RPSC AP
(Med. Edu.)

Previous Year Paper
(Clinical Hematology)
12 May, 2025

Asstt. Professor (Med. Edu.) Comp. Exam - 2024 चिकित्सा

Exam Date - 12/5/2025

पुस्तिका में पृष्ठों की संख्या : 24
Number of Pages in Booklet : 24

पुस्तिका में प्रश्नों की संख्या : 150
No. of Questions in Booklet : 150

Paper Code : 22

MPA-25

इस प्रश्न-पुस्तिका को तब तक न खोलें जब तक कहा न जाए। Do not open this Question Booklet until you are asked to do so.

Sub : Clinical Hematology

प्रश्न-पुस्तिका संख्या व बारकोड/
Question Booklet No. & Barcode

813021

समय : 02:30 घण्टे + 10 मिनट अतिरिक्त*
Time : 02:30 Hours + 10 Minutes Extra*

अधिकतम अंक : 150
Maximum Marks : 150

प्रश्न-पुस्तिका के पेपर की सील/पॉलिथीन बैग को खोलने पर प्रश्न-पत्र हल करने से पूर्व परीक्षार्थी यह सुनिश्चित कर लें कि :

- प्रश्न-पुस्तिका संख्या तथा ओ.एम.आर. उत्तर-पत्रक पर अंकित बारकोड संख्या समान हैं।
- प्रश्न-पुस्तिका एवं ओ.एम.आर. उत्तर-पत्रक के सभी पृष्ठ व सभी प्रश्न सही मुद्रित हैं। समस्त प्रश्न, जैसा कि ऊपर वर्णित है, उपलब्ध हैं तथा कोई भी पृष्ठ कम नहीं है/ मुद्रण त्रुटि नहीं है।

किसी भी प्रकार की विसंगति या दोषपूर्ण होने पर परीक्षार्थी वीक्षक से दूसरा प्रश्न-पत्र प्राप्त कर लें। यह सुनिश्चित करने की जिम्मेदारी अभ्यर्थी की होगी। परीक्षा प्रारम्भ होने के 5 मिनट पश्चात् ऐसे किसी दावे/आपत्ति पर कोई विचार नहीं किया जायेगा।

On opening the paper seal/polythene bag of the Question Booklet before attempting the question paper, the candidate should ensure that :

- **Question Booklet Number and Barcode Number of OMR Answer Sheet are same.**
- **All pages & Questions of Question Booklet and OMR Answer Sheet are properly printed. All questions as mentioned above are available and no page is missing/misprinted.**

If there is any discrepancy/defect, candidate must obtain another Question Booklet from Invigilator. Candidate himself shall be responsible for ensuring this. No claim/objection in this regard will be entertained after five minutes of start of examination.

परीक्षार्थियों के लिए निर्देश

1. प्रत्येक प्रश्न के लिये एक विकल्प भरना अनिवार्य है।
2. सभी प्रश्नों के अंक समान हैं।
3. प्रत्येक प्रश्न का मात्र एक ही उत्तर दीजिए। एक से अधिक उत्तर देने की दशा में प्रश्न के उत्तर को गलत माना जाएगा।
4. OMR उत्तर-पत्रक इस प्रश्न-पुस्तिका के अन्दर रखा है। जब आपको प्रश्न-पुस्तिका खोलने को कहा जाए, तो उत्तर-पत्रक निकाल कर ध्यान से केवल नीले बॉल पॉइंट पेन से विवरण भरें।
5. कृपया अपना रोल नम्बर ओ.एम.आर. उत्तर-पत्रक पर सावधानीपूर्वक सही भरें। गलत रोल नम्बर भरने पर परीक्षार्थी स्वयं उत्तरदायी होगा।
6. ओ.एम.आर. उत्तर-पत्रक में करेक्शन पेन/व्हाईटनर/सफेदा का उपयोग निषिद्ध है।
7. प्रत्येक गलत उत्तर के लिए प्रश्न अंक का 1/3 भाग काटा जायेगा। गलत उत्तर से तात्पर्य अशुद्ध उत्तर अथवा किसी भी प्रश्न के एक से अधिक उत्तर से है।
8. प्रत्येक प्रश्न के पाँच विकल्प दिये गये हैं, जिन्हें क्रमशः 1, 2, 3, 4, 5 अंकित किया गया है। अभ्यर्थी को सही उत्तर निर्दिष्ट करते हुए उनमें से केवल एक गोले (बबल) को उत्तर-पत्रक पर नीले बॉल पॉइंट पेन से गहरा करना है।
9. यदि आप प्रश्न का उत्तर नहीं देना चाहते हैं तो उत्तर-पत्रक में पाँचवें (5) विकल्प को गहरा करें। यदि पाँच में से कोई भी गोला गहरा नहीं किया जाता है, तो ऐसे प्रश्न के लिये प्रश्न अंक का 1/3 भाग काटा जायेगा।
10.* प्रश्न-पत्र हल करने के उपरांत अभ्यर्थी अनिवार्य रूप से ओ.एम.आर. उत्तर-पत्रक जाँच लें कि समस्त प्रश्नों के लिये एक विकल्प (गोला) भर दिया गया है। इसके लिये ही निर्धारित समय से 10 मिनट का अतिरिक्त समय दिया गया है।
11. यदि अभ्यर्थी 10% से अधिक प्रश्नों में पाँच विकल्पों में से कोई भी विकल्प अंकित नहीं करता है तो उसको अयोग्य माना जायेगा।
12. मोबाइल फोन अथवा अन्य किसी इलेक्ट्रोनिक यंत्र का परीक्षा हॉल में प्रयोग पूर्णतया वर्जित है। यदि किसी अभ्यर्थी के पास ऐसी कोई वर्जित सामग्री मिलती है तो उसके विरुद्ध आयोग द्वारा नियमानुसार कार्यवाही की जायेगी।

चेतावनी : अगर कोई अभ्यर्थी नकल करते पकड़ा जाता है या उसके पास से कोई अनधिकृत सामग्री पाई जाती है, तो उस अभ्यर्थी के विरुद्ध पुलिस में प्राथमिकी दर्ज कराते हुए और राजस्थान सार्वजनिक परीक्षा (भर्ती में अनुचित साधनों की रोकथाम अध्युपाय) अधिनियम, 2022 तथा अन्य प्रभावी कानून एवं आयोग के नियमों-प्रावधानों के तहत कार्यवाही की जाएगी। साथ ही आयोग ऐसे अभ्यर्थी को भविष्य में होने वाली आयोग की समस्त परीक्षाओं से विवर्जित कर सकता है।

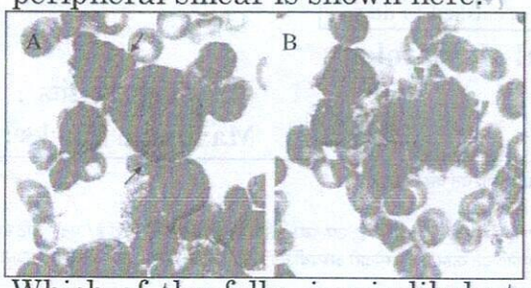
INSTRUCTIONS FOR CANDIDATES

1. **It is mandatory to fill one option for each question.**
2. **All** questions carry equal marks.
3. Only **one** answer is to be given for each question. If more than one answers are marked, it would be treated as wrong answer.
4. The **OMR** Answer Sheet is inside this Question Booklet. When you are directed to open the Question Booklet, take out the Answer Sheet and fill in the particulars carefully with **Blue Ball Point Pen** only.
5. Please correctly fill your Roll Number in **OMR** Answer Sheet. Candidates will themselves be responsible for filling wrong Roll No.
6. **Use of Correction Pen/Whitener in the OMR Answer Sheet is strictly forbidden.**
7. **1/3 part of the mark(s) of each question will be deducted for each wrong answer.** A wrong answer means an incorrect answer or more than one answers for any question.
8. **Each question has five options marked as 1, 2, 3, 4, 5. You have to darken only one circle (bubble) indicating the correct answer on the Answer Sheet using BLUE BALL POINT PEN.**
9. **If you are not attempting a question then you have to darken the circle '5'. If none of the five circles is darkened, one third (1/3) part of the marks of question shall be deducted.**
10.* **After solving question paper, candidate must ascertain that he/she has darkened one of the circles (bubbles) for each of the questions. Extra time of 10 minutes beyond scheduled time, is provided for this.**
11. **A candidate who has not darkened any of the five circles in more than 10% questions shall be disqualified.**
12. **Mobile Phone or any other electronic gadget in the examination hall is strictly prohibited. A candidate found with any of such objectionable material with him/her will be strictly dealt with as per rules.**

Warning : If a candidate is found copying or if any unauthorized material is found in his/her possession, F.I.R. would be lodged against him/her in the Police Station and he/she would be liable to be prosecuted under **Rajasthan Public Examination (Measures for Prevention of Unfair means in Recruitment) Act, 2022 & any other laws applicable and Commission's Rules-Regulations.** Commission may also debar him/her permanently from all future examinations.

उत्तर-पत्रक में दो प्रतियाँ हैं – मूल प्रति और कार्बन प्रति। परीक्षा समाप्ति पर परीक्षा कक्ष छोड़ने से पूर्व परीक्षार्थी उत्तर-पत्रक की दोनों प्रतियाँ वीक्षक को सौंपेंगे, परीक्षार्थी स्वयं कार्बन प्रति अलग नहीं करें। वीक्षक उत्तर-पत्रक की मूल प्रति को अपने पास जमा कर, कार्बन प्रति को मूल प्रति से कट लाइन से मोड़ कर सावधानीपूर्वक अलग कर परीक्षार्थी को सौंपेंगे, जिसे परीक्षार्थी अपने साथ ले जायेंगे। परीक्षार्थी को उत्तर-पत्रक की कार्बन प्रति चयन प्रक्रिया पूर्ण होने तक सुरक्षित रखनी होगी एवं आयोग द्वारा माँगे जाने पर प्रस्तुत करनी होगी।

1. A 6-month-old infant presented with pallor and hepatosplenomegaly. His peripheral smear is shown here.



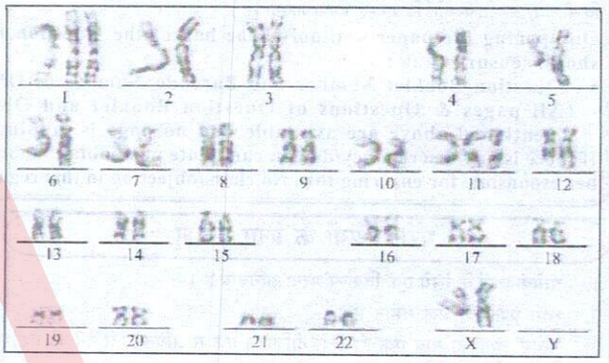
Which of the following is likely to be associated anomaly ?
(1) RUNX1
(2) GATA1
(3) KMT2A
(4) TP53
(5) Question not attempted

2. Identify the correct statement about platelet aggregometry :
(1) Useful in the diagnostic algorithm and to monitor patients with acquired or inherited platelet dysfunction
(2) Assess antiplatelet therapy effectiveness
(3) Diagnosis of rare bleeding disorders
(4) Assess peri-operative bleeding risk
(5) Question not attempted

3. Identify the incorrect statement regarding Sanger sequencing.
(1) Each colour in the chromatogram represents a nitrogenous base.
(2) It is most beneficial for diseases with a multigenic inheritance.
(3) Fluorescent dideoxy-nucleotides are used along with deoxynucleotides in a chain termination PCR.
(4) The PCR product is run using capillary gel electrophoresis to separate the DNA fragments and determine the sequence.
(5) Question not attempted

4. For MUD transplant, what is the minimum level of HLA matching required ?
(1) 6/6 (2) 8/8
(3) 10/10 (4) 12/12
(5) Question not attempted

5. What is the prognostic impact of this abnormality in R-IPSS score for a patient of MDS ?



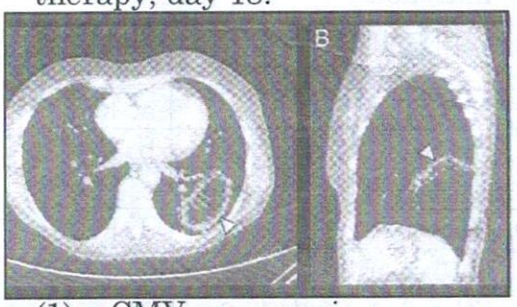
(1) Very good (2) Good
(3) Poor (4) Very poor
(5) Question not attempted

6. A 24-year-old female presented with bleeding from skin, nose and per vaginum. There is pancytopenia with atypical cells showing multiple large rods like inclusions. Her fibrinogen is 100 mg/dl and PT and APTT are prolonged. You asked for flow cytometry. What is the correct pattern of her atypical cells on flow ?
(1) CD 33+, CD 34+, HLA DR–, MPO+
(2) CD 33–, CD 34–, HLA DR–, MPO–
(3) CD 33+, CD 34–, HLA DR–, MPO+
(4) CD 33+, CD 34+, HLA DR+, MPO+
(5) Question not attempted

7. Identify the incorrect statement.
(1) ARMS-PCR detects common point mutations in beta thalassemia.
(2) Sanger sequencing can detect point mutations in alpha and beta globin genes.
(3) Next generation sequencing is used to detect variant alpha or beta hemoglobinopathy.
(4) MLPA detects point mutation in alpha thalassemia.
(5) Question not attempted

8. What are the major difference between Idiopathic Cytopenia of Unknown Significance (ICUS) and Clonal Cytopenia of Unknown Significance (CCUS) ?
(1) ICUS has cytopenia while CCUS is non-cytopenic.
(2) Minimal VAF required to establish the diagnosis CCUS, the same definition counts as for CHIP ($\geq$ 10%)
(3) ICUS is defined as unexplained cytopenia that meets the minimal criteria for MDS.
(4) CCUS is defined as ICUS with one or more somatic mutations typically found in patients with myeloid malignancies.
(5) Question not attempted

9. Name the etiology for this CT finding in hematology patient with acute leukemia on induction therapy, day 18.



(1) CMV pneumonia
(2) Pneumocystis pneumonia
(3) Mucormycosis
(4) Aspergillosis pneumonia
(5) Question not attempted

10. A 36-year-old female presents to gynaecology department with increased bleeding during menses since her menarche. She was found to have prolonged APTT of 54/36 seconds, PT and fibrinogen are normal. Her factor VIII is 12% of normal. She is planned for hysterectomy. Which test should ideally be used to monitor her in the peri-operative period.
(1) APTT
(2) Bleeding time
(3) Factor VIII and vWF antigen
(4) vWF: RiCOF and Factor VIII
(5) Question not attempted

11. The coinheritance of hemoglobin S and which of following Hemoglobin do not usually produces a clinical significant sickling disorder ?
(1) HbC
(2) Hb G Philadelphia
(3) Hb D Punjab
(4) Hb Lepore
(5) Question not attempted

12. A 31-year-old antepartum female on a therapeutic dose of low molecular weight heparin (LMWH) for APLA syndrome. Before performing neuraxial anesthesia, she should be monitored with
(1) PT
(2) APTT
(3) Anti Xa assay
(4) Thrombin time
(5) Question not attempted

13. A 70-year-old female presented with anemia and pallor without organomegaly. Her CBC shows Hb-8 g/dl, MCV–67, MCH–22, WBC-4700/cumm and normal differential count and platelet count on smear. Her ferritin was 12 ng/1. What is the most appropriate step in her management ?
(1) Iron supplementation, oral
(2) Iron supplementation, iv, if positive for celiac disease
(3) Check for occult blood loss and give iron supplementation iv or oral
(4) Transfuse units packed red blood cells.
(5) Question not attempted

14. Delayed haemolytic blood transfusion reaction features are –
(1) Unexplained fever, jaundice and positive DCT and High reticulocyte count test 2 days after blood transfusion.
(2) Unexplained fever, jaundice and positive DCT test several days or weeks after blood transfusion.
(3) Hemoglobinuria, jaundice and positive DCT/ ICT AT test immediately after blood transfusion.
(4) Hemoglobinuria,, jaundice and positive DCT/ICT test several months after blood transfusion.
(5) Question not attempted

15. Which fluid type is best for fluid resuscitation among patients with Sickle Cell Disease (SCD) and vaso-occlusive episodes?
(1) 5 percent dextrose
(2) Normal saline
(3) Dextrose Normal saline
(4) Ringer lactate
(5) Question not attempted

16. The T2 star MRI is an important tool to assess iron overload. Identify the correct statement regarding iron overload and chelation therapy in thalassemia.
(1) Serum ferritin is the gold standard method for monitoring iron overload.
(2) Quality and duration of life of transfusion-dependent patients with thalassaemia depends on adequate iron chelation.
(3) Heart failure due to iron overload is irreversible.
(4) Risk of developing heart failure increases with T2* values <10 msec is negligible.
(5) Question not attempted

17. Which of the following is correctly matched ?

Genotype	Hb Pattern on HPLC
A. β°/β° Thalassemia	a. FSE
B. Hb SS	b. F
C. HbS/β+ Thalassemia	c. FS
D. HbS/E	d. FSA

(1) A-a B-b C-c D-d
(2) A-c B-d C-a D-b
(3) A-b B-c C-d D-a
(4) A-d B-a C-b D-c
(5) Question not attempted

18. In a 3-year-old child with a history of one transfusion and hepatosplenomegaly.

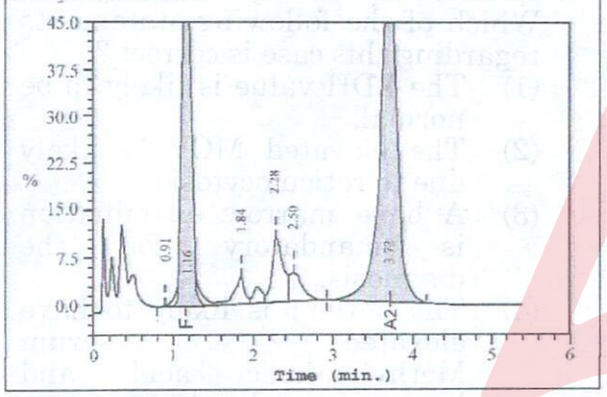
Peak Name	Calibrated Area %	Area %	Retention Time (min)	Peak Area
Unknown	---	0.1	0.91	1619
F	29.9*	---	1.16	366871
P3	---	2.7	1.84	33677
AO	---	7.3	2.28	89296
Unknown	---	3.7	2.50	46076
A2	56.8*	---	3.72	693173

Total Area: 1,230,712

F Concentration = 29.9* %
A2 Concentration = 56.8* %

*Values outside of expected ranges

Analysis comments:



Interpret graph and give likely diagnosis

(1) Beta thalassemia homozygous
(2) Compound heterozygous Hb E-beta thalassemia
(3) Delta-beta thalassemia
(4) Hetero/homozygous Estate.
(5) Question not attempted

19. All of the following drug's act by inducing fetal hemoglobin in thalassemia syndromes except

(1) Luspatercept
(2) Decitabine
(3) Sodium phenylbutyrate
(4) Hydroxycarbamide
(5) Question not attempted

20. A 22-year-old female with anorexia nervosa presented with mild pancytopenia. You are suspecting vitamin B12 deficiency. Which of the following is not a route to administer vitamin B12 to her ?

(1) Oral
(2) Intravenous
(3) Intramuscular
(4) Subcutaneous
(5) Question not attempted

21. Mutations of matriptase-2 gene causes :

(1) Congenital erythropoietic porphyria
(2) Iron refractory iron deficiency anemia
(3) Thiamine responsive megaloblastic anemia
(4) Hepcidin deficiency
(5) Question not attempted

22. 26-year-old female with anemia, splenomegaly and intermittent jaundice. O/E icterus+, pallor+, spleen reaching the umbilicus. Multiple values of Hb between 8-9g/dL had been reported with a MCV of 65.8fL, corrected reticulocyte count-5.2%. Total bilirubin was 7.0mg/dL and the indirect bilirubin was 6.6mg/dL. H/O two PRBC transfusions Which of the listed options cannot account for her symptoms ?

(1) β^+/β^+
(2) β^+/β with a-triplication
(3) β^+/β^E
(4) β/β^E with iron deficiency
(5) Question not attempted

23. Which of the following is used in management of sideroblastic anemia ?
(1) Vitamin B1
(2) Vitamin B12
(3) Pyridoxine
(4) Iron
(5) Question not attempted

24. A neonate born at 28 weeks gestation is found to have hemoglobin of 8 gm/dL, with normal WBC and platelet count. He has history of NICU stay for 30 days after birth. The most likely mechanism for his low hemoglobin is
(1) Increased blood loss due to sampling
(2) Hemolysis due to G6PD/membranopathies
(3) Decreased red cell production due to low erythropoietin
(4) Shorter RBC life span
(5) Question not attempted

25. A 3-year-old boy presented to pediatric emergency with reddish urine and weakness. He gives history of common cold, treated with some over the counter medicines. Which of the following disorder is unlikely in him ?
(1) G6PD deficiency
(2) Hereditary spherocytosis
(3) Paroxysmal nocturnal hemoglobinuria
(4) Autoimmune hemolytic anemia
(5) Question not attempted

26. A 17-year-old boy presented with fatigue, dyspnea on exertion for 3 months. The patient's CBC showed a haemoglobin of 8.0 g/dL with a total leucocyte count of 5.0 × $10^3/\mu L$, differential count of Neutrophils 50%, Lymphocytes 45%, Monocytes 5% and platelet count of 150 × $10^3/\mu L$. Hyper segmented neutrophils were seen, MCV was 122 fL and reticulocyte count was 1.5%. There is family history of hereditary spherocytosis in father who underwent splenectomy at age of 24 years. Which of the following statements regarding this case is correct ?
(1) The LDH value is likely to be normal.
(2) The elevated MCV is likely due to reticulocytosis.
(3) A bone marrow examination is mandatory for the diagnosis.
(4) The patient is likely to have elevated serum Methylmalonic acid and homocysteine levels.
(5) Question not attempted

27. A 47-year-old Woman with dermatitis herpetiformis is being treated with dapsone. She presents to Emergency having noted that her lips and fingers blue. She has tachycardia but blood pressure is normal. Oxygen saturation measured by pulse oximetry is found to be 85% and confirmed on ABG Oxyhemoglobin of 77% and 20% Methaemoglobin. What is immediate action ?
(1) Admission to intensive care ward and administration of oxygen
(2) Exchange transfusion
(3) Intravenous methylene blue
(4) Testing for glucose-6-phosphate dehydrogenase (G6PD) deficiency before deciding on further management
(5) Question not attempted

28. Auto Immune Hemolytic Anemia (AIHA) : identify the true statement.
(1) All auto-immune hemolytic anemias have strong direct Coombs test positivity.
(2) Warm AIHA usually has strong direct Coombs test positivity, except when prozone phenomenon or rarely with low antibody levels or other types of antibodies.
(3) Warm AIHA always has strong direct Coombs test positivity due auto-antibodies which are of IgG subtype.
(4) Cold and mixed AIHA have strong direct Coombs test positivity.
(5) Question not attempted

29. Which is the correct statement about Evan's syndrome ?
(1) Bortezomib is second line therapy.
(2) Splenectomy is effective therapy with established role.
(3) Co-existence of DAT positive AIHA with ITP.
(4) Majority of patients have low immunoglobulins or lympho-proliferative disorders.
(5) Question not attempted

30. Which drug is used in the management of pyruvate kinase deficiency ?
(1) Thalidomide
(2) Hydroxyurea
(3) Mitapivat
(4) Luspatercept
(5) Question not attempted

31. A 7-year-old child presented with anemia requiring transfusion and short stature. Picture enclosed. What is most likely to be present in his investigation ?

(1) Increased chromosomal fragility
(2) Monopoly 7 and 5
(3) High HbF, 90 percent
(4) Erythroblastopenia
(5) Question not attempted

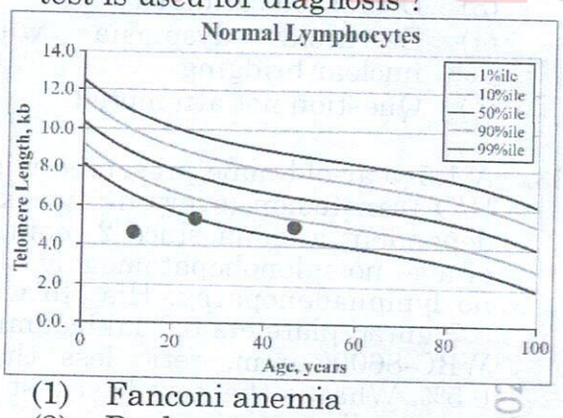
32. A one year of female presented with h/o anemia requiring regular blood transfusion (every 4-5 weeks) for one month of age, no organomegaly or dysmorphic features Her Hb was 3.5 gm%, platelets-4.2 lakh/cumm, WBC-7880/cumm, reticulocytopenia. Her bone marrow is likely to show
(1) Erythroblastopenia
(2) Erythroid hyperplasia
(3) Decreased cellularity
(4) Erythroid dysplasia with nuclear bridging
(5) Question not attempted

33. A 1.5-year-old male presented with H/O transfusion (every 4-5 weeks) dependent anemia since 2 months of age, no splenohepatomegaly and no lymphadenopathy. His Hb was 5.7 gm%, platelets-6.0 lakh/cumm, WBC-8600/cumm, retic less than 0.5%. What is the next best test to suggest diagnosis ?
(1) Bone marrow
(2) Hb HPLC, Osmotic fragility
(3) Karyotyping
(4) NGS for RBC disorders
(5) Question not attempted

34. A 63 yr old male is diagnosed as a case of severe aplastic anemia (pancytopenia with BM Biopsy cellularity of <5% and normal karyotype). His NGS panel shows BCOR variant with a VAF of 5.3% and DNMT3A mutation detected below the lower limit of standard reporting (<2%). What is true about MDS versus AA diagnosis in this patient?
(1) Makes a diagnosis of MDS more likely.
(2) Seen in almost similar frequency in MDS and AA.
(3) Individually they are linked to poor outcomes in AA.
(4) Their clonal burden doesn't increase over time.
(5) Question not attempted

35. One of the following marker is not useful in the diagnosis of Inherited Bone Marrow Failure Syndrome (IBMFS) -
(1) Isoamylase
(2) Trypsinogen
(3) eADA
(4) Calprotectin
(5) Question not attempted

36. Identify the condition where this test is used for diagnosis ?



(1) Fanconi anemia
(2) Dyskeratosis congenita
(3) Shwachman-Diamond syndrome
(4) Leukocyte adhesion defects
(5) Question not attempted

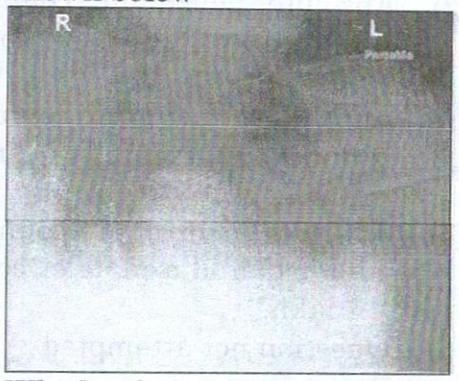
37. Zinsser-Engman-Cole syndrome, described in 1906 is associated with bone marrow failure. It is better known as
(1) Fanconi anemia
(2) Dyskeratosis congenita
(3) Shwachman-Diamond syndrome
(4) Diamond Blackfan Anemia
(5) Question not attempted

38. Which of the following medicines has been tried successfully for patients with aplastic anemia who have failed ATG therapy ?
(1) Cyclophosphamide
(2) Alemtuzumab
(3) Rituximab
(4) Erythropoietin and G CSF combination.
(5) Question not attempted

39. Triple drug therapy used as immunosuppressive therapy in aplastic anemia consists of
(1) Cyclosporine, eltrombopag, danazol
(2) Cyclosporine, danazol, ATG
(3) Danazol, eltrombopag, ATG
(4) Cyclosporine, eltrombopag, ATG
(5) Question not attempted

40. A 42-year-old male was given anti-thymocyte globulin for his severe aplastic anemia. On day 27 of ATG, he presented with reddish leg lesions and fever. What is the likely diagnosis ?
(1) Gram negative sepsis
(2) Persistent bone marrow aplasia
(3) Serum sickness
(4) Fungal infection
(5) Question not attempted

41. A 30-year-old male patient was recently diagnosed as acute promyelocytic leukemia and started on therapy. On day 5 of his therapy, he developed fever with breathlessness. Chest skiagram is shown below



Which of the following therapy is most appropriate for him ?
(1) Diuretics
(2) Voriconazole/amphotericin
(3) Dexamethasone
(4) Meropenem
(5) Question not attempted

42. Supportive care in Multiple myeloma is very important. Bone related events can be prevented by the use of bone protecting agents. Which of them is safe in patients with renal failure ?
(1) Zoledronic acid
(2) Pamidronic acid
(3) Denosumab
(4) Calcitonin
(5) Question not attempted

43. A 7-year-old male child is a follow up case of hereditary spherocytosis. He is presented to emergency with a history of fever for last 5 days and severe pancytopenia. Which of the following could be responsible in this scenario ?
(1) Cytomegalovirus
(2) HIV I/II
(3) Parvovirus
(4) Ebstein Barr Virus
(5) Question not attempted

44. A patient of Burkitt lymphoma is started on chemotherapy. He developed biochemical tumor lysis syndrome. Which is not correct ?
(1) It is an expected complication due to high grade tumor.
(2) It does not occur before starting chemotherapy.
(3) Can be prevented by hydration and prophylaxis with rasburicase.
(4) Sodium bicarbonate is usually required.
(5) Question not attempted

45. An effective anti mold prophylaxis is warranted if the incidence of fungal infection during treatment is more than
(1) 1-2% (2) 5-6%
(3) 10-12% (4) 25%
(5) Question not attempted

46. High hyper diploid karytype in patients with ALL is associated with increased intracellular accumulation of which of the following drugs ?
(1) Methotrexate
(2) L-Asparaginase
(3) Vincristine
(4) Daunorubicin
(5) Question not attempted

47. Which drug, causes differentiation syndrome in non APML AML induction chemotherapy ?
(1) Enasidenib
(2) Gemtuzumab Ozogamicin
(3) Midostaurin
(4) CPX351
(5) Question not attempted

48. Which of the following targeted therapies is associated with sinusoidal obstruction syndrome after stem cell transplant ?
(1) Blinatumomab
(2) Glofitamab
(3) Inotuzumab
(4) Polatuzumab
(5) Question not attempted

49. The correct ECG changes in hyperkalemia, please identify from below –
(1) Tall T waves
(2) Prolonged PR and peaked P waves
(3) Decreased QRS amplitude
(4) Short PR interval
(5) Question not attempted

50. Name 2 vaccines given 2 years after HSCT to patients
(1) MMR, Hepatitis A
(2) Meningococcal, PCV
(3) Varicella, MMR
(4) Rabies, Hepatitis B
(5) Question not attempted

51. Which of the following drug was recently FDA approved for chronic Graft-Versus-Host-Disease (cGVHD) that has failed two prior lines of systemic therapy ?
(1) Ruxolitinib (2) Belumodosil
(3) Axatilimab (4) Ibrutinib
(5) Question not attempted

52. A 3-year-old boy with lymphadenopathy is found to have B-lineage Acute Lymphoblastic Leukemia (ALL). He has correction of a congenital cardiac defect, has Down's syndrome phenotype but has otherwise been well. What is correct regarding his therapy ?
(1) Allogeneic transplantation in first remission
(2) High intensity treatment
(3) Reduced intensity treatment
(4) Risk stratification with intensity of treatment determined by risk group
(5) Question not attempted

53. Engraftment after HSCT is defined as :
(1) Absolute neutrophil count > 500/mcl and a platelet count > 20,000/mcl.
(2) Absolute neutrophil count > 1000/mcl and a platelet count > 50,000/mcl.
(3) Absolute neutrophil count > 500/mcl and a platelet count > 50,000/mcl.
(4) Absolute neutrophil count > 1500/mcl and a platelet count > 1 lakh.
(5) Question not attempted

54. In the therapy of CMV disease which agent is not used ?
(1) Valganciclovir
(2) Foscarnet
(3) Letermovir
(4) CMV immune globulin
(5) Question not attempted

55. A 30 year old male, post hapto transplant, presented with hematuria on Day 36 of HSCT. You are suspecting BK virus injection. BK virus therapy involves several actions. Which action is false ?
(1) Use cidofovir or Leflunomide
(2) Reduce immunosuppression
(3) Give bladder irrigation
(4) Give ganciclovir
(5) Question not attempted

56. A 27-year-old male patient of aplastic anemia underwent HLA matched sibling transplant with Bu Flu conditioning, with his sister as donor. On day +20 of transplant, he developed 4 episodes of loose stools with vomiting. The urgent investigation for him should be
(1) Endoscopy and rectal biopsy
(2) Blood and urine culture
(3) CMV PCR
(4) Do stool investigations
(5) Question not attempted

57. Transplantation-associated thrombotic microangiopathy (TA-TMA) is an important complication of allogeneic hematopoietic cell transplantation (HCT). Which of the following is false about TA-TMA ?
(1) Manifest as intravascular hemolysis with renal and/or neurologic dysfunction.
(2) High mortality as compared to control population.
(3) Early treatment with plasmapheresis is effective therapy.
(4) Risk factors are unrelated donor, myeloablative conditioning, and prior kidney dysfunction.
(5) Question not attempted

58. Glucocorticoid-refractory acute Graft-Versus-Host Disease (GVHD) after allogeneic hematopoietic cell transplantation has been traditionally difficult to treat and is life-threatening. Which of the following drugs has been recently approved for use in this complication ?
(1) Rituximab (2) Ibrutinib
(3) Ruxolitinib (4) Sirolimus
(5) Question not attempted

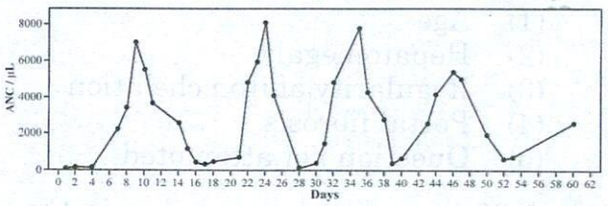
59. A 62-year-old male is diagnosed with multiple myeloma and treated with bortezomib, lenalidomide and dexamethasone-based regimen. After 3 cycles of therapy, he is planned for autologous stem cell transplant. Which of the following will be relative contraindication to the transplant ?
(1) Renal failure and creatinine of 2.5 mg/dl
(2) Persistent lytic lesion on CT
(3) M band of 0.5 g/dl on protein electrophoresis.
(4) Bone marrow plasma cells of 20%.
(5) Question not attempted

60. All of the following parameters are included in Lucarelli risk classification before bone marrow transplant in patients with thalassemia major except
(1) Age
(2) Hepatomegaly
(3) Regularity of iron chelation
(4) Portal fibrosis
(5) Question not attempted

61. A 26-year-old man was seen in the clinic for lethargy, dyspnoea and light headedness. CBC revealed : RBC count 5.0 × 1012/L, Hb 16.5g/dl, TLC 60,000/cumm, Platelets 70,000/cumm. DLC - shift to left with 40% eosinophils. Bone marrow revealed 10% blasts. Philadelphia chromosome negative.
Which of the following can be associated with this patient and treated with imatinib ?
(1) PDGFR beta (2) PCM1-JAK2
(3) FGFR (4) ASXL1
(5) Question not attempted

62. A 22-year-old male, c/o relapsed AML, underwent haploSCT. He complained of watery diarrhea up to 12 episodes daily on D+30. He is already on medicine A and B for prophylaxis. He was prescribed medicine C and after a few days with medicine D, after no response to medicine C. Find the correct combination from the following
(1) A = tacrolimus, B= Methotrexate, C= Methyl prednisone, D- Ruxolitinib
(2) A= tacrolimus, B= Methotrexate, C= Methyl prednisone, D= Mycophenolate
(3) A= tacrolimus, B= Mycophenolate, C= Methyl prednisone, D= Ruxolitinib
(4) A= tacrolimus, B= Mycophenolate, C= Methyl prednisone, D= Methotrexate
(5) Question not attempted

63. The following graph shows the neutrophil pattern of a child. Identify the gene involved in this



(1) CSF3R (2) ELANE
(3) HAX1 (4) GF11
(5) Question not attempted

64. A male infant develops autoimmune thrombocytopenia at the age of 7 months. Subsequently he develops severe neutropenia and a positive DCT with reticulocytosis. His immunoglobulins levels were decreased and there is history of multiple infections.

(1) Autoimmune lymphoproliferative syndrome
(2) Common variable immunodeficiency
(3) Evans syndrome
(4) Severe combined immune deficiency
(5) Question not attempted

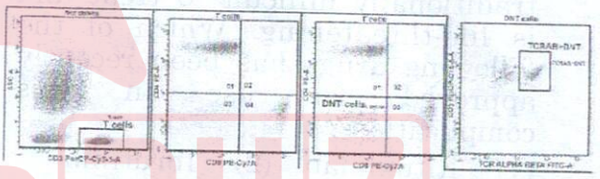
65. Identify the incorrect statement regarding T-Large Granular Lymphocytic leukemia (T-LGL)

(1) Patients of T-LGL have persistent large granular lymphocytosis usually to 2-20 × 10^9/L.
(2) More than 75% of the patients have mutations in STAT3 gene.
(3) Cases with STAT5B mutations have a more aggressive course.
(4) There is a frequent reduction in intensity or loss of CD5 in T-LGL.
(5) Question not attempted

66. Secondary HLH therapy differs from primary HLH. Identify the true statement about secondary HLH –

(1) No genetic basis to secondary HLH
(2) No need for etoposide or rarely cyclosporine in secondary HLH
(3) Secondary HLH also has an underlying genetic basis
(4) Recurrence of episodes is unusual in secondary HLH
(5) Question not attempted

67. Identify the diagnosis from the images below in a patient with lymphadenopathy, splenomegaly and warm-type AIHA.



(1) Autoimmune lymphoproliferative syndrome
(2) T- large granular leukemia
(3) Kikuchi disease
(4) NK cell leukemia
(5) Question not attempted

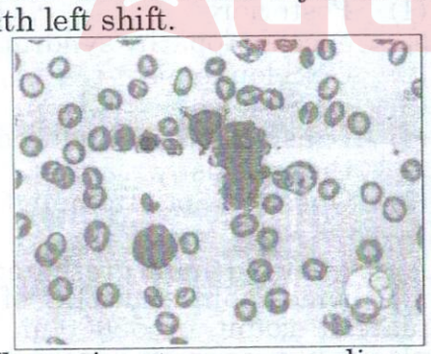
68. In systemic mastocytosis, what is an effective recommended therapy option?

(1) Midostaurin
(2) Venetoclax
(3) Gilteritinib
(4) Azacytadine
(5) Question not attempted

69. Diagnosis of hemophagocytic syndrome contains which of the following criteria ?
(1) Cytopenia affecting all 3 lineages.
(2) Hypofibrinogenemia </=1.0g/dl.
(3) Ferritin >/= 500 ug/dl.
(4) Hemophagocytosis in marrow is must.
(5) Question not attempted

70. In patients with Chronic Lymphocytic Leukemia (CLL)
(1) Commonest leukemia in Indian patients. Pathogenesis is a two step process.
(2) First step is development of clonal monoclonal B cell Lymphocytosis (MBL).
(3) Second step is progression of MBL to CLL.
(4) Patients with 11 q require additional attention for therapy.
(5) Question not attempted

71. A 2-month-old infant with Down's phenotype presented with mild anemia, skin lesions and mild splenomegaly. His peripheral smear shows some myeloid blasts with left shift.



What is true regarding her condition ?
(1) Self resolves in majority of patients
(2) Chemotherapy is needed almost always
(3) Evolve to acute Promyelocytic leukemia in majority of cases
(4) Prognosis is poor
(5) Question not attempted

72. A 9-year-old boy was diagnosed with precursor B ALL and started on BFM 2002 protocol. He had hyperdiploidy and presenting TLC was 5000 only. However, end of induction MRD was reported as positive. He was shifted to high-risk protocol, but end of consolidation MRD was also positive. Best therapy to achieve MRD negativity at end of consolidation in ALL is
(1) Intensive chemotherapy
(2) Blinatumomab
(3) Inotuzumab
(4) Stem cell transplant urgently
(5) Question not attempted

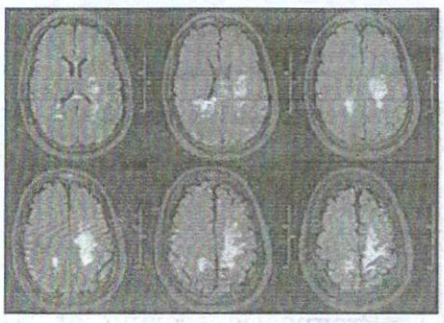
73. ETP ALL : Which is the incorrect statement ?
(1) Distinct subtype of T- ALL
(2) Has immature T cells with some stem cell and myeloid features
(3) Nelarabine is the most effective in therapy
(4) Poor prognosis and high risk of relapse.
(5) Question not attempted

74. Hasenclever criteria is used for :
(1) Visual interpretation of PET-CT
(2) Histological grading of Hodgkin lymphoma
(3) Prognostic scoring of HL by clinical markers
(4) Prognostic scoring of HL by both clinical, laboratory markers
(5) Question not attempted

75. Identify the correct statement about Obinotuzumab,
(1) Approved for Front line for follicular lymphoma only.
(2) Approved for Front line and relapsed FL and CLL.
(3) Less risk of Progressive multifocal leuko-encephalopathy and toxicity compared to rituximab, no infusional reactions.
(4) Targets type I and II CD20 antibodies.
(5) Question not attempted

76. Leucovorin is used to decrease and prevent toxicity of which of the following drugs ?
(1) Cyclophosphamide
(2) Methotrexate
(3) Busulphan
(4) 6 MP and 6 TG
(5) Question not attempted

77. A 54-yr old woman who has received chemoimmunotherapy for diffuse large B cell lymphoma 4 years back, presented to OPD with gradual onset cognitive, impairment dysphasia and dyspraxia. Her MRI Brain is shown here.



The most likely causation is
(1) CNS relapse of DLBCL
(2) Secondary malignancy
(3) JC virus infection
(4) Tuberculosis
(5) Question not attempted

78. A 29 year old female was diagnosed with mediastinal B cell lymphoma. Which of the following regimen has provided better results in this patient ?
(1) R CHOP
(2) R DA EPOCH
(3) Hyper CVAD with R
(4) Magrath regimen with R
(5) Question not attempted

79. Chimeric antigen receptor (CAR)-T cell therapy has revolutionized the management of relapsed refractory ALL and non-Hodgkin Lymphoma. The most common antigen against which CAR-T (besides CD 19) is directed is
(1) CD 10 (2) CD 20
(3) CD 22 (4) CD 79
(5) Question not attempted

80. A 4-year-old male child is diagnosed as precursor B-ALL. His presenting TLC was 90,000/ul, was started on four-drug induction therapy but had a traumatic lumbar puncture and acute hypertension. He developed a seizure episode and altered sensorium that lasted for around 20 minutes, and he recovered after that. The most likely diagnosis for his CNS symptoms is
(1) Posterior reversible encephalopathy syndrome
(2) CNS leukemia
(3) CNS bleed
(4) L asparaginase-induced CNS thrombosis
(5) Question not attempted

81. A 24-year-old man presented with low hemoglobin and TLC of 7500, platelet count of 55000/ul and a plaque like lesion on upper chest. He was diagnosed as blastic plasmacytoid dendritic cell neoplasm. Which of the following targeted therapy is currently approved for his therapy ?
(1) CD20-directed cytotoxin
(2) CD33 -directed cytotoxin
(3) CD123 -directed cytotoxin
(4) CD38-directed cytotoxin
(5) Question not attempted

82. An elderly gentleman diagnosed with AL amyloidosis and screening coagulogram is showing PT-20 12), APTT-48 (35), TT-18 (19). What is the most likely explanation for this coagulation abnormality ?
(1) Factor X deficiency
(2) Combined Factor V and VII deficiency
(3) Prothrombin deficiency
(4) Factor VIII deficiency
(5) Question not attempted

83. The guidelines for multiple myeloma are changing . What is the recommended upfront therapy for transplant ineligible patients who are otherwise fit and have no major comorbidities ?
(1) Triplet VRD
(2) Quadruplet with Dara VRd
(3) Dara Rd
(4) VMP
(5) Question not attempted

84. Prior to administering zoledronic acid in patients with multiple myeloma – what is most important ?
(1) Give vitamin D supplement
(2) Check calcium level
(3) Contra-indicated even in mild renal dysfunction
(4) May lead to increased fractures in bed ridden patients
(5) Question not attempted

85. Monoclonal antibodies have revolutionized the management of multiple myeloma. Which of them acts by activation of NK cells against myeloma ?
(1) Daratumumab
(2) Elotuzumab
(3) Tabalumab
(4) Indatuximab
(5) Question not attempted

86. In a patient with low risk MDS on injection erythropoietin what is an important clinical parameter for efficacy and safety ?
(1) Follow renal function and liver dysfunction and modify doses.
(2) If hemoglobin is above 10 g/dl give thrombo-prophylaxis.
(3) If concomitant iron deficiency give iron supplementation.
(4) Check for hypotension and cardiac dysfunction.
(5) Question not attempted

87. Which of the following scoring system is used for prognostication in myelofibrosis ?
(1) MIPI (2) MIPSS
(3) RISS (4) CPSS
(5) Question not attempted

88. A 60-year-old male is suspected to be having myeloproliferative neoplasm. He is having leukocytosis (23000), Plt (5.5 L) and Hb (16). His bone marrow is showing normal to reduced myeloid-erythroid ratio. What is the diagnosis ?
(1) Polycythemia Vera (PV)
(2) Essential Thrombocytosis (ET)
(3) Myelofibrosis (MF)
(4) Myelo-Dysplastic Syndrome (MDS)
(5) Question not attempted

89. A 59-year-old male presented with gum bleed and melena and generalized anasarca. On examination, he was pale, Hb- 90 g/L, WBC and platelet were normal. He had grade 4 proteinuria. Which antibiotic of common use is effective in this disease entity ?
(1) Erythromycin
(2) Cefixime
(3) Levofloxacin
(4) Doxycycline
(5) Question not attempted

90. A patient presented with fatigue and has required 3 packed red cell transfusions in the last 3 months. Examination reveals pallor and mid splenomegaly. Complete blood counts show hemoglobin of 8.0 g/dl total leucocyte count of $4.7 \times 0^3/\mu L$ and a platelet count of $560 \times 10^3/\mu L$. Bone marrow revealed megaloblastic erythroid hyperplasia with dyserthropoiesis. Megakaryocytes were increased but showed normal nuclear lobation. Perl's stain showed 12% ring sideroblasts. Which of the following statements will best fit in with clinical scenario and information provided ?

(1) The patient has MDS/MPN with SF3B1 mutation and thrombocytosis provided SF3B1 mutation is positive.
(2) The patient will be classified as MDS-LB if SF3B1 mutation is negative.
(3) The patient has MDS-low blasts with isolated del(5q).
(4) The patient only has reactive changes.
(5) Question not attempted

91. Oral drug danicopan (Voydeya) is used to treat extravascular hemolysis in adults with Paroxysmal Nocturnal Hemoglobinuria (PNH). It acts by inhibiting.

(1) Complement 5
(2) Complement 3
(3) Factor B
(4) Factor D
(5) Question not attempted

92. Polycythemia Vera (PV) patients may become irresponsive to phlebotomy and Hydroxyurea therapy. What are approved second line treatments ?

(1) Peg Interferon alpha, ruxolitinib
(2) Ruxolitinib, azalytidine
(3) Rusfertide, givinostat, imetelstat
(4) Peg Interferon alpha, ruxolitinib, Rusfertide,
(5) Question not attempted

93. A 22/M presents with fragmentation hemolysis, Hypertension AKI and thrombocytopenia of 40,000/cumm. ADAMTS 13 is found to be 55%. aHUS is suspected (a typical hemolysic uremic syndrome).
Ideally, how will you treat this patient?

(1) Rituximab and Steroids
(2) Eculizumab
(3) Plasma exchange
(4) Dialysis and supportive care
(5) Question not attempted

94. PLASMIC score is useful in the diagnosis of:

(1) PNH
(2) TTP
(3) HUS
(4) Atypical HUS
(5) Question not attempted

95. The size of mutant clone in PNH is ideally determined by percentage of GPI- AP deficient :
X. RBC
Y. Polymorphonuclear cells (PMN)
Z. Monocytes
Options are

(1) X, Y (2) Y, Z
(3) X, Z (4) X, Y, Z
(5) Question not attempted

96. A 45-year-old man with PNH responds to eculizumab therapy but remains anemic with an Hb of 9.2 g/dl and an increased reticulocyte count and LDH.
The most likely explanation for this is :

(1) Eculizumab therapy is unmasking C3 binding to red cells.
(2) He has developed a warm autoimmune hemolytic anemia.
(3) He is becoming refractory to eculizumab.
(4) Immune complexes resulting from the development of antibodies to eculizumab are fixing complement.
(5) Question not attempted

97. A 25 yr. old healthy woman has delivered a baby who after birth is drowsy and found to be having an intracranial Bleed. The platelet count was found to be 18000/uL; Maternal platelet count of the mother is 1.8 lakh/ul. What is the likely diagnosis of neonate ?
(1) Neonatal alloimmune thrombocytopenia
(2) Neonatal immune thrombocytopenia
(3) Neonatal sepsis
(4) Inherited thrombocytopenia syndrome
(5) Question not attempted

98. Hemophilia B Leyden is characterized by
(1) Severe phenotype, with numerous target joints
(2) Mild phenotype
(3) Reduced severity after childhood
(4) High incidence of inhibitor formation
(5) Question not attempted

99. The role of r VIIa has been seen in several conditions. However the labelled approved indications are
(1) Trauma, haemophilia with inhibitors, Bernard Soullier Syndrome.
(2) Glanzmann's thrombasthenia, haemophilia with inhibitors and post partum haemorrhage.
(3) Glanzmann's thrombasthenia, haemophilia with inhibitors and liver failure
(4) Glanzmann's thrombasthenia, haemophilia with inhibitors and DIC.
(5) Question not attempted

100. What is a true statement about the TPO receptor agonists ?
(1) Avathrombopag should be taken empty stomack.
(2) TPO-RA are approved in ITP and pregnancy.
(3) Prolonged use has been associated with bone marrow fibrosis.
(4) TPO levels strongly predict response.
(5) Question not attempted

101. Miss Y is a 24-year-old female and sister of a Hemophilia A patient Mr P. She visits the OPD to check her carrier status. Choose the correct statement for diagnosing carrier status
(1) Not needed, she is an obligate carrier
(2) Check APTT and factor VIII assay
(3) Do mutational analysis in both Mr P and Miss Y.
(4) In the absence of significant bleeding history and normal APTT, she will not be carrier
(5) Question not attempted

102. A 14-year-old female presented with pubertal menorrhagia. Her APTT is prolonged and you suspect Von Willebrand disease. Desmopressin is prescribed during heavy bleeding for her. Desmopressin is effective in all forms of vWD except
(a) Type-1 (b) Type 2A
(c) Type 2B (d) Type 3
Options :
(1) (a) (2) (c) & (d)
(3) (a) & (c) (4) (b) & (d)
(5) Question not attempted

103. Which inheritance patterns are correctly provided in the below list ?
(1) X-linked recessivet Hemophilia A and B; Bernard Soulier and Von Willebrand disease autosomal dominant.
(2) Von Willebrand type 3 autosomal recessive, haemophilia A x linked recessive
(3) Factor xiii and Bernard Soulier autosomal recessive disorders , VWD type 2 N autosomal dominant
(4) X-linked recessive Hemophilia A, B, C
(5) Question not attempted

104. 35-year-old female was screened for menorrhagia since menarche. She reported no other bleeding sites and had one normal delivery without any post-partum hemorrhage. All local causes of increased bleeding were excluded. Her PT was 12" (11-15), APTT was 32" (30-35) and TT was 16" (16-19). Which of the following diseases will you not screen for in this lady ?
(1) Von Willebrand's disease
(2) Factor XIII deficiency
(3) Platelet function defect
(4) Afibrinogenemia
(5) Question not attempted

105. A 12-year-old male with Hemophilia B was on irregular prophylaxis with factor IX concentrate. He developed inhibitors, with Bethesda titre of 12 BU. Which of the following should not be used on him ?
(1) Factor 7
(2) FEIBA/APCC
(3) Fitusiran
(4) Concizumab
(5) Question not attempted

106. A 31 year old antepartum female on a therapeutic dose of Low Molecular Weight Heparin (LMWH) for APLA syndrome and prior DVT of her lower limb. Which of the following can be given to her as an oral anticoagulant ?
(1) Warfarin
(2) Rivaroxaban
(3) Dabigatran
(4) None of these
(5) Question not attempted

107. A 25 yr old healthy woman has delivered a baby who after birth is drowsy and found to be having an IC Bleed. The platelet count, PT, APTT of the newborn were normal What is the likely diagnosis ?
(1) Hemophilia A or B
(2) Neonatal sepsis
(3) Neonatal autoimmune thrombocytopenia
(4) Factor 13 deficiency
(5) Question not attempted

108. A 77-year-old man with a past history of DVT and one episode of PE 5 years back. He is on long-term maintenance treatment with warfarin with his INT being kept between 2 and 3.5. He requires cataract surgery.
(1) Stop warfarin and resume several days postoperatively.
(2) Change to a therapeutic dose of low molecular weight heparin.
(3) Continue warfarin at the same dose as long as the INR is in the therapeutic range.
(4) Reduce warfarin to achieve an INR between 1.5 and 2.0.
(5) Question not attempted

109. Age/Sex : 35-year-old lady, with no Comorbidities is diagnosed with left lower limb thrombosis. She does not have any predisposing risk factors. Ideally, what should be minimum duration of her anticoagulant therapy if she develops menorrhagia on her anti-coagulant ?
(1) 1.5 months (2) 3 months
(3) 6 months (4) 12 months
(5) Question not attempted

110. Villalta scoring is used for
(1) Acute DVT.
(2) Chronic DVT.
(3) Acute pulmonary embolism.
(4) Atypical site thrombosis.
(5) Question not attempted

111. A 60 year old male was diagnosed with popliteal vein thrombosis with a platelet count of 60,000/mcl. What is not a likely etiology in him ?
(1) APLA syndrome
(2) PNH
(3) Acute promyelocytic leukemia
(4) Polycythemia vera
(5) Question not attempted

112. Which of the following antigen is/are absent in Bombay blood group ?
(1) A and Rh (2) B and Rh
(3) A and B (4) A, B, Rh
(5) Question not attempted

113. Which of the following should not be irradiated ?
(1) Stem cell apheresis product
(2) Granulocytes apheresis
(3) Packed RBCs
(4) Platelets concentrate/SDP
(5) Question not attempted

114. Leuco-depletion of blood products helps to decrease tranfusion reactions and risks of CMV transmission. What is the Gold standard of leuco-depletion ?
(1) Pre- storage leuco-depletion
(2) Pall filter
(3) Irradiation and pall filter
(4) Washed red blood cells and inline Pall filter
(5) Question not attempted

115. Hemovigilance programs are essential in blood banks, which is not a role of hemovigilance ?
(1) Monitors donor safety and product safety.
(2) Centralized program monitors adverse reactions to blood safety.
(3) Increase voluntary blood donations.
(4) Identify trends in adverse reactions.
(5) Question not attempted

116. Transfusion-related acute lung injury (TRALI) is a potentially fatal complication of transfusion characterized by rapid-onset non-cardiogenic pulmonary edema. The risk is maximum with which blood components transfusion?
(1) Packed RBC
(2) SDP or RDP
(3) Plasma
(4) Whole blood
(5) Question not attempted

117. CAR T have revolutionized therapy for relapsed malignancy. But, due to multiple factors, they are associated with second primary malignancy. Most common malignancy after CAR T therapy is
(1) Skin cancers
(2) Myelodysplastic syndromes/neoplasms,
(3) T cell lymphoma,
(4) Genito urinary malignancy
(5) Question not attempted

118. Most common conditioning regimen used prior to CAR-T therapy.
(1) Bu Cy (2) Flu Cy
(3) Bu Flu (4) Flu Mel
(5) Question not attempted

119. A 28-year-old patient has a history of three recurrent abortions at 3 weeks, 4 weeks and 8 weeks of gestation. All of the following hematological disorders can cause these clinical features except :
(1) Afibrinogenemia
(2) Factor XI deficiency
(3) Antiphospholipid syndrome
(4) Factor XIII deficiency
(5) Question not attempted

120. A 29 year old female, who is having 29 weeks period of gestation, presented with mild thrombocytopenia (70000/mcl), without hypertension. There is no prior history of bleeding (no blood tests available) or major drug intake. What is the likely diagnosis
(1) Immune thrombocytopenia
(2) Heparin induced thrombocytopenia
(3) Disseminated intravascular coagulation
(4) Gestational thrombocytopenia
(5) Question not attempted

121. Management of pregnancy and ITP. Identify the correct statement.
(1) All ITP medications can be used.
(2) High doses of steroids are safe and effective. Rituximab is second option.
(3) IVIG and low dose steroids or azathioprine are safe and effective.
(4) TPO-RA are approved.
(5) Question not attempted

122. What is the primary purpose of critical appraisal ?
(1) To assess the validity and reliability of a research study.
(2) To identify potential biases in a study.
(3) To replicate the findings of a study in a different setting.
(4) To find flaws and discredit a research article.
(5) Question not attempted

123. A 65-year-old woman with hereditary spherocytosis has Hb of 8.8 g/dl and reticulocytosis. She is suspected of having diabetes mellitus due to symptoms of unexplained weight loss and polyuria. Her haemoglobin A1c is therefore measured and is found to be 5%.
(1) The haemoglobin A1c is likely to be misleadingly reduced.
(2) Diabetes mellitus is very unlikely.
(3) Hereditary spherocytosis will interfere with the accuracy of the assay.
(4) The haemoglobin A1c is likely to be misleadingly elevated.
(5) Question not attempted

124. A 9-year-old child of aplastic anemia with phenotypic abnormalities of Fanconi anemia is brought for your opinion. His Hb is 5 g/dl, TLC – 300, and Plt 12000. You order chromosomal breakage analysis on his peripheral blood, but the report turns out to be negative. The next appropriate step is performing
(1) Chromosomal breakage analysis on skin/buccal swab fibroblasts
(2) Flow cytometry on lymphocytes
(3) Immunoblotting
(4) Mutation analysis by NGS
(5) Question not attempted

125. Which of the following is essential before you send sample for chromosomal fragility testing in a patient suspected of Fanconi anemia ?
(1) No transfusion in last 2-3 weeks.
(2) Transfusion with leucodepleted blood products in last 2-3 weeks.
(3) Transfusion with irradiated blood products in last 2-3 weeks.
(4) Transfusion with leucodepleted and irradiated blood products in last 2-3 weeks.
(5) Question not attempted

126. Westgard rules used for quality control monitoring in Hematology lab include all except
(1) 1_{3S}
(2) 2_{2S}
(3) 4_{4S}
(4) 4_{1S}
(5) Question not attempted

127. Pick the wrong combination amongst the following :
(1) Phase 1 clinical trials concerned with safety.
(2) Phase 2 clinical trials concerned with efficacy.
(3) Phase 3 clinical trials concerned with placebo.
(4) Phase 4 clinical trials concerned with comparison with standard of care.
(5) Question not attempted

128. With regards to research ethics, if the research results not generated from the study, this is termed as
(1) Fabrication
(2) Falsification
(3) Conflict of interest
(4) Plagiarism
(5) Question not attempted

129. For a research hypothesis 'high risk mutation led to inferior survival in acute myeloid leukemia'. Which of the following analytical techniques is best suited:
(1) Univariate analysis
(2) Logistic regression model
(3) Chi square analysis
(4) Forest plot
(5) Question not attempted

130. The highest level of evidence currently available is a systematic review and meta-analysis. These are best available from
(1) Google search
(2) Pubmed search
(3) Cochrane library
(4) National Medical Library
(5) Question not attempted

131. A 7-month-old child presented with a history of anemia since age of 5 months, on a Saturday evening. He has mild splenomegaly and Hb of 3.5 g%. You are suspecting hemoglobinopathy and plan for packed RBC transfusion. What should be done regarding his management?
(1) Transfuse immediately and sample for HPLC on next working day.
(2) Transfuse immediately after preserving sample for HPLC.
(3) Transfusion and sample for HPLC on next working day.
(4) Transfuse immediately and sample for HPLC from parents.
(5) Question not attempted

132. Clinical TLS includes all of the following, except :
(1) Renal failure
(2) Seizures
(3) Arrhythmias
(4) Respiratory failure
(5) Question not attempted

133. A 30-year-old male presented to the emergency department with bleeding from nose and skin was diagnosed as high risk APML. He should be started on differentiation agents after which report ?
(1) Peripheral smear
(2) PCR for PML RAR alpha
(3) Bone marrow aspiration
(4) Flow cytometry
(5) Question not attempted

134. A 54-year-old gentleman on therapy for DVT with warfarin PT/INR 4 presents with malena. Reversal of life threatening bleeding associated with warfarin is best done with a
(1) Recombinant factor VIIa
(2) Vitamin K
(3) FFP or cryoprecipitate
(4) 4 factor Prothrombin complex concentrates
(5) Question not attempted

135. Identify the incorrect statement associated with central line tunnel infection :
(1) Soft tissue infection along subcutaneous tunnel.
(2) Localized to exit site where catheter exits the skin.
(3) Associated with pain tenderness and induration along subcutaneous track.
(4) Potential for systemic infection and biofilm formation.
(5) Question not attempted

136. A 38-year-old female is diagnosed as T-acute lymphoblastic leukemia. Her present TLC is 4,75,000 ul/L, Hb is 6.3 g/dl and platelets are 25000/ul. Her creatinine is 1.6 mg/dl and bilirubin are 5.8 mg/dl. Which of the following can be safely started for her at admission ?
(1) Intrathecal methotrexate and CSF analysis
(2) Cytoreduction and starting 4 drugs induction regimen
(3) Prephase steroids
(4) Packed RBC transfusions
(5) Question not attempted

137. Which of the following are associated with extravasation injury ?
I. Cytarabine
II. Vincristine
III. Daunorubicin
IV. Methotrexate
Options are
(1) I, II (2) II, III
(3) III, IV (4) I, IV
(5) Question not attempted

138. A 62-year-old female present with low back ache and paleness of body for last 3 months. She is having periorbital edema and altered sensorium. She was diagnosed as multiple myeloma. She has a Hb of 7 g/dl, creatinine of 3.8 mg/dl and total calcium of 15 mg/dl. Which of the following may not be needed in her emergency management ?
(1) Hydration and diuresis
(2) Early institution of therapy (VCD based)
(3) Zoledronic acid and calcitonin
(4) Hemodialysis
(5) Question not attempted

139. 52-year-old male k/c/o DM/CKD, creatinine of 2.3 mg/dL was diagnosed with AML. He received induction chemotherapy f/b Consolidation with Cytarabine 3 g/m^2. On day 5, c/o giddiness and unsteadiness. Which of the following clinical examinations would be appropriate ?
(1) Postural BP measurement
(2) Dix Hallpike maneuver
(3) Examination for nystagmus, speech, finger nose test, walking on a straight line, heel knee test
(4) Pulse examination and cardiac auscultation for arrhythmias
(5) Question not attempted

140. Which of the following is not separated by apheresis technique ?
(1) RBC
(2) Granulocyte
(3) Platelet
(4) Plasma
(5) Question not attempted

141. Which drug is used in high doses for CNS prophylaxis in high-grade lymphoma and over how many hours ?
(1) Cytarabine, 3 hours
(2) Methotrexate, 3 hours
(3) Cytarabine, 24 hours
(4) Methotrexate, 24 hours
(5) Question not attempted

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142. All are adverse effects of erythropoietin stimulating agents' therapy, except :
(1) Hypertension
(2) Thrombosis
(3) PRCA
(4) Osteopenia.
(5) Question not attempted

143. Which of the following hemoglobin does not contain alpha globulin chain ?
(1) Hb A2 (2) HbF
(3) HbA (4) Gower 1
(5) Question not attempted

144. Identify the incorrect statement regarding TPO
(1) Plasma concentration of TPO is directly proportional to the platelet count.
(2) TPO is constitutively synthesized in the liver.
(3) Its amino terminal is homologous to EPO.
(4) It binds to the MPL receptor.
(5) Question not attempted

145. A 28-year-old female presented with anemia, epistaxis. Her stool for occult blood is also positive. Her clinical photograph is provided here.

Which of the following is used in her treatment of bleeding disorder?
(1) Imatinib
(2) Thalidomide
(3) Ruxolitinib
(4) Rituximab
(5) Question not attempted

146. Basophilic stippling is found in many conditions, which selection of conditions is correct?
(1) Alpha Thalassemia and EBV infection.
(2) Megaloblastic anemia and iron deficiency.
(3) Lead poisoning and arsenic poisoning.
(4) Pyrimidine 5' nucleotide deficiency, liver disease, thalassemias.
(5) Question not attempted

147. Primary regulator of iron hemostasis in the body is Hepcidin. It controls iron transport via
(1) Hemojuvelin
(2) Ferroportin
(3) Transferrin
(4) Ferritin
(5) Question not attempted

148. Name two factor deficiencies that can be inherited together due to defect in Lectin Mannose Binding Protein 1 (LMAN1),
(1) factor II and VII deficiency
(2) factor V and VIII deficiency
(3) factor VIII and IX deficiency
(4) factor VII and X deficiency
(5) Question not attempted

149. Pneumococcal vaccine is available- identify the correct statement
(1) PPSV 23 should be given only.
(2) PCV13 is given first followed by PPSV 23.
(3) PPSV 23 is given first followed by PCV 13.
(4) Either can be given first- it does not affect antibody titers.
(5) Question not attempted

150. Where do progenitors for T cells originate ?
(1) Bone marrow
(2) Thymus
(3) Spleen
(4) Lymph node
(5) Question not attempted

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