટે અનામતનો કયો બંધારણીય સુધારો રજૂ કરવામાં આવ્યો હતો?
- (A) 73મો અને 74મો સુધારો, 1993 (B) 99મો સુધારો અધિનિયમ, 2014
 (C) 102મો સુધારો અધિનિયમ, 2018 (D) 128મો સુધારો અધિનિયમ, 2023
020. ભારતના બંધારણ મુજબ મિલકતનો અધિકાર...
- (A) મૂળભૂત અધિકાર છે. (B) બંધારણીય અધિકાર છે.
 (C) નાગરિક અધિકાર છે. (D) ઉપરનામાંથી એક પણ નહિ
021. નાણાંમંત્રી નિર્મલા સિતારામને અત્યાર સુધીમાં કેટલી વખત કેન્દ્રીય અંદાજપત્ર રજૂ કર્યું?
- (A) 4થી વખત (B) 5મી વખત
 (C) છઠ્ઠી વખત (D) 7મી વખત
022. પ્રજાસત્તાક ભારતનું પ્રથમ કેન્દ્રીય બજેટ કયા વર્ષમાં રજૂ કરવામાં આવ્યું હતું?
- (A) 1947 (B) 1948
 (C) 1940 (D) 1950
023. વચગાળાનું અંદાજપત્ર (ઈન્ટરીમ બજેટ) ત્યારે રજૂ કરવામાં આવે છે જ્યારે...
- (A) નવી સરકારનું ગઠન થયું હોય
 (B) સરકાર આર્થિક અવરોધોનો સામનો કરી રહી હોય
 (C) ચૂંટણીના વર્ષમાં પૂર્ણ બજેટ રજૂ થયું ન હોય
 (D) નવા નાણાકીય વર્ષ પહેલાં ટૂંકા ગાળા માટે રજૂ કરવામાં આવે

015. The expenses of the State Public Service Commission shall be charged on:
(A) The budget of the concerned state government
(B) The budget of the Union Government
(C) Consolidated Fund of India
(D) Consolidated Fund of the State
016. Which article of the Constitution of India mentions the provision for the nomination of two members of the Anglo-Indian community in the House of the People?
(A) Article 328 (B) Article 329
(C) Article 330 (D) Article 331
017. The Governor of a State, under article 333 of the Constitution of India, may nominate how many member / members of the Anglo-Indian community to the Assembly?
(A) Maximum 5 (B) Minimum 3
(C) Maximum 2 (D) Only 1
018. Which is NOT correct regarding Fundamental Duties?
(A) They can be enforced by writs
(B) They can be promoted by constitutional methods
(C) They are obligatory on citizens
(D) They can be used for interpreting ambiguous statutes
019. Which Constitutional Amendment introduced reservation of one-third of seats for women in panchayats and municipalities?
(A) The 73rd and 74th Amendments 1993 (B) The 99th Amendment Act, 2014
(C) The 102nd Amendment Act, 2018 (D) The 128th Amendment Act, 2023
020. The right to property under the Constitution of India is a:
(A) Fundamental right (B) Constitutional right
(C) Civil right (D) None of the above
021. For how many times, has Finance Minister Dr. Nirmala Sitharaman presented the Union Budget so far?
(A) 4th time (B) 5th time
(C) 6th time (D) 7th time
022. In which year was the first Union Budget of the Republic of India presented?
(A) 1947 (B) 1948
(C) 1940 (D) 1950
023. The “Interim Budget” is presented when:
(A) A new government is formed
(B) The government is facing financial constraints
(C) A full budget is not presented during an election year
(D) The budget is presented for a short period before a new fiscal year

024. નીચેનામાંથી ભારતના પૂર્ણ સમયના પ્રથમ મહિલા નાણામંત્રી ઓળખાવો.
 (A) ઈન્દિરાગાંધી (B) નિર્મલા સીતારામન
 (C) સુષ્મા સ્વરાજ (D) સ્મૃતિ ઈરાની
025. સંસદમાં કયું બંધારણીય સુધારા બિલ દાખલ કરીને ગૂડ્સ અને સર્વિસ ટેક્સ (GST)નો અમલ કરવામાં આવ્યો?
 (A) 120 બંધારણીય સુધારા બિલ 2016-17
 (B) 121 બંધારણીય સુધારા બિલ 2016-17
 (C) 122 બંધારણીય સુધારા બિલ 2017-18
 (D) 123 બંધારણીય સુધારા બિલ 2017-18
026. નીચેનામાંથી સૌથી સામાન્ય રીતે વપરાતું અર્ધવાહક (સેમીકંડક્ટર) કયું છે?
 (A) સિલિકોન (B) કાર્બન
 (C) જર્મેનિયમ (D) સલ્ફર
027. ભારત કયા વર્ષ સુધીમાં શૂન્ય ઉત્સર્જન (નેટ ઝીરો એમીસન્સ) હાંસલ કરવા કટિબદ્ધ છે?
 (A) 2030 (B) 2050
 (C) 2070 (D) 2090
028. COP26 ગ્લાસગો ખાતે ભારતે કયા વરસ સુધીમાં તેના ઊર્જા વપરાશને 50% સુધી કાર્બનરહિત (ડીકાર્બોનાઈઝ) કરવાની જાહેરાત કરી છે?
 (A) 2030 (B) 2040
 (C) 2050 (D) 2070
029. વૈશ્વિક જૈવ ઈંધણ સંધિ (ગ્લોબલ બાયોફ્યુઅલ અલાયન્સ) એ ભારતની અગ્રિમતાઓમાંની એક જાહેરાત ક્યારે થઈ?
 (A) COP26 ગ્લાસગો 2021 (B) COP29 બાકુ 2024
 (C) G20 નવી દિલ્લી સમિટ 2023 (D) 13મું બ્રિક્સ (BRICS) સમિટ 2021
030. 30GW વીજ ઉત્પાદન કરવા માટે દુનિયાનો સૌથી મોટો ગ્રીન એનર્જી પાર્ક ક્યાં બંધાઈ રહેલ છે?
 (A) નૂર અબુ ધાબી, યુએઈ (B) કચ્છનું રણ, ભારત
 (C) ટેનગ્ગરનું રણ, ચીન (D) બેનબન ઈજિપ્ત
031. નેશનલ પેમેન્ટ કોર્પોરેશન ઓફ ઈન્ડિયા દ્વારા 2016માં કયું મોબાઈલ પેમેન્ટ એપ વિકસવામાં આવ્યું છે?
 (A) ભીમ (BHIM) (B) ફોનપે (PhonePe)
 (C) પેટીએમ (PAYtm) (D) મોબિ-ક્વીક (MoBiKwik)
032. નીચેનામાંથી કયું પ્લેટફોર્મ શિખનારાઓ માટે ઓનલાઈન અભ્યાસક્રમો બનાવવા અને પહોંચાડવા માટેનું મફત અને ખુલ્લું પ્લેટફોર્મ સ્રોત છે?
 (A) કોરસેરા (B) મૂડલ
 (C) યૂડેમી (D) એડેક્સ

024. Identify the first full-time female Finance Minister of India to present the Union Budget.
(A) Indira Gandhi (B) Nirmala Sitharaman
(C) Sushma Swaraj (D) Smriti Irani
025. Which Constitutional Amendment Bill was introduced in the Parliament to implement the Goods and Services Tax (GST)?
(A) 120 Constitutional Amendment Bill 2016-17
(B) 121 Constitutional Amendment Bill 2016-17
(C) 122 Constitutional Amendment Bill 2017-18
(D) 123 Constitutional Amendment Bill 2017-18
026. Which among the following is the most commonly used semiconductor?
(A) Silicon (B) Carbon
(C) Germanium (D) Sulphur
027. India is committed to achieve the Net Zero emissions target by _____.
(A) 2030 (B) 2050
(C) 2070 (D) 2090
028. At COP26 Glasgow, India has announced to decarbonize its energy consumption to 50% by _____.
(A) 2030 (B) 2040
(C) 2050 (D) 2070
029. The Global Biofuel Alliance is one of India's priorities announced during:
(A) COP26 Glasgow 2021 (B) COP29 Baku 2024
(C) G20 New Delhi Summit 2023 (D) 13th BRICS Summit 2021
030. The world's largest green energy park to produce 30GW power is being built in _____.
(A) Noor Abu Dhabi, UAE (B) Rann of Kutch, India
(C) Tengger Desert, China (D) Benban, Egypt
031. Which mobile payment app has been developed by the National Payments Corporation of India in 2016?
(A) BHIM (B) PhonePe
(C) Paytm (D) MobiKwik
032. Which among the following is a free and open-source platform for creating and delivering online courses for learners?
(A) Coursera (B) Moodle
(C) Udemy (D) edX

033. કયો અધિનિયમ ભારતમાં ઈ-કોમર્સ પ્રવૃત્તિઓને સંચાલિત કરતા પ્રાથમિક કાયદા તરીકે સેવા આપે છે?
 (A) ઈન્ફર્મેશન ટેકનોલોજી એક્ટ, 2000
 (B) ઈન્ફર્મેશન ટેકનોલોજી (સુધારો) બિલ, 2006
 (C) ઈન્ફર્મેશન ટેકનોલોજી એમેન્ડમેન્ટ (સુધારો) રૂલ્સ, 2023
 (D) ઈન્સ્ટિટ્યૂટ ઓફ ટેકનોલોજી એક્ટ, 1961
034. ભારતમાં શૈક્ષણિક ટેલિવિઝન માટેનું સંયુક્ત સાહસ 'જ્ઞાન દર્શન ચેનલ' (GD) માટેની મધ્યવર્તી (નોડેલ) એજન્સી કઈ છે?
 (A) માનવ સંસાધન વિકાસ મંત્રાલય (MHRD)
 (B) માહિતી અને પ્રસારણ મંત્રાલય (I&B)
 (C) પ્રસાર ભારતી (PB)
 (D) ઈન્દિરા ગાંધી નેશનલ ઓપન યુનિવર્સિટી (IGNOU)
035. કેન-બેટવા નહેર જોડાણ (લિન્ક કેનાલ) કયા રાષ્ટ્રીય ઉદ્યાન (નેશનલ પાર્ક)માંથી પસાર થાય છે ?
 (A) પન્ના ટાઈગર રિઝર્વ (B) જિમ કોર્બેટ રાષ્ટ્રીય ઉદ્યાન (નેશનલ પાર્ક)
 (C) સારિસ્કા ટાઈગર રિઝર્વ (D) પેંચ રાષ્ટ્રીય ઉદ્યાન (નેશનલ પાર્ક)
036. ભારત કયા વર્ષે ઓલિમ્પિકની યજમાની માટે બોલી (Bid) કરશે?
 (A) 2030 (B) 2032
 (C) 2034 (D) 2036
037. ગગનયાન પ્રકલ્પ (પ્રોજેક્ટ) સંબંધિત કયું / કયાં વિધાન / વિધાનો સાચું / સાચાં છે?
 I. 3 દિવસના મિશન માટે 3 સભ્યોના જૂથને 400 કિમીની ભ્રમણકક્ષામાં મોકલી માનવ અવકાશ ઉડાન ક્ષમતાનું પ્રદર્શન અને તેમને સુરક્ષિત રીતે પૃથ્વી પર પાછા લાવવા.
 II. LVM3 રોકેટ એ ગગનયાન મિશન માટે પ્રક્ષેપણ વાહન તરીકે પસંદ કરાયું છે.
 (A) ફક્ત I સાચું છે. (B) ફક્ત II સાચું છે.
 (C) I અને II બંને સાચાં છે. (D) I અને II બંને ખોટાં છે.
038. ચંદ્ર પર ચંદ્રયાન-3ના ઉતરાણ સ્થળ (લેન્ડિંગ સાઈટ)નું નામ:
 (A) શક્તિ-સ્વરૂપ (B) ચાંદામામા
 (C) શિવ-શાંતિ (D) શિવ-શક્તિ
039. ભારતમાં કયું રાજ્ય ઓલિમ્પિક પાર્ક બાંધવાનું આયોજન કરી રહ્યું છે?
 (A) ગુજરાત (B) દિલ્હી
 (C) મહારાષ્ટ્ર (D) ઉત્તરપ્રદેશ
040. ઓક્ટોબર 2023માં પ્રધાનમંત્રી દ્વારા જાહેર કરવામાં આવેલું અમૃતકાળ વિઝન 2047...
 (A) ભારતીય અર્થતંત્રને 5 હજાર અબજ (ટ્રિલિયન) બનવાનું આયોજન
 (B) હિંદ મહાસાગરમાં માછીમારીના અર્થતંત્ર (ઈન્ડિયન ઓસન બ્લ્યુ ઈકોનોમી)નું આયોજન
 (C) હિંદ પ્રશાંત અર્થતંત્ર (ઈન્ડો-પેસેફિક ઈકોનોમિક)ના સંગઠનનું આયોજન
 (D) ભારતીય અર્થતંત્રને 10 હજાર અબજ (ટ્રિલિયન) બનવાનું આયોજન

033. Which act serves as the primary legislation governing e-commerce activities in India?
☒ (A) Information Technology Act, 2000
 (B) Information Technology (Amendment) Bill, 2006
 (C) Information Technology Amendment Rules, 2023
 (D) Institutes of Technology Act, 1961
034. Which is the nodal agency for the Gyan Darshan (GD) channel, the educational television joint venture in India?
 (A) Ministry of Human Resource Development (MHRD)
 (B) Ministry of Information & Broadcasting (I&B Ministry)
 (C) Prasar Bharati (PB)
☒ (D) Indira Gandhi National Open University (IGNOU)
035. The Ken-Betwa link canal passes through which National Park?
☒ (A) Panna Tiger Reserve (B) Jim Corbett National Park
 (C) Sariska Tiger Reserve (D) Pench National Park
036. India will bid to host Olympics in which year?
 (A) 2030 (B) 2032
 (C) 2034 ☒ (D) 2036
037. Which statement(s) is / are TRUE regarding the Gaganyaan project?
 I. Demonstration of human spaceflight capability by launching crew of 3 members to an orbit of 400 km for a 3-day mission and bringing them back safely to Earth.
 II. The LVM3 rocket is identified as the launch vehicle for the Gaganyaan mission.
 (A) Only I is correct (B) Only II is correct
☒ (C) Both I and II are correct (D) Both I and II are wrong
038. The landing site of Chandrayaan-3 on the Moon is named:
 (A) Shakti-Swaroop (B) Chanda Mama
 (C) Shiv-Shanti ☒ (D) Shiv Shakti
039. Which state plans to construct an Olympic Park in India?
 (A) Gujarat (B) Delhi
 (C) Maharashtra ☒ (D) Uttar Pradesh
040. The Amrit Kaal Vision 2047 announced by the Prime Minister in October 2023 is:
 (A) A plan for making India a 5-trillion economy
☒ (B) A plan for the Indian Ocean blue economy
 (C) A plan for Indo-Pacific economic integration
 (D) A plan for making India a 10-trillion economy

041. ભારતની પંચામૃત પ્રતિજ્ઞા સંબંધિત :
 (A) 5 ટ્રિલિયન અર્થતંત્રનો વિકાસ (B) નદીઓના જોડાણનો પ્રકલ્પ (રિવર લીકીંગ પ્રોજેક્ટ)
 (C) આબોહવા પરિવર્તન સામે લડાઈ (D) પ્રાદેશિક સંરક્ષણ અને સુરક્ષા
042. 'ગોડ ઓફ કેઓસ'...
 (A) એપોફિસ એસ્ટરોઈડનો અભ્યાસ કરવા માટે નાસાનું મિશન જે 2029માં પૃથ્વીની નજીક હશે.
 (B) બેન્નુ એસ્ટરોઈડનો અભ્યાસ કરવા માટે નાસાનું મિશન જે 2175 અને 2195ની વચ્ચે પૃથ્વીને અથડાવાની સંભાવના છે.
 (C) નાસાનું અવકાશમાંનું દૂરદર્શક (સ્પેસ બેઝ્ડ ટેલિસ્કોપ) જે પૃથ્વીના વાતાવરણની નજીક આવનાર એસ્ટરોઈડ્સનો અભ્યાસ કરશે.
 (D) ઉપરનામાંથી એક પણ નહિ.
043. જુલાઈ 2024માં પાંચ મેચની T20I સિરીઝ માટે કયો દેશ ભારતની યજમાની કરશે?
 (A) ન્યુઝીલેન્ડ (B) ઝીમ્બાબ્વે
 (C) ઓસ્ટ્રેલિયા (D) દક્ષિણ આફ્રિકા
044. સંયુક્ત રાષ્ટ્રો (યુ.એન.)એ 2024ના વર્ષને કયા વર્ષ તરીકે જાહેર કર્યું છે?
 (A) જાડું ધાન્ય (B) સ્થાનિક ભાષાઓ
 (C) કેમેલિડ્સ (Camelids) (D) જુવાર
045. ચંદ્ર પર પહોંચનારો દુનિયામાં પાંચમો દેશ કયો છે?
 (A) ભારત (B) દક્ષિણ કોરિયા
 (C) જાપાન (D) ઓસ્ટ્રેલિયા
046. ભારતની પ્રથમ મિસાઈલ કઈ છે?
 (A) પૃથ્વી (B) અગ્નિ
 (C) આકાશ (D) બ્રહ્મોસ
047. આંતરરાષ્ટ્રીય અવકાશ મથક (ઈન્ટરનેશનલ સ્પેસ સ્ટેશન) વિશે રશિયાના નિર્ણય સંબંધિત કયું સાચું છે?
 (A) 2024માં IIS છોડી દેવાનો નિર્ણય
 (B) 2028 સુધી મથકનું સંચાલન ચાલુ રાખવાનો નિર્ણય
 (C) પૃથ્વીની નીચલી ભ્રમણકક્ષામાં પોતાની ચોકી (આઉટપોસ્ટ) બાંધવા 2024માં છોડી દેવું
 (D) 2030માં IIS છોડી દેવાનો નિર્ણય
048. જાન્યુઆરી 2024માં ભારતીય નૌકાદળના કયા યુદ્ધજહાજે ઈરાની ધ્વજધારી માછીમારીના જહાજને બચાવ્યું હતું?
 (A) આઈએનએસ ગોદાવરી (B) આઈએનએસ વિક્રમાદિત્ય
 (C) આઈએનએસ વિક્રાંત (D) આઈએનએસ સુમિત્રા
049. ભારતીય કંપની લાર્સન એન્ડ ટુબ્રો (L&T)એ કયા દેશમાં સૌર શક્તિ (સોલાર પાવર) પ્લાન્ટ સ્થાપવાનો પ્રોજેક્ટ મેળવ્યો?
 (A) યુ.એસ.એ. (B) યુ.એ.ઈ.
 (C) સાઉદી અરેબિયા (D) ઈરાન

041. India's "Panchamrit" pledge is related to:
(A) Developing 5-trillion economy (B) River linking project
(C) Combating Climate Change (D) Regional Defence & Security
042. "God of Chaos" is:
(A) NASA's mission to study Apophis asteroid that will close flyby of Earth in 2029
(B) NASA's mission to study Bennu asteroid that has a chance of hitting Earth between 2175 and 2195
(C) NASA's space-based telescope to study asteroids coming closer to Earth's atmosphere
(D) None of the above
043. Which country will host India for a five-match T20I series in July 2024?
(A) New Zealand (B) Zimbabwe
(C) Australia (D) South Africa
044. The UN has declared 2024 as the year of:
(A) Millets (B) Indigenous languages
(C) Camelids (D) Jowar
045. Which country is the fifth country in the world to reach the moon?
(A) India (B) South Korea
(C) Japan (D) Australia
046. Which is the first Indian missile?
(A) Prithvi (B) Agni
(C) Akash (D) BrahMos
047. Which is correct regarding Russia's decision on the International Space Station (ISS)?
(A) Decided to leave the ISS in 2024
(B) Continue station operations through 2028
(C) Leave in 2024 to build its own outpost in low Earth orbit
(D) Decided to leave ISS in 2030
048. In January 2024 which Indian Navy warship rescued an Iranian-flagged fishing vessel?
(A) INS Godavari (B) INS Vikramaditya
(C) INS Vikrant (D) INS Sumitra
049. The Indian company Larsen and Toubro (L&T) bagged a project to set up a solar power plant in which country?
(A) USA (B) UAE
(C) Saudi Arabia (D) Iran

050. હાલમાં કયો દેશ G20ના પ્રમુખપદે છે?
 (A) ભારત (B) બ્રાઝિલ
 (C) દક્ષિણ આફ્રિકા (D) ઈટાલી
051. જો ત્રણ ક્રમિક પ્રાકૃતિક સંખ્યાઓનો ગુણાકાર 120 હોય તો ત્રણે સંખ્યાઓનો સરવાળો કેટલો થાય ?
 (A) 12 (B) 15
 (C) 5 (D) 6
052. એક સોસાયટીમાં ગુજરાતી છાપા વાંચતા પરિવારની સંખ્યા અંગ્રેજી છાપા વાંચતા પરિવારની સંખ્યા કરતા બમણી છે. જો પાંચ (5) પરિવાર બે માંથી કોઈ પણ છાપું ન વાંચતા હોય તો, સોસાયટીમાં કુલ કેટલા પરિવાર રહે છે ?
 (A) 60 (B) 35
 (C) 65 (D) અપૂરતી માહિતી
053. જો 'અ', 'બ' નો ભાઈ છે 'ક', 'બ'ના પિતા છે. 'ડ', 'ક'ના પિતા છે. 'ઈ', 'ડ'ની પત્ની છે. તો 'ઈ'નો 'અ' સાથેનો શું સંબંધ હોય ?
 (A) પૌત્રી (B) પૌત્ર
 (C) દાદી (D) માતા
054. એક છોકરીનો ફોટો બતાવતાં અરૂણે કહ્યું “તેણી મારા દાદાના દીકરાની દીકરી છે.” અરૂણનો તે છોકરી સાથે શું સંબંધ હોય ?
 (A) પિતરાઈ (B) કાકા
 (C) ભત્રીજો (D) પિતા
055. નીચે આપેલ સંખ્યામાંથી કઈ સંખ્યા 9 થી વિભાજ્ય છે ?
 (A) 4539 (B) 23544
 (C) 7381 (D) 2451
056. એક ગંજીફાના પત્તામાં મુખ્યકૃતિ દર્શાવતા પત્તાની સંખ્યા કેટલી હોય ?
 (A) 13 (B) 16
 (C) 3 (D) 12
057. n ઘટકો ધરાવતા એક ગણના કેટલા ઉચિત ઉપગણો હોય ?
 (A) n^2 (B) n^2-2
 (C) 2^n (D) 2^n-2
058. પહેલી સાત વિભાજ્ય સંખ્યાઓનો મધ્યક અને મધ્યસ્થ શોધો.
 (A) 7, 9 (B) 9, 9
 (C) 7.28, 7 (D) 8, 9
059. જો સમાંતર શ્રેણીમાં ચોથું અને અગિયારમું પદ અનુક્રમે 10 અને -11 હોય, તો તે શ્રેણીનું કેટલામું પદ 1 હોય ?
 (A) 7મું (B) 6મું
 (C) 8મું (D) કોઈ પણ વિકલ્પ નહીં
060. એક હરોળમાં ઉમા ડાબેથી સત્તરમાં અને જમણેથી ચોવીસમાં સ્થાને છે. હરોળમાં કુલ કેટલી વ્યક્તિઓ હશે ?
 (A) 39 (B) 40
 (C) 41 (D) 42

050. Which country is the President of G20 currently?
(A) India (B) Brazil
(C) South Africa (D) Italy
051. The product of three consecutive numbers is 120. The sum of these numbers is:
(A) 12 (B) 15
(C) 5 (D) 6
052. In a society, the number of families reading Gujarati newspaper is double than that reading English newspaper. If 5 families don't read either, then the total number of families residing in the society is:
(A) 60 (B) 35
(C) 65 (D) Inadequate data
053. If A is B's brother, C is B's father, D is C's father and E is D's wife, then how is E related to A?
(A) grand daughter (B) grand son
(C) grand mother (D) Mother
054. Referring to a girl in a photography Arun said, "she is the daughter of my grand father's son." How is Arun related to the girl?
(A) Cousin (B) Uncle
(C) Nephew (D) Father
055. Which of the following numbers is exactly divisible by 9?
(A) 4539 (B) 23544
(C) 7381 (D) 2451
056. How many face cards does a deck contain?
(A) 13 (B) 16
(C) 3 (D) 12
057. How many proper subsets does a set with n elements have?
(A) n^2 (B) $n^2 - 2$
(C) 2^n (D) $2^n - 2$
058. The mean and median of first seven composite numbers are
(A) 7, 9 (B) 9, 9
(C) 7.28, 7 (D) 8, 9
059. If the fourth and the eleventh terms of an arithmetic progression are 10 and -11 respectively, which term in this progression would be equal to 1?
(A) 7th (B) 6th
(C) 8th (D) None
060. In a row, Uma is at 17th position from the left and 24th from the right. How many people are there in the row?
(A) 39 (B) 40
(C) 41 (D) 42

061. નીચે આપેલ વિકલ્પો પૈકી કયો વિકલ્પ કોઈ પણ ઘટનાની સંભાવના ન હોઈ શકે ?
 (A) $4/7$ (B) $7/4$
 (C) 87% (D) 0-9
062. એક થેલામાં 4 લાલ રંગના અને 6 કાળા રંગના દડા છે. જો થેલામાંથી કોઈ પણ એક દડો લેવામાં આવે તો તે દડો લાલ રંગનો ન હોવાની સંભાવના કેટલી થાય ?
 (A) $3/5$ (B) $2/3$
 (C) 1 (D) $2/5$
063. પ્રથમ ત્રીસ પ્રાકૃતિક સંખ્યાઓનો મધ્યસ્થ (median) શોધો.
 (A) 15 (B) 16
 (C) 15.5 (D) 16.5
064. 6' 7" બરાબર કેટલા ઈંચ થાય ?
 (A) 78 (B) 67
 (C) 79 (D) 90
065. એક વર્ગની પરીક્ષામાં વિદ્યાર્થી P ના ગુણ વિદ્યાર્થી Q થી વધારે છે. વિદ્યાર્થી R ના ગુણ સૌથી ઓછા નથી. વિદ્યાર્થી S ના ગુણ વિદ્યાર્થી T થી ઓછા અને વિદ્યાર્થી P થી વધારે છે. તો સૌથી ઓછા ગુણ કોના હશે ?
 (A) Q (B) S
 (C) T (D) R
066. એક માળી દિવસના 8 કલાક વૃક્ષારોપણનું કામ કરે છે. તે એક કલાકમાં 10 વૃક્ષો વાવીને, દર બે કલાકે 30 મિનિટનો આરામ લે છે. 8 કલાકમાં કેટલા વૃક્ષો વાવી શકે ?
 (A) 60 (B) 65
 (C) 70 (D) 75
067. એક સ્થળનું 21 દિવસનું સરેરાશ તાપમાન 25°C છે. જો પહેલા 15 દિવસનું સરેરાશ તાપમાન 24°C હોય તો પછીના 6 દિવસનું સરેરાશ તાપમાન કેટલું હોય ?
 (A) 21°C (B) 24.5°C
 (C) 27.5°C (D) 26.5°C
068. નીચે આપેલ અંગ્રેજી શબ્દોને અંગ્રેજી શબ્દકોષ પ્રમાણે ગોઠવો.
 1. CARROM 2. CARRIER 3. CARROT 4. CAREER
 (A) 4, 1, 3, 2 (B) 4, 1, 2, 3
 (C) 4, 2, 1, 3 (D) 4, 3, 2, 1
069. આપેલ સંખ્યા 78496352 માટે જો અંકોને ચડતા ક્રમમાં ગોઠવવામાં આવે તો ડાબેથી ચોથા અને જમણેથી ત્રીજા અંકોનો ગુણાકાર કેટલો થાય ?
 (A) 12 (B) 35
 (C) 24 (D) 32
070. નિમ્નલિખિત સમીકરણમાં યોગ્ય નિશાનીઓ મૂકો.
 $24 \square 3 \square 9 \square 3 \square 70 = 5$
 (A) $+, \times, +, -$ (B) $+, +, \times, -$
 (C) $\times, +, -, +$ (D) $-, +, \times, +$

061. Which one in the following is not a probability of any event?
 (A) $\frac{4}{7}$ (B) $\frac{7}{4}$
 (C) 87% (D) 0.9
062. A bag contains 4 red and 6 black balls. One ball is drawn at random from the bag. The probability that the drawn ball is not red is
 (A) $\frac{3}{5}$ (B) $\frac{2}{3}$
 (C) 1 (D) $\frac{2}{5}$
063. The median of the first thirty natural numbers is
 (A) 15 (B) 16
 (C) 15.5 (D) 16.5
064. How many inches is 6' 7" equal to?
 (A) 78 (B) 67
 (C) 79 (D) 90
065. In a class test, P has scored more marks than Q, R has not scored the least marks, S has scored less than T and more than P. Who among them has scored the minimum?
 (A) Q (B) S
 (C) T (D) R
066. A gardener is hired for planting trees for 8 hours. He plants 10 trees in an hour, takes rest for 30 minutes after every 2 hours. How many trees would he plant in 8 hours?
 (A) 60 (B) 65
 (C) 70 (D) 75
067. The average temperature of a place for 21 days is found to be 25°C . If the average temperature for the first 15 days is 24°C , what is the average temperature for the last 6 days?
 (A) 21°C (B) 24.5°C
 (C) 27.5°C (D) 26.5°C
068. Arrange the given words as per their order in a dictionary
 1. CARROM 2. CARRIER 3. CARROT 4. CAREER
 (A) 4, 1, 3, 2 (B) 4, 1, 2, 3
 (C) 4, 2, 1, 3 (D) 4, 3, 2, 1
069. If the digits in the number 78496352 are arranged in ascending order from left to right, what will be the product of the digits that appear 4th from the left and 3rd from the right?
 (A) 12 (B) 35
 (C) 24 (D) 32
070. Insert appropriate mathematical operators so as to have the given expression correct.
 $24 \square 3 \square 9 \square 3 \square 70 = 5$
 (A) $\div, \times, +, -$ (B) $\div, +, \times, -$
 (C) $\times, \div, -, +$ (D) $-, +, \times, +$

071. એકથી સો સુધીની બેકી સંખ્યાઓ લખતી વખતે અંક '8' (આઠ) કેટલી વખત આવે ?
 (A) 14 (B) 15
 (C) 20 (D) 22
072. એક કેટરર 50 થાળી વેંચે ત્યારે 10 થાળીની વેચાણ કિંમત જેટલો નફો થાય છે. તેનો નફો ટકાવારીમાં શું થાય ?
 (A) 20 (B) 25
 (C) 10 (D) 40
073. એક ફૂલવાળો રૂ. 3000 માં 20 ગુલદસ્તાઓ ખરીદે છે. તે તેમાંથી 15 ગુલદસ્તાઓ 20% નફા સાથે વેંચે છે, અને બાકીના 30% નુકસાન સાથે વેંચે છે. એકંદરે નફો/નુકસાન શોધો.
 (A) 10% નુકસાન (B) 10% નફો
 (C) 7.5% નફો (D) 7.5% નુકસાન
074. કોઈ એક સાંકેતિક ભાષામાં જો 35 બરાબર 6 હોય અને 45 બરાબર 2 હોય, તો 79 બરાબર શું થાય?
 (A) 14 (B) 9
 (C) 12 (D) 5
075. જો બે રેખાઓ $2x + 3y = 7$ અને $7x + qy = 6$ એકબીજાને સમાંતર હોય તો q શોધો.
 (A) 10.5 (B) -10.5
 (C) 14/3 (D) -14/3
076. બે અંકોની સંખ્યામાંના બંને અંકોનો સરવાળો 14 છે અને દશક તથા એકમના અંકોનો ગુણોત્તર 4 : 3 છે. આ બે અંકની સંખ્યા શોધો.
 (A) 68 (B) 86
 (C) 68 અને 86 બંને (D) 95
077. એક બહુકોણના આંતરિક ખૂણાઓનો સરવાળો બહુકોણના બાહ્ય ખૂણાઓના સરવાળા કરતાં ત્રણ ગણો છે. આ બહુકોણમાં કેટલી ભુજાઓ હશે ?
 (A) 6 (B) 4
 (C) 8 (D) 12
078. સંખ્યા 70473 માં અંક 7 ની સ્થાન કિંમતોનો તફાવત શોધો.
 (A) 9990 (B) 69930
 (C) 2 (D) 70400
079. 1 થી 2500 સુધીની સંખ્યાઓમાંથી કોઈ પણ એક સંખ્યાનું ચયન કરવામાં આવે તો તે સંખ્યા પૂર્ણ વર્ગ હોવાની સંભાવના કેટલી થાય ?
 (A) 0.02 (B) 0.002
 (C) 0.08 (D) 0.04
080. કોઈ એક ચોક્કસ રકમને 10% સાદા વાર્ષિક વ્યાજ દરે કેટલા વર્ષ માટે રોકાણ કરવાથી તે રકમ ત્રણ ગણી થાય ?
 (A) 10 (B) 15
 (C) 20 (D) 5

071. How many times does the digit '8' appear in listing the even numbers from 1 to 100?
(A) 14 (B) 15
(C) 20 (D) 22
072. A caterer earns a profit equivalent to the selling price of 10 plates, when he serves 50 plates. What is his gain percentage?
(A) 20 (B) 25
(C) 10 (D) 40
073. A florist bought 20 bouquets for Rs. 3000/-. He sold 15 at a profit of 20% and the remaining at a loss of 30% find his overall gain / loss in the entire deal.
(A) 10% loss (B) 10% profit
(C) 7.5% profit (D) 7.5% loss
074. In a certain language, if 35 is coded as 6, 45 is coded as 2, then what is 79 coded to?
(A) 14 (B) 9
(C) 12 (D) 5
075. If two lines $2x + 3y = 7$ and $7x + qy = 6$ are parallel to each other, what is the value of q ?
(A) 10.5 (B) -10.5
(C) $14/3$ (D) $-14/3$
076. Find a two-digit-number, the sum of whose digits is 14 and the ratio of the digits at tens place to unit place is 4:3.
(A) 68 (B) 86
(C) Both 68 and 86 (D) 95
077. The sum of the interior angles of a polygon is thrice the sum of its exterior angles. How many sides does this polygon have?
(A) 6 (B) 4
(C) 8 (D) 12
078. What is the difference between the local values of 7 in the number 70473?
(A) 9990 (B) 69930
(C) 2 (D) 70400
079. A number is selected at random from 1 to 2500. What is the probability that it is a perfect square?
(A) 0.02 (B) 0.002
(C) 0.08 (D) 0.04
080. In how many years a sum invested at the rate of 10% simple interest per annum would triple itself?
(A) 10 (B) 15
(C) 20 (D) 5

081. બધી જોડણી સાચી હોય તેવો વિકલ્પ પસંદ કરો.

(A) દિવાલ, વિનયપુર્વક, અભિશાપ, ભિસ્તી

(B) સહિષ્ણુતા, જીવાતુભૂત, તિતિક્ષા, રુચિ

(C) અનુસ્યુત, પારમાર્થિક, ઉહાપોહ, તર્કસરણિ

(D) મહેસુલી, પરિશ્રમ, એરંડિયું, ખેતીવાડી

082. નીચે આપેલા જૂથ ધ્યાને લઈ સમાનાર્થી શબ્દો વિશે યોગ્ય વિકલ્પ પસંદ કરો.

1. અતરાપી, ત્રાહિત, અજાણ્યું, પરાયું

2. વિધુ, સુધાંશુ, મયંદ, મૃગાંક

3. શર્વરી, વિભાવરી, રજનીકાંત, સરિતા

4. મહેમાન, પરોણો, પ્રાધુણ, અતિથિ

(A) ફક્ત 1 યોગ્ય છે.

(B) ફક્ત 4 યોગ્ય છે.

(C) 1, 2 અને 4 યોગ્ય છે.

(D) 1 અને 4 યોગ્ય છે.

083. નીચે આપેલા વાક્યમાં રેખાંકિત શબ્દનો વિરોધી શબ્દ વાપરી વાક્યનો અર્થ ન બદલાયો હોય એવા વાક્યનો વિકલ્પ પસંદ કરો.

ગૃહચંત્રના સર્વ ચક્ર શિથિલ પડ્યાં

(A) ગૃહચંત્રનાં સર્વ ચક્ર દૃઢ ન રહ્યાં.

(B) ગૃહચંત્રના સર્વ ચક્ર દૃઢ પડ્યાં.

(C) ગૃહચંત્રનાં સર્વ ચક્ર શિથિલ ન પડ્યાં.

(D) ગૃહચંત્રનાં સર્વ ચક્ર દૃઢ પડ્યાં હશે.

084. રૂઢિપ્રયોગ અને તેના અર્થને જોડતા જોડકાંનો યોગ્ય વિકલ્પ પસંદ કરો.

રૂઢિપ્રયોગ

અર્થ

1. ગાંઠ ખૂલવી — સરળ થવું

2. ગાંઠ કરવી — નિર્ણય કરવો

3. ગાંઠ થવી — ગોટાળો થવો

4. ગાંઠ બાંધવું — પોતાનું કરવું

(A) 2 અને 3 સાચા છે.

(B) 1 અને 3 સાચા છે.

(C) 1 અને 4 સાચા છે.

(D) 1, 2, 3 અને 4 બધા જ સાચા છે.

085. નીચે આપેલા કહેવતોને ધ્યાને લઈ તેના વિશે સાચો વિકલ્પ પસંદ કરો.

1. અવસરનાં ગીત અવસરે ગવાય

2. કડવું ઓસડ મા પાય

3. પારકી મા જ કાન વીંધે

4. વેળાના વાજાં વેળાએ જ વાગે

(A) 1 અને 4 સમાનાર્થી કહેવતો છે, 2 અને 3 વિરુદ્ધાર્થી કહેવતો છે.

(B) 1 અને 2 સમાનાર્થી કહેવતો છે, 2 અને 4 વિરુદ્ધાર્થી કહેવતો છે.

(C) 1 અને 4 સમાનાર્થી કહેવતો છે, 1 અને 3 વિરુદ્ધાર્થી કહેવતો છે.

(D) 1 અને 3 સમાનાર્થી કહેવતો છે, 1 અને 2 વિરુદ્ધાર્થી કહેવતો છે.

086. સામાસિક શબ્દ અને તેના પ્રકાર વિષે નીચે પૈકી કયું / કયાં જોડકું / જોડકાં સાચું / સાચાં છે ?

સામાસિક શબ્દ	—	પ્રકાર
1. ખુશખબર	—	મધ્યમપદલોપી
2. લાભાલાભ	—	દ્વંદ્વ
3. પ્રધાનમંત્રી	—	કર્મધારય
4. લક્કડખોદ	—	ઉપપદ

(A) 1, 2 અને 4 સાચા છે.

(B) 2 અને 3 સાચા છે.

(C) 1, 2, 3 અને 4 બધાં જ સાચા છે.

(D) એક પણ સાચું નથી.

087. નીચે આપેલી સંધિ વિશે સાચો વિકલ્પ પસંદ કરો.

1. ઉદ્ધ + હત = ઉદ્ધત
2. અભિ + સેક = અભિષેક
3. ગુરુ + ઉત્તર = ગુરુત્તર
4. માતૃ + ઉપદેશ = માત્રોપદેશ

(A) 1 અને 2 સાચા છે.

(B) 2 અને 3 સાચા છે.

(C) 3 અને 4 સાચા છે.

(D) 1 અને 4 સાચા છે.

088. નીચે આપેલા અલંકારોના ઉદાહરણ ધ્યાને લઈ તેના વિશ્લેષણનો સાચો વિકલ્પ પસંદ કરો.

1. બીજી સાંજે તલાશમાં નીકળેલા સિપાઈની નજર એ બે બોકડા પર પડી.
2. મારી વીણાની વાણ જગાડી તું જા !
3. અમારી સંસ્થા વિવિધ પ્રતિભા ધરાવતા બાળકોનું સન્માન કરશે.
4. કૃષ્ણ છે મહાયોર, સ્મરણ માત્રથી ચોરી લે પાપ જન્મોનાં

(A) 1 - અતિશયોક્તિ, 2 - વર્ણાનુપ્રાસ, 3 - સજ્જવારોપણ, 4 - અનન્વય

(B) 1 - અતિશયોક્તિ, 2 - રૂપક, 3 - સજ્જવારોપણ, 4 - વ્યતિરેક

(C) 1 - અતિશયોક્તિ, 2 - રૂપક, 3 - ઉત્પ્રેક્ષા, 4 - વ્યતિરેક

(D) 1 - અતિશયોક્તિ, 2 - રૂપક, 3 - સજ્જવારોપણ, 4 - વ્યાજસ્તુતિ

089. છંદના પ્રકાર અને ઉદાહરણ વિષે નીચે પૈકી કયું / કયાં જોડકું / જોડકાં સાચું / સાચાં છે ?

છંદ	ઉદાહરણ
1. શિખરિણી	— પ્રભા, કીર્તિ, કાંતિ, ધન, વિભવ, સર્વસ્વ, જનના!
2. મંદાકાન્તા	— દિલે દિલ મલાવવા દિલથી ભૂમ પાડી હતી!
3. વસંતતિલકા	— હો મંજરી અગર કંકર કે વિહંગ.
4. ઉપેન્દ્રવજ્રા	— પરમ વિમલ શોભા ચંદ્રિકાની વિરાજે.

નીચે પૈકી યોગ્ય વિકલ્પ પસંદ કરો.

(A) 1 અને 4 સાચા છે.

(B) 1 અને 3 સાચા છે.

(C) 2 અને 3 સાચા છે.

(D) 1, 2, 3 અને 4 બધા સાચા છે.

090. નીચે વિગતોને ધ્યાને લઈ સાચો વિકલ્પ પસંદ કરો.
1. ઉપપદ સમાસ - પંકજ
 2. પિતૃ + આજ્ઞા = પિત્રાજ્ઞા
 3. દોહરો : ચક્રવર્તી મહારાજ ચાલિયા, કાળચક્રની ફેરીએ
સગાં દીઠાં મેં શાહઆલમના, ભીખ માગતા શેરીએ.
 4. શ્લેષ અલંકાર : જ્યાં દેવોના પરમ વર શો પુત્ર પામ્યા પનોતો.
- (A) 1 અને 2 સાચા છે. (B) 2 અને 3 સાચા છે.
(C) 1, 3 અને 4 સાચા છે. (D) 1, 2 અને 4 સાચા છે.
091. He is thinking about joining _____ police or _____ air force.
(A) a/an (B) a/the
(C) the/the (D) no article/ no article
092. You should be ashamed _____ your misconduct.
(A) by (B) of
(C) to (D) at
093. You wouldn't like to invite my brother, _____? (Select the correct question tag)
(A) would you? (B) did you?
(C) won't you? (D) wouldn't you?
094. When you investigated the case, _____ time to see all the documents?
(A) have you had (B) do you have
(C) had you had (D) did you have
095. How fast _____ you _____ when the accident _____?
(A) are / driving / happening (B) did / drove / happened
(C) were / driving / happened (D) was / driving / happen
096. If you had not been there, I _____ differently.
(A) might have acted (B) might act
(C) might acted (D) may have acted
097. I think we still have _____ time to study before the exam.
(A) any (B) a few
(C) a little (D) many
098. We have warned you. (Change the voice)
(A) You are warned by us. (B) You have been warned by us.
(C) You had been warned by us. (D) You are warning by us.
099. He has only _____ friends.
(A) a few (B) less
(C) more (D) fewer
100. _____ to the internet is allowed but make sure employees should not use the data in _____.
(A) Excess / access (B) Access / excess
(C) Axxess / excess (D) Excess / axcess

101. What is the fundamental unit of radiation exposure in the International System of Units (SI)?
(A) Roentgen (B) Rad
(C) Gray (D) Sievert
102. In computed tomography (CT), what is the purpose of a bowtie filter?
(A) To shape the X-ray beam (B) To reduce scatter radiation
(C) To improve contrast (D) To increase spatial resolution
103. Which of the following is a common modality in external beam radiation therapy?
(A) Brachytherapy (B) CyberKnife
(C) High-Dose Rate (HDR) (D) Gamma Knife
104. In chest radiography, which imaging view is typically used to evaluate the lungs in the lateral plane?
(A) Anteroposterior (AP) view (B) Posteroanterior (PA) view
(C) Lateral view (D) Oblique view
105. What is the purpose of contrast agents in medical imaging?
(A) To enhance patient comfort (B) To reduce radiation dose
(C) To improve visualization of structures (D) To speed up imaging process
106. Which radiopharmaceutical is commonly used for bone scintigraphy?
(A) Technetium-99m (B) Fluorine-18
(C) Iodine-131 (D) Thallium-201
107. In magnetic resonance imaging (MRI), what property is utilized to create image contrast?
(A) X-ray absorption (B) Radioactive decay
(C) Nuclear spin (D) Electrical resistance
108. Which particle is commonly used in positron emission tomography (PET)?
(A) Proton (B) Neutron
(C) Positron (D) Electron
109. Which of the following is a common type of radiation detector used in nuclear medicine?
(A) Geiger-Muller counter (B) Ionization chamber
(C) Scintillation detector (D) Dosimeter
110. What is the primary function of a dosimeter in radiation protection?
(A) Measure radiation dose (B) Generate X-rays
(C) Monitor temperature (D) Capture medical images
111. Which type of radiation interaction is responsible for DNA damage in cells?
(A) Photoelectric effect (B) Compton scattering
(C) Pair production (D) Alpha decay
112. Chronic exposure to ionizing radiation is most likely to lead to:
(A) Acute radiation syndrome (B) Somatic effects
(C) Genetic effects (D) Latent effects

113. What is the primary goal of intensity-modulated radiation therapy (IMRT)?
 (A) Deliver high doses to large areas
(B) Minimize radiation exposure to surrounding healthy tissues
 (C) Increase patient comfort during treatment
 (D) Reduce treatment time
114. In brachytherapy, what is the term for the radioactive material placed directly into or near the tumor?
 (A) Radiosensitizer (B) Intracavitary
 (C) Brachyfilament **(D) Implant**
115. Which technique combines imaging and treatment delivery in real-time, adjusting for patient motion?
 (A) Conformal radiotherapy (B) Stereotactic body radiation therapy (SBRT)
(C) Tomotherapy (D) Proton therapy
116. What is the purpose of quality assurance in radiation therapy?
 (A) To increase radiation dose to the tumor
(B) To ensure proper machine calibration and treatment planning
 (C) To speed up treatment sessions
 (D) To reduce patient follow-up appointments
117. Which of the following is a common source of external beam radiation in medical applications?
(A) Cobalt-60 (B) Technetium-99m
 (C) Iodine-131 (D) Fluorine-18
118. What organization is responsible for setting standards for the use of radionuclides in medicine?
 (A) World Health Organization (WHO) **(B) International Atomic Energy Agency (IAEA)**
 (C) Food and Drug Administration (FDA) (D) European Medicines Agency (EMA)
119. Which component of radiographic film is sensitive to X-rays and is responsible for capturing the image?
 (A) Developer (B) Fixer
(C) Emulsion (D) Base
120. What term describes the sharpness of an image and the ability to visualize small structures?
 (A) Contrast **(B) Spatial resolution**
 (C) Density (D) Radiopacity
121. In digital radiography, what replaces the traditional film used in conventional radiography?
 (A) Photomultiplier tube **(B) Computed radiography cassette**
 (C) Image intensifier (D) Fluoroscopic screen
122. What property of hydrogen atoms is exploited in magnetic resonance imaging (MRI)?
 (A) Electrical charge **(B) Spin**
 (C) Mass (D) Radioactivity
123. In ultrasound imaging, what is the purpose of the transducer?
(A) Generate sound waves (B) Measure temperature
 (C) Create contrast (D) Convert echoes into electrical signals

124. What is the primary purpose of lead aprons worn by healthcare professionals in radiology?
 (A) Reduce patient dose (B) Protect against scattered radiation
 (C) Enhance image contrast (D) Increase patient comfort
125. Which cardinal principle of radiation protection emphasizes keeping radiation exposure as low as reasonably achievable (ALARA)?
 (A) Time (B) Distance
 (C) Shielding (D) Minimization
126. What is the preferred method for disposing of low-level radioactive waste?
 (A) Incineration (B) Deep geological repositories
 (C) Surface storage (D) Discharge into water bodies
127. During the transport of radioactive materials, what is used to minimize the risk of radiation exposure to the public and the environment?
 (A) Lead-lined containers (B) Air transport
 (C) Underground pipelines (D) Remote-controlled vehicles
128. What legal document outlines the radiation protection standards for the general public and occupational workers?
 (A) Radiologic Manifesto (B) Diagnostic Guidelines
 (C) Radiation Control Act (D) International Radiology Accord
129. In the event of a radiation emergency, what is the primary focus of medical management?
 (A) Evacuation (B) Decontamination
 (C) Administration of antibiotics (D) Psychological counseling
130. Which imaging modality is known for its high sensitivity to soft tissue and lack of ionizing radiation?
 (A) Computed tomography (CT) (B) Positron emission tomography (PET)
 (C) Magnetic resonance imaging (MRI) (D) Ultrasonography
131. What is the term for the ratio of the absorbed dose in tissue to the energy imparted in the tissue by ionizing radiation?
 (A) Exposure (B) Absorbed dose
 (C) Dose equivalent (D) Relative biological effectiveness
132. In fluoroscopy, what is the primary purpose of the image intensifier?
 (A) Increase patient comfort
 (B) Enhance spatial resolution
 (C) Amplify and convert X-ray photons to light
 (D) Reduce radiation dose
133. Which type of radiation therapy uses protons or heavy ions to treat tumors?
 (A) External beam radiation therapy (B) CyberKnife therapy
 (C) Proton therapy (D) Brachytherapy

134. In mammography, which type of X-ray tube is commonly used to optimize imaging of breast tissue?
- (A) Fixed anode (B) Rotating anode
(C) Stationary anode (D) Mini-focus tube
135. What is the purpose of a radiopharmaceutical in nuclear medicine imaging?
- (A) Improve patient comfort (B) Provide anatomical details
(C) Emit gamma rays for detection (D) Reduce examination time
136. In single-photon emission computed tomography (SPECT), how is the three-dimensional distribution of a radiopharmaceutical obtained?
- (A) Positron emission (B) Gamma camera rotation
(C) Time-of-flight imaging (D) Magnetic resonance imaging
137. Which imaging modality is based on the detection of emitted gamma rays following the injection of a radionuclide?
- (A) Magnetic resonance imaging (MRI) (B) Positron emission tomography (PET)
(C) Computed tomography (CT) (D) Ultrasonography
138. What is the role of a cyclotron in the production of positron-emitting radionuclides for PET imaging?
- (A) Acceleration of electrons (B) Production of X-rays
(C) Generation of positrons (D) Synthesis of radiopharmaceuticals
139. Which type of radiation detector is commonly used in environmental radiation monitoring?
- (A) Geiger-Muller counter (B) Scintillation detector
(C) Ionization chamber (D) Dosimeter
140. What unit is used to express the activity of a radioactive source?
- (A) Gray (Gy) (B) Sievert (Sv)
(C) Becquerel (Bq) (D) Roentgen (R)
141. What type of radiation interaction is responsible for the majority of dose delivered in diagnostic radiography?
- (A) Photoelectric effect (B) Compton scattering
(C) Pair production (D) Rayleigh scattering
142. Which biological effect of radiation occurs when damage to cells is not immediately evident but appears later in the exposed individual's life?
- (A) Acute radiation syndrome (B) Somatic effects
(C) Genetic effects (D) Deterministic effects
143. In conformal radiotherapy, what is the aim of shaping the radiation dose to match the three-dimensional shape of the tumor?
- (A) Increase patient comfort (B) Minimize radiation dose to healthy tissues
(C) Reduce treatment time (D) Enhance spatial resolution

144. What is the primary advantage of high-dose rate (HDR) brachytherapy over low-dose rate (LDR) brachytherapy?
- (A) Prolonged treatment time (B) Reduced radiation exposure to staff
☒ (C) Greater dose uniformity (D) Enhanced patient comfort
145. What is stereotactic radiosurgery commonly used to treat?
- (A) Superficial skin lesions ☒ (B) Brain tumors
 (C) Lung cancers (D) Gastrointestinal malignancies
146. What is the purpose of a treatment plan verification process in radiation therapy quality assurance?
- (A) Increase patient comfort
☒ (B) Ensure accurate and safe delivery of the prescribed dose
 (C) Minimize radiation dose to the tumor
 (D) Shorten treatment sessions
147. Which radioactive isotope is commonly used in brachytherapy for the treatment of prostate cancer?
- (A) Iodine-131 (B) Technetium-99m
☒ (C) Cesium-137 (D) Iridium-192
148. What is the purpose of calibrating radionuclide solutions in nuclear medicine?
- (A) Enhance patient comfort
☒ (B) Ensure accurate dosage for diagnostic procedures
 (C) Reduce radiation exposure to staff
 (D) Shorten examination time
149. What is the function of the fixer solution in the development of radiographic film?
- (A) Increase film sensitivity ☒ (B) Remove unexposed silver halide crystals
 (C) Enhance image contrast (D) Improve spatial resolution
150. What term describes the overall blackening of a radiographic film and is influenced by the number of X-ray photons reaching the film?
- ☒ (A) Density (B) Contrast
 (C) Spatial resolution (D) Radiopacity
151. In digital subtraction angiography (DSA), what is subtracted from the image to enhance visualization of blood vessels?
- ☒ (A) Bone structures (B) Soft tissue
 (C) Contrast media (D) Air
152. What is the role of a radiofrequency coil in magnetic resonance imaging (MRI)?
- (A) Generate static magnetic field
 (B) Produce X-ray photons
☒ (C) Transmit and receive radiofrequency signals
 (D) Measure temperature changes

153. Which term describes the ability of an ultrasound system to distinguish between tissues with different acoustic properties?
- (A) Doppler effect (B) Spatial compounding
☒ (C) Contrast resolution (D) Axial resolution
154. What is the purpose of lead shielding in X-ray rooms?
- (A) Enhance image contrast (B) Increase patient comfort
☒ (C) Reduce radiation exposure to personnel (D) Minimize scatter radiation
155. Which personnel monitoring device is commonly used to measure occupational radiation exposure?
- (A) Geiger-Muller counter (B) Film badge
☒ (C) Scintillation detector (D) Thermoluminescent dosimeter (TLD)
156. What is the primary objective of safely disposing of radioactive waste?
- (A) Reduce patient dose ☒ (B) Minimize environmental impact
 (C) Accelerate decay of isotopes (D) Increase treatment efficiency
157. During the transportation of radioactive materials, what labeling is required on the packaging?
- ☒ (A) Radiation warning symbol (B) Biohazard symbol
 (C) Hazardous materials placard (D) Radioactive waste sticker
158. What international body provides guidelines and recommendations for radiation protection in medicine?
- (A) World Trade Organization (WTO)
 (B) United Nations Educational, Scientific and Cultural Organization (UNESCO)
☒ (C) International Commission on Radiological Protection (ICRP)
 (D) European Union (EU)
159. What is the primary role of a gadolinium-based contrast agent in MRI?
- (A) Enhance spatial resolution ☒ (B) Increase T1 relaxation time
 (C) Suppress signal intensity (D) Reduce scan time
160. In what way do hybrid imaging modalities, such as PET/CT and SPECT/CT, contribute to clinical practice?
- (A) Decrease imaging time
☒ (B) Provide anatomical and functional information in a single examination
 (C) Reduce radiation dose to patients
 (D) Enhance image resolution
161. What is the SI unit for radiation dose equivalent?
- (A) Gray (Gy) ☒ (B) Sievert (Sv)
 (C) Roentgen (R) (D) Curie (Ci)
162. Which imaging modality is based on the principles of nuclear magnetic resonance?
- (A) Computed tomography (CT) (B) Positron emission tomography (PET)
☒ (C) Magnetic resonance imaging (MRI) (D) Ultrasonography

163. In stereotactic body radiation therapy (SBRT), what is the primary focus?
 (A) Large field irradiation (B) Precise dose delivery to small volumes
 (C) Brachytherapy applications (D) Low-energy X-ray therapy
164. What radiographic view is commonly used to visualize the cervical spine in lateral projection?
 (A) Anteroposterior (AP) view (B) Lateral view
 (C) Oblique view (D) Axial view
165. What is the primary advantage of cone-beam computed tomography (CBCT) in radiation therapy?
 (A) Reduced imaging time (B) Improved spatial resolution
 (C) 3D visualization of anatomy (D) Lower radiation dose
166. In SPECT imaging, how is the tomographic information obtained?
 (A) Parallel-hole collimation (B) Time-of-flight measurement
 (C) Positron annihilation (D) Spiral acquisition
167. What imaging modality is commonly used for evaluating soft tissue injuries in sports medicine?
 (A) Fluoroscopy (B) Magnetic resonance imaging (MRI)
 (C) Positron emission tomography (PET) (D) Ultrasonography
168. What is the role of a PET scanner in molecular imaging?
 (A) Measure electrical resistance (B) Detect positron-emitting radionuclides
 (C) Generate X-rays (D) Produce magnetic resonance signals
169. Which of the following is a commonly used material in gas-filled radiation detectors?
 (A) Scintillator crystal (B) Photodiode
 (C) Air (D) Phosphor screen
170. What is the purpose of a pocket dosimeter worn by radiation workers?
 (A) Measure background radiation (B) Continuously monitor radiation exposure
 (C) Measure radiation dose rate (D) Assess air quality
171. Which type of radiation interaction is responsible for producing free radicals in biological tissues?
 (A) Photoelectric effect (B) Compton scattering
 (C) Direct ionization (D) Pair production
172. What is the LD50/30 in the context of radiation exposure?
 (A) Lethal dose for 50% of the population in 30 days
 (B) Lethal dose for 30% of the population in 50 days
 (C) Limiting dose for 30% of the population in 50 years
 (D) Lethal dose for 50% of the population in 3 hours
173. In intensity-modulated radiation therapy (IMRT), how are radiation beams adjusted during treatment?
 (A) Fixed intensity throughout treatment (B) Dynamic modulation of beam intensity
 (C) Limited to a single treatment angle (D) Manual adjustment by the radiation therapist
174. What is the primary advantage of low-dose rate (LDR) brachytherapy?
 (A) Short treatment time (B) Reduced radiation exposure to staff
 (C) High dose delivered over a short period (D) Greater dose control

175. Which technique delivers radiation from multiple angles using computer-controlled movements of the treatment machine?
- (A) Stereotactic radiosurgery
 - ☒ (B) Intensity-modulated radiation therapy (IMRT)
 - (C) Proton therapy
 - (D) Brachytherapy
176. What is the purpose of a treatment delivery verification process in radiation therapy quality assurance?
- (A) Enhance image contrast
 - ☒ (B) Confirm proper patient positioning and dose delivery
 - (C) Minimize radiation dose to the tumor
 - (D) Shorten treatment sessions
177. Which radioactive isotope is commonly used in thyroid imaging and therapy?
- ☒ (A) Iodine-131
 - (B) Technetium-99m
 - (C) Cobalt-60
 - (D) Strontium-90
178. What is the half-life of a radionuclide?
- ☒ (A) Time required for the activity to decay to half of its initial value
 - (B) Time during which the radionuclide remains stable
 - (C) Time required for the activity to double
 - (D) Time during which the radionuclide emits radiation continuously
179. What factor influences radiographic film contrast?
- ☒ (A) Developer temperature
 - (B) Fixer concentration
 - (C) Emulsion thickness
 - (D) Film base density
180. What term describes the ability of a radiographic system to distinguish between small objects with high subject contrast?
- (A) Density
 - (B) Contrast
 - ☒ (C) Spatial resolution
 - (D) Radiopacity
181. What is the primary advantage of digital radiography over conventional film-screen radiography?
- (A) Reduced patient dose
 - (B) Improved spatial resolution
 - ☒ (C) Faster image acquisition
 - (D) Enhanced image contrast
182. What property of tissues affects the T1 relaxation time in magnetic resonance imaging?
- (A) Fat content
 - ☒ (B) Water content
 - (C) Proton density
 - (D) Magnetic susceptibility
183. Which type of ultrasound transducer is commonly used for imaging deep structures within the body?
- (A) Linear array
 - (B) Phased array
 - ☒ (C) Convex array
 - (D) Annular array

184. What is the Doppler effect utilized for in ultrasound imaging?
- (A) Image reconstruction (B) Tissue characterization
(C) Blood flow velocity measurement (D) Attenuation correction
185. What is the purpose of a lead-lined radiographic room?
- (A) Enhance image contrast (B) Increase patient comfort
(C) Shield against scattered radiation (D) Reduce radiation dose to the operator
186. What is the preferred method for disposing of high-level radioactive waste from nuclear medicine?
- (A) Incineration (B) Deep geological repositories
(C) Surface storage (D) Aqueous waste disposal
187. What is the primary consideration when packaging radioactive materials for transport?
- (A) Weight of the package (B) Ease of handling
(C) Minimization of radiation exposure (D) Cost of transportation
188. What is the primary purpose of the As Low As Reasonably Achievable (ALARA) principle in radiation protection?
- (A) Reduce patient dose (B) Minimize radiation exposure to staff
(C) Increase image contrast (D) Expedite treatment sessions
189. What is the primary goal of early triage in a radiation emergency?
- (A) Administering prophylactic antibiotics
(B) Evacuating affected individuals
(C) Assessing and prioritizing medical care
(D) Establishing quarantine zones
190. In what way does artificial intelligence (AI) contribute to medical imaging?
- (A) Enhancing patient comfort during imaging
(B) Reducing radiation exposure to patients
(C) Improving diagnostic accuracy and efficiency
(D) Shortening treatment sessions
191. What safety measures are employed during the transport of radioactive materials?
- (A) Dark containers for camouflage
(B) Remote-controlled handling
(C) Rapid transportation during peak hours
(D) Open-air transport for ventilation
192. In nuclear medicine, what does the term "SPECT" stand for?
- (A) Single Photon Emission Computed Tomography
(B) Sequential Positron Emission Computed Tomography
(C) Spectral Photon Emission Capture Tomography
(D) Subcutaneous Positron Emission Counter Tomography

193. What is the primary advantage of using a linear accelerator (linac) in external beam radiation therapy?
- (A) Lower cost (B) Reduced treatment time
(C) Greater dose uniformity (D) Adjustable treatment angles
194. Which radiographic view is commonly used to assess fractures of the scaphoid bone in the wrist?
- (A) Anteroposterior (AP) view (B) Lateral view
(C) Oblique view (D) Axial view
195. What is the purpose of the “time of flight” (TOF) technique in positron emission tomography (PET)?
- (A) Enhance patient comfort (B) Improve spatial resolution
(C) Reduce radiation dose (D) Shorten examination time
196. What is the role of a collimator in a gamma camera used for nuclear medicine imaging?
- (A) Generate gamma rays
(B) Detect positron emissions
(C) Selectively allow only certain gamma rays to reach the detector
(D) Convert gamma rays into electrical signals
197. Which imaging modality is based on the principles of diffraction and interference of X-rays?
- (A) Fluoroscopy (B) Computed tomography (CT)
(C) Magnetic resonance imaging (MRI) (D) Ultrasound
198. What is the function of a cyclotron in the production of radiopharmaceuticals for PET imaging?
- (A) Accelerate protons (B) Generate X-rays
(C) Produce positrons (D) Synthesize contrast agents
199. Which radiation detector is commonly used for personal dosimetry in occupational radiation monitoring?
- (A) Geiger-Muller counter (B) Scintillation detector
(C) Ionization chamber (D) Photodiode
200. What is the primary purpose of a radiographic grid used in X-ray imaging?
- (A) Enhance image contrast (B) Reduce patient dose
(C) Improve spatial resolution (D) Minimize scattered radiation
201. What is the primary target of ionizing radiation in biological tissues?
- (A) Nucleus (B) Mitochondria
(C) Cell membrane (D) Endoplasmic reticulum
202. What term is used to describe the phenomenon where a non-irradiated cell exhibits radiation damage due to signals received from nearby irradiated cells?
- (A) Somatic effect (B) Genetic effect
(C) Bystander effect (D) Deterministic effect

203. What is the purpose of using bolus material in superficial radiotherapy?
- (A) Enhance patient comfort
 - (B) Increase treatment efficiency
 - ☒ (C) Improve dose distribution in superficial tissues
 - (D) Shorten treatment sessions
204. Which radioactive isotope is commonly used in brachytherapy for prostate cancer treatment?
- (A) Iodine-131
 - ☒ (B) Palladium-103
 - (C) Cobalt-60
 - (D) Technetium-99m
205. What is the purpose of using a thermoplastic mask in external beam radiation therapy?
- (A) Enhance patient comfort
 - ☒ (B) Ensure accurate patient positioning
 - (C) Reduce radiation dose to healthy tissues
 - (D) Minimize treatment time
206. What is the purpose of a daily machine warm-up in a linear accelerator used for radiation therapy?
- (A) Increase patient comfort
 - ☒ (B) Ensure stable machine performance
 - (C) Minimize radiation dose to the tumor
 - (D) Shorten treatment sessions
207. Which radioactive isotope is commonly used in gamma knife radiosurgery for treating brain tumors?
- (A) Cesium-137
 - ☒ (B) Cobalt-60
 - (C) Iridium-192
 - (D) Technetium-99m
208. What organization provides guidelines for the calibration of instruments used in the measurement of radioactivity?
- ☒ (A) International Atomic Energy Agency (IAEA)
 - (B) Food and Drug Administration (FDA)
 - (C) World Health Organization (WHO)
 - (D) American National Standards Institute (ANSI)
209. What is the purpose of the developer solution in the processing of radiographic film?
- (A) Enhance film sensitivity
 - ☒ (B) Remove unexposed silver halide crystals
 - (C) Increase image contrast
 - (D) Improve spatial resolution
210. What term describes the ability of a radiographic system to visualize small structures with low subject contrast?
- (A) Density
 - (B) Contrast
 - ☒ (C) Spatial resolution
 - (D) Radiopacity
211. Radiation produced from tube other than focal spot is called?
- (A) scatter
 - ☒ (B) stray
 - (C) primary
 - (D) characteristic

212. What is the smallest unit in reconstruction / projection of magnetic resonance imaging (MRI) image?
(A) pixel (B) dot
☒ (C) voxel (D) binary unit
213. What is the Doppler effect commonly used for in ultrasound imaging?
(A) Image reconstruction (B) Contrast enhancement
☒ (C) Blood flow velocity measurement (D) Soft tissue differentiation
214. What is the purpose of a radiation warning sign in a radiology facility?
(A) Enhance image contrast
☒ (B) Alert personnel to potential radiation hazards
(C) Reduce patient dose
(D) Provide information about radiation therapy techniques
215. Which radiation protection principle emphasizes the importance of proximity from a radiation source?
(A) Time (B) Shielding
☒ (C) Distance (D) Exposure
216. What is the primary goal of decommissioning a nuclear medicine facility?
(A) Reduce patient dose (B) Minimize environmental impact
☒ (C) Optimize imaging techniques (D) Increase operator comfort
217. During the transport of radioactive materials, what precautions are taken to prevent unauthorized access and theft?
(A) Use of lead-lined containers ☒ (B) Escorted transportation
(C) Disguised packaging (D) Radioactive waste stickers
218. Which international organization establishes safety standards for the transport of radioactive materials?
(A) International Commission on Radiological Protection (ICRP)
(B) Nuclear Regulatory Commission (NRC)
☒ (C) International Atomic Energy Agency (IAEA)
(D) World Health Organization (WHO)
219. What is the role of potassium iodide in radiation emergency preparedness?
(A) Neutralize radiation (B) Enhance radiation therapy
☒ (C) Prevent thyroid cancer (D) Decontaminate affected areas
220. How does diffusion-weighted imaging contribute to the characterization of tissues in magnetic resonance imaging (MRI)?
(A) Measure blood flow velocity
(B) Evaluate tissue perfusion
☒ (C) Assess tissue microstructure and cellularity
(D) Enhance soft tissue contrast

221. What is the primary effect of radiation on DNA within a cell?
 (A) Cell membrane disruption (B) Protein denaturation
☒ (C) DNA ionization (D) Mitochondrial degradation
222. In mammography, what is the purpose of using a compression device?
 (A) Enhance patient comfort ☒ (B) Reduce scattered radiation
 (C) Improve spatial resolution (D) Minimize contrast
223. What is the primary advantage of intensity-modulated proton therapy (IMPT) over traditional proton therapy?
 (A) Faster treatment time (B) Higher dose uniformity
☒ (C) Improved image contrast (D) Reduced side effects
224. Which radiographic view is commonly used to evaluate the lumbar spine for disc herniations?
 (A) Anteroposterior (AP) view (B) Lateral view
☒ (C) Oblique view (D) Flexion-extension view
225. What is the primary function of a gamma camera in nuclear medicine imaging?
 (A) Measure radiation dose (B) Produce X-rays
☒ (C) Detect gamma rays (D) Generate positrons
226. In hybrid imaging, what combination provides anatomical and functional information?
 (A) CT and SPECT ☒ (B) MRI and PET
 (C) X-ray and PET (D) Ultrasound and gamma camera
227. What imaging modality is commonly used to evaluate blood flow in the cardiovascular system?
 (A) Fluoroscopy (B) Magnetic resonance imaging (MRI)
 (C) Positron emission tomography (PET) ☒ (D) Doppler ultrasound
228. Which organization is responsible for setting international standards in medical device safety, including radiological equipment?
 (A) International Commission on Radiological Protection (ICRP)
 (B) Food and Drug Administration (FDA)
 (C) European Medicines Agency (EMA)
☒ (D) International Electrotechnical Commission (IEC)
229. Which radiation detector is commonly used in radiation therapy for in vivo dosimetry?
 (A) Geiger-Muller counter (B) Scintillation detector
☒ (C) Ionization chamber (D) Photodiode
230. What is the purpose of a TLD (thermoluminescent dosimeter) in radiation monitoring?
 (A) Real-time dose measurement (B) Continuous area monitoring
☒ (C) Retroactive dose assessment (D) Personnel location tracking
231. What is the primary cause of indirect DNA damage by ionizing radiation?
 (A) DNA ionization ☒ (B) Formation of free radicals
 (C) Direct chromosomal breakage (D) Protein denaturation
232. What is the threshold dose for deterministic effects of radiation?
 (A) 1 mSv (B) 10 mSv
☒ (D) 100 mSv

233. What is the primary advantage of using a multileaf collimator (MLC) in radiation therapy?
 (A) Faster treatment delivery (B) Increased patient comfort
☒ (C) Improved dose conformality (D) Reduced scatter radiation
234. In gynecological brachytherapy, what is the primary source placement method?
☒ (A) Intracavitary (B) Interstitial
 (C) Intraluminal (D) Intramuscular
235. What is the primary goal of respiratory gating in radiation therapy?
 (A) Improve patient comfort ☒ (B) Compensate for organ motion
 (C) Enhance spatial resolution (D) Reduce treatment time
236. What is the purpose of a phantom in the quality assurance process of a radiation therapy machine?
 (A) Enhance image contrast (B) Simulate patient anatomy
 (C) Monitor radiation exposure ☒ (D) Verify dose delivery accuracy
237. Which radioactive isotope is commonly used in positron emission tomography (PET) for brain imaging?
 (A) Technetium-99m ☒ (B) Fluorine-18
 (C) Iodine-131 (D) Strontium-90
238. What is the purpose of calibrating a radionuclide for diagnostic imaging?
 (A) Enhance image contrast ☒ (B) Ensure accurate dosage
 (C) Prolong half-life (D) Minimize radiation dose
239. What factor influences the radiographic film's speed (sensitivity)?
 (A) Film thickness (B) Film base density
☒ (C) Developer temperature (D) Fixer concentration
240. What is the most used magnetic strength in Clinical MRI?
☒ (A) 0.1 to 3 Tesla (B) 6 to 10 Tesla
 (C) 10 to 20 Tesla (D) 0.001 to 0.05 Tesla
241. What is the primary advantage of digital subtraction angiography (DSA) over conventional angiography?
 (A) Reduced patient dose (B) Improved spatial resolution
☒ (C) Real-time imaging (D) Simultaneous multi-planar views
242. The Cooling agent used for MRI Magnet is ?
 (A) Argon (B) Neon
 (C) Xenon ☒ (D) Helium
243. What type of transducer is commonly used for endovaginal ultrasound imaging?
 (A) Linear array (B) Curvilinear array
☒ (C) Phased array (D) Convex array
244. What is the primary purpose of a radiological survey meter in a radiology facility?
 (A) Enhance image contrast ☒ (B) Monitor background radiation levels
 (C) Measure patient dose (D) Assess image quality

245. What is the primary purpose of lead shielding in a radiographic room?
(A) Enhance image contrast (B) Protect against direct radiation
(C) Reduce patient dose (D) Minimize exposure to scattered radiation
246. What is the immediate response protocol for a radiation spill in a radiology department?
(A) Continue normal operations
(B) Evacuate the area and notify appropriate personnel
(C) Delay response for confirmation
(D) Wait for regulatory agencies to arrive
247. When ionization chambers absorb x-rays, they most likely measure the resultant?
(A) Heat. (B) Voltage.
(C) Charge. (D) Light.
248. What international standard provides guidance on the management of medical radiation exposure?
(A) IEC 60601 (B) ISO 9001
(C) ASTM E2503 (D) ANSI/HPS N13.30
249. What is the role of a designated radiation safety officer in a medical facility?
(A) Administer first aid in radiation emergencies
(B) Oversee regulatory compliance
(C) Perform radiographic examinations
(D) Dispose of radioactive waste
250. How does virtual reality technology contribute to medical imaging education and training?
(A) Increase radiation dose awareness (B) Simulate realistic patient scenarios
(C) Accelerate image acquisition (D) Replace traditional imaging modalities
251. How does hybrid imaging, such as PET-CT, benefit oncology patients?
(A) Reduces diagnostic accuracy
(B) Provides anatomical and functional information simultaneously
(C) Increases radiation exposure
(D) Slows down the diagnostic process
252. In nuclear medicine, what is the function of a collimator in a gamma camera?
(A) Generate gamma rays
(B) Convert gamma rays into electrical signals
(C) Direct positron emissions
(D) Selectively allow only certain gamma rays to reach the detector
253. What is the primary goal of stereotactic radiosurgery in the treatment of brain tumors?
(A) Minimize treatment time
(B) Enhance patient comfort
(C) Deliver precise and high doses to targeted lesions
(D) Reduce side effects

254. Which imaging modality is commonly used to assess blood vessel abnormalities, such as aneurysms or stenosis?
- (A) X-ray angiography (B) Computed tomography (CT)
(C) Magnetic resonance imaging (MRI) (D) Ultrasound
255. What is the primary advantage of cone-beam computed tomography (CBCT) in radiation therapy planning?
- (A) Reduced patient dose (B) Improved image contrast
(C) Real-time imaging (D) Enhanced visualization of soft tissues
256. In single-photon emission computed tomography (SPECT), what is the purpose of acquiring multiple projection images?
- (A) Increase patient comfort
(B) Enhance spatial resolution
(C) Facilitate three-dimensional reconstruction
(D) Reduce radiation exposure
257. What is the primary advantage of dual-energy X-ray absorptiometry (DEXA) in bone density measurements?
- (A) High spatial resolution
(B) Fast image acquisition
(C) Simultaneous assessment of soft tissue and bone density
(D) Reduced radiation dose
258. How does positron emission tomography (PET) contribute to cancer diagnosis?
- (A) Visualizes structural abnormalities (B) Measures blood flow dynamics
(C) Detects metabolic activity (D) Assesses bone density
259. What is the primary advantage of using a solid-state detector in radiation measurements?
- (A) High sensitivity (B) Real-time monitoring
(C) Energy discrimination (D) Low cost
260. What is the purpose of regular quality control checks on treatment machines in radiation therapy?
- (A) Minimize patient dose
(B) Enhance image contrast
(C) Ensure accurate and safe delivery of radiation doses
(D) Reduce treatment time
261. What is the primary advantage of using a multileaf collimator in modern radiation therapy?
- (A) Minimize treatment time
(B) Enhance patient comfort
(C) Shape radiation beams to conform to tumor contours
(D) Reduce side effects

262. What is the term for the phenomenon where a fractionated dose of radiation is more effective than a single large dose in causing cell death?
- (A) Deterministic effect (B) Bystander effect
☒ (C) Protracted effect (D) Stochastic effect
263. What is the purpose of using a compensator in intensity-modulated radiation therapy (IMRT)?
- (A) Shield healthy tissues ☒ (B) Modulate beam intensity
 (C) Reduce treatment time (D) Enhance image contrast
264. In prostate brachytherapy, what is the primary source placement method?
- (A) Intracavitary ☒ (B) Interstitial
 (C) Intraluminal (D) Intramuscular
265. Which is least likely to be categorized as an x ray detector?
- (A) Ionization chamber. (B) Scintillation detector.
☒ (C) Photomultiplier tube. (D) Geiger muller counter.
266. What is the purpose of routine machine calibration in a linear accelerator used for radiation therapy?
- (A) Enhance patient comfort ☒ (B) Ensure stable machine performance
 (C) Reduce patient dose (D) Minimize scatter radiation
267. In nuclear medicine, which radiopharmaceutical is commonly used for bone imaging?
- (A) Indium 111 ☒ (B) Technetium-99m with MDP
 (C) Fluorine-18 (D) Carbon-14
268. Which radiographic view is commonly used to evaluate the alignment of the spinal column?
- ☒ (A) Lateral view (B) Anteroposterior view
 (C) Oblique view (D) Towne's view
269. In fluoroscopy, what is the purpose of pulsed fluoroscopy mode?
- ☒ (A) Minimize patient dose (B) Provide real-time imaging
 (C) Increase spatial resolution (D) Enhance image contrast
270. What term describes the degree of blackness on a radiographic film?
- ☒ (A) Density (B) Contrast
 (C) Spatial resolution (D) Radiopacity
271. How does Doppler ultrasound assist in assessing blood flow direction?
- (A) Measures blood viscosity
 (B) Analyzes tissue elasticity
☒ (C) Detects changes in frequency caused by motion
 (D) Measures acoustic impedance
272. What factor influences the signal intensity of tissues in magnetic resonance imaging (MRI)?
- (A) X-ray exposure ☒ (B) Proton density
 (C) Ultrasound frequency (D) Gamma ray emission

273. What imaging modality relies on the piezoelectric effect for image generation?
(A) X-ray (B) Magnetic resonance imaging (MRI)
☒ (C) Ultrasound (D) nuclear medicine
274. Which of the following is said to be an example of Electromagnetic Radiation?
(A) Alpha rays ☒ (B) X-rays
(C) Seismic waves (D) Neutron radiation.
275. What is the purpose of a lead-lined container for storing radioactive materials?
(A) Enhance image contrast ☒ (B) Reduce occupational radiation exposure
(C) Minimize patient dose (D) Shield against gamma radiation
276. What is the purpose of a radiation area posting in a healthcare facility?
(A) Warn against non-ionizing radiation
(B) Indicate high patient flow areas
☒ (C) Identify areas with potential radiation exposure
(D) Provide aesthetic decoration
277. What precautions are taken during the transport of radioactive materials to prevent radiation exposure to the public?
(A) Use of lead-lined containers (B) Segregation of isotopes
(C) Remote-controlled handling ☒ (D) High-speed transportation
278. What international organization provides guidelines for the safe use of radiation in medicine?
☒ (A) International Commission on Radiological Protection (ICRP)
(B) Food and Drug Administration (FDA)
(C) Occupational Safety and Health Administration (OSHA)
(D) Environmental Protection Agency (EPA)
279. What is the primary purpose of a radiation emergency response plan in a healthcare facility?
(A) Reduce treatment time (B) Minimize occupational radiation exposure
(C) Provide immediate patient care ☒ (D) Ensure a coordinated and effective response
280. Which of the following materials is commonly used for shielding against gamma radiation?
(A) Aluminum ☒ (B) Lead
(C) Copper (D) Plastic
281. What is the primary concern in the disposal of radioactive iodine-131 waste?
(A) Long half-life (B) High energy emission
☒ (C) Environmental impact (D) Biological half-life
282. What safety features are commonly employed in the packaging of radioactive materials during transportation?
(A) Transparent containers ☒ (B) Shock-absorbing materials
(C) Fragile packaging (D) Reflective surfaces

283. Which regulatory body oversees the use of medical devices in the United States?
(A) International Commission on Radiological Protection (ICRP)
(B) Food and Drug Administration (FDA)
(C) Occupational Safety and Health Administration (OSHA)
(D) World Health Organization (WHO)
284. What is the primary consideration in managing a radiation exposure incident involving multiple casualties?
(A) Immediate treatment prioritization
(B) Prompt evacuation
(C) Utilization of personal protective equipment
(D) Timely notification of regulatory authorities
285. How does tomosynthesis differ from traditional mammography?
(A) Uses higher radiation doses
(B) Provides three-dimensional imaging
(C) Has slower image acquisition
(D) Requires contrast agents
286. What is the purpose of a daily machine warm-up in a linear accelerator?
(A) Reduce treatment time
(B) Ensure stable machine performance
(C) Enhance patient comfort
(D) Minimize scattered radiation
287. What is the primary factor affecting the quality of an X-ray beam in radiography?
(A) Tube current
(B) Tube voltage
(C) Filtration
(D) Collimation
288. What is the role of a scintillation crystal in gamma camera imaging?
(A) Convert gamma rays into electrical signals
(B) Direct positron emissions
(C) Generate X-ray photons
(D) Enhance spatial resolution
289. How does intensity-modulated radiation therapy (IMRT) differ from conformal radiation therapy (CRT)?
(A) IMRT uses higher energy beams
(B) IMRT delivers uniform radiation dose
(C) IMRT modulates beam intensity
(D) IMRT has shorter treatment sessions
290. Ultrasonography is an example of what type of radiation?
(A) Electromagnetic.
(B) Particle.
(C) Acoustic.
(D) Gravitational.
291. What is the purpose of a contrast agent in angiography?
(A) Enhance patient comfort
(B) Improve image quality
(C) Visualize blood vessels
(D) Minimize radiation dose
292. What is the primary role of a gamma camera in nuclear medicine?
(A) Measure blood flow velocity
(B) Detect metabolic activity
(C) Facilitate three-dimensional reconstruction
(D) Produce X-ray images

293. How does computed tomography (CT) differ from conventional X-ray imaging?
(A) CT uses lower radiation doses (B) CT provides real-time imaging
(C) CT produces cross-sectional images (D) CT has lower spatial resolution
294. What property of tissues does T2-weighted MRI primarily emphasize?
(A) Fat content (B) Water content
(C) Bone density (D) Oxygen saturation
295. In ultrasound imaging, what does the term “echogenic” refer to?
(A) Tissue elasticity (B) Sound wave frequency
(C) Ability to reflect sound waves (D) Attenuation coefficient
296. Which radiation protection principle states that the exposure to ionizing radiation should be justified based on benefits and risks?
(A) ALARA principle (B) Time, distance, and shielding
(C) Optimization principle (D) Asymmetry principle
297. What is the primary concern in the disposal of high-level radioactive waste from nuclear power plants?
(A) Short half-life (B) Heat generation
(C) Low energy emission (D) Biodegradability
298. In the transportation of radioactive materials, what is the purpose of labeling the packages with a radioactivity symbol?
(A) Aesthetic purposes (B) Warn emergency responders
(C) Deter theft (D) Comply with regulations
299. What is the purpose of routine checks on the alignment of treatment beams in radiation therapy?
(A) Reduce patient dose
(B) Ensure accurate delivery of radiation to the target
(C) Enhance patient comfort
(D) Minimize scattered radiation
300. What factor determines the depth of penetration of a beam in tissue during X-ray interactions?
(A) Beam energy (B) Source-to-skin distance
(C) Collimation (D) Filtration