BOARD OF INTERMEDIATE EDUCATION, KARACHI

Bakhtiari Youth Center, North Nazimabad, Karachi - 74700

BOARD OF INTERMEDIATE EDUCATION KARACHI

Model Question Papers
of Newly Printed Books of H.S.C Part-I & II For Examinations 2024 Onward

With Compliments From:

PROF. NASIM AHMED MEMON
Chairman

Board of Intermediate Education, Karachi

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BOARD OF INTERMEDIATE EDUCATION, KARACHI

MODEL QUESTION PAPERS OF NEWLY PRINTED BOOKS FOR THE HSC PART-I & II

ANNUAL EXAMINAITONS 2024-ONWARD

Sr. No.	Model Papers of Newly Published Books in 2024 XI & XII
1	Islamic Education (Compulsory)
2	Physics Paper-I
3	Urdu (Normal) Paper-II
4	Botany Paper-I (Revised)
5	Mathematics Paper-II
6	Mathematics Paper-I (Revised)
7	Chemistry Paper-II
8	Botany Paper-II
9	Zoology Paper-II

حصہ 'ب' (مختصر جواب کے سوالات)   (کل نشانات : ۲۰)

SECTION "B" (Short - Answer Questions)   (20 Marks)

نوٹ :- اس حصہ سے تمام سوالات کے جوابات تحریر کیجیے۔

Note: Answer all questions from this section.

مندرجہ ذیل قرآنی آیات واحادیث میں سے کسی تین کا اردو، سندھی یا انگریزی میں ترجمہ اور تشریح تحریر کیجیے :-   ۱۲

2. Translate and Explain any Three of the following Quranic verses and Hadiths in Urdu, Sindhi or English: 12

(i)   ٱلَّذِينَ يُؤْمِنُونَ بِٱلْغَيْبِ وَيُقِيمُونَ ٱلصَّلَوٰةَ وَمِمَّا رَزَقْنَٰهُمْ يُنفِقُونَ ۝

(ii)   فِى قُلُوبِهِم مَّرَضٌ فَزَادَهُمُ ٱللَّهُ مَرَضًا ۖ وَلَهُمْ عَذَابٌ أَلِيمٌۢ بِمَا كَانُوا۟ يَكْذِبُونَ ۝

(iii)   إِنَّمَا ٱلْمُؤْمِنُونَ ٱلَّذِينَ إِذَا ذُكِرَ ٱللَّهُ وَجِلَتْ قُلُوبُهُمْ وَإِذَا تُلِيَتْ عَلَيْهِمْ ءَايَٰتُهُۥ زَادَتْهُمْ إِيمَٰنًا وَعَلَىٰ رَبِّهِمْ يَتَوَكَّلُونَ ۝

(iv)   يَٰٓأَيُّهَا ٱلَّذِينَ ءَامَنُوٓا۟ إِذَا لَقِيتُمُ ٱلَّذِينَ كَفَرُوا۟ زَحْفًا فَلَا تُوَلُّوهُمُ ٱلْأَدْبَارَ ۝

(v)   اِنَّمَا الْاَعْمَالُ بِالنِّيَّاتِ، وَاِنَّمَا لِكُلِّ امْرِئٍ مَّا نَوٰى ۔

(vi)   مَنْ يُّرِدِ اللهُ بِهٖ خَيْرًا يُّفَقِّهْهُ فِى الدِّيْنِ، وَاِنَّمَا اَنَا قَاسِمٌ وَّاللهُ يُعْطِى ۔

مندرجہ ذیل میں سے کسی چار جزوی سوالات کے جوابات تحریر کیجیے۔ تمام سوالات کے نشانات مساوی ہیں۔   ۸

3. Answer any Four part questions from the following. All part questions carry equal marks.   8

(i)   چار مشہور فرشتوں کے نام اور ان کے فرائض تحریر کیجیے۔
(i)   Write down the names of any four famous angles and their duties.

(ii)   منافقین مومنوں کا کیوں مذاق اڑاتے تھے۔
(ii)   Why did the hypocrite make fun of Muslims?

(iii)   صلۂ رحمی کا مطلب تحریر کیجیے۔
(iii)   Write down the meaning of Sila-e-Rehmi.

(iv)   شرک کی اقسام تحریر کیجیے۔
(iv)   Write down the types of shirk (polytheism)

(v)   نبی اکرم خاتم النبیین صلی اللہ علیہ وسلم بچوں کے لئے کس طرح رحمت ہیں؟
(v)   How the Holy Prophet (Khatam-un-Nabien) P.B.U.H is Mercy for children?

(vi)   حج کے مناسک کی تعریف تحریر کیجیے۔
(vi)   Define Manasik (Rites) of Hajj.

(vii)   عدل کی اقسام تحریر کیجیے۔
(vii)   Write down the types of Justice.

(viii)   مصارف زکوٰۃ کی تعریف تحریر کیجیے۔
(viii)   Define Head of Disbursement of Zakat.

حصہ 'ج' (تفصیلی جواب کے سوالات)   (کل نشانات : ۲۰)

SECTION "C" (Detailed - Answer Questions)   (20 Marks)

نوٹ :- اس حصہ سے کسی دو سوالات کے جوابات تحریر کیجیے۔ تمام سوالات کے نشانات مساوی ہیں۔

Note: Answer any two questions from this section. All questions carry equal marks.

قرآن مجید کی حفاظت اور تدوین کے ادوار تحریر کیجیے۔

4.   Write down the portection of Holy Quran and its compilation periods.

عقیدہ توحید کی تعریف کیجیے قرآن وحدیث کی روشنی میں اس کی اہمیت بیان کیجیے نیز انسانی زندگی پر اس کے اثرات تحریر کیجیے۔

5.   Define 'Aqid-e-Tauheed'. Explain its importance in the light of Quran and Hadith also write its impacts on human life.

نماز یا روزہ کی تعریف بیان کیجیے قرآن وحدیث کی روشنی میں نماز یا روزہ کی اہمیت فرضیت اور فوائد تحریر کیجیے۔

6.   Define Namaz or Roza. Write down its importance and obligation in the light of Quran and Hadith and write down its benefits.

والدین کے حقوق و فرائض تحریر کیجیے۔

7.   Write down Rights and Duties of parents.

یا

مندرجہ ذیل اماموں میں سے کسی ایک امام کے حالات زندگی تحریر کیجیے۔

Write down the biography of any one Imam of the following:

(i) Hazrat Imam Jafar Sadiq R.A.   ۱- حضرت امام جعفر صادق رحمتہ اللہ علیہ
(ii) Hazrat Imam Malik R.A.   ۲- حضرت امام مالک رحمتہ اللہ علیہ
(iii) Hazrat Imam Shafaee R.A.   ۳- حضرت امام شافعی رحمتہ اللہ علیہ

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بورڈ آف انٹرمیڈیٹ ایجوکیشن، کراچی

وقت : ۱۵ منٹ

ماڈل پیپر اسلامی تعلیم (لازمی)

کل نشانات:۱۰

(تمام گروپس کے لئے)

حصہ الف (کثیرالانتخابی سوالات - M.C.Qs.)

(نشانات : ۱۰)

نوٹ : (i) اس حصہ میں ۱۰ جزوی سوالات ہیں ، تمام سوالات کے جوابات مطلوب ہیں اور ہر سوال کا نشان ایک ہے ۔

(ii) اس حصہ کے درست جوابات کو OMR شیٹ پر دیے گئے bubbles (A) (B) (C) (D) (۱ کو پُر کرنا ہے جو جوابات کی کاپی میں چپساں ہے ۔

(iii) سیاہ یا نیلے بال پوائنٹ پین یا پوائنٹر OMR شیٹ کو بھرنے کے لئے استعمال کیجیے ۔

(iv) white-o pen اور پینسل کا استعمال OMR شیٹ پر ممنوع ہے ۔

ا۔ مندرجہ ذیل میں سے ہر ایک کے لئے درست جواب منتخب کیجیے :۔

1) الفرقان معنی ہیں :

(A) خاص کتاب   (B) فرق کرنے والی   (C) وضاحت کرنے والی   (D) نازل کردہ

2) وحی تحریر کرنے والے صحابہ کرام رضی اللہ تعالیٰ عنہم کو کہتے ہیں :

(A) السابقن الاولون   (B) کاتبین وحی   (C) انصار   (D) مہاجرین

3) جنگ بدر میں مومنین کی مدد کے لئے وعدہ کیا گیا ہے :

(A) ایک ہزار فرشتوں کا   (B) دو ہزار فرشتوں کا   (C) پانچ ہزار فرشتوں کا   (D) دس ہزار فرشتوں کا

4) مشرکین نے دعا مانگی کہ ہم پر آسمان سے برسا :

(A) بارش   (B) پتھر   (C) ہوا   (D) طوفان

5) اصول اربعہ حدیث کی چار مستند کتابیں ہیں :

(A) فقہ جعفریہ کی   (B) فقہ حنفی کی   (C) فقہ مالکیہ کی   (D) فقہ شافعیہ کی

6) حدیث کی روشنی میں رزق کی کشادگی کے لئے ذریعہ بیان کیا گیا ہے :

(A) سچ بولنا   (B) صلہ رحمی کرنا   (C) بڑوں کا ادب کرنا   (D) بچوں پر شفقت کرنا

7) آخرت میں تمام انسانوں کو جس جگہ جمع کیا جائے گا اس کا نام ہے :

(A) عالم برزخ   (B) حشر کا میدان   (C) پل صراط   (D) قیامت

8) صاحب استطاعت لوگوں پر زندگی میں حج فرض ہے :

(A) ہر سال   (B) جب طاقت ہو   (C) ایک بار   (D) دوبار

9) اسلام کی پہلی اسلامی ریاست قائم ہوئی :

(A) مکہ مکرمہ میں   (B) مدینہ منورہ میں   (C) قبا میں   (D) طائف میں

10) حدیث کے مطابق مسلمان کے مسلمان پر حقوق میں سے ہے :

(A) اہمیت نہ دینا   (B) سلام کا جواب دینا   (C) لاتعلقی کرنا   (D) دوری کرنا

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BOARD OF INTERMEDIATE EDUCATION, KARACHI
INTERMEDIATE EXAMINATION, 2024 ONWARDS

Time: 2 hours 40 minutes   **PHYSICS PAPER – I MODEL QUESTION PAPER**   Max. Marks: 68

(Science Groups)

FROM NEW BOOK

SECTION 'B'
(SHORT-ANSWER QUESTIONS)   (36 Marks)

NOTE: Answer any **Nine** part questions from this section. All questions carry equal marks. Draw diagrams where necessary.

2.   i)   Define escape velocity and derive the expression for escape velocity on earth's surface.

ii)   State and explain Pascal's law

iii)   Define potential gradient. Show that electric intensity is equal to the negative of potential gradient.

iv)   How energy is stored in a Capacitor? Derive expression for the energy stored in a capacitor.

v)   State and explain Kirchhoff's first and second law.

vi)   Prove that following equations are dimensionally correct:

$$\text{i)} \quad T = 2\pi \sqrt{\frac{L}{g}} \qquad\qquad \text{ii)} \quad S = v_i\, t + \frac{1}{2} a\, t^2$$

vii)   A turtle starts at the origin and moves with the uniform speed of $v_o = 10\,cm/s$ in the direction of 25° to the horizontal.
a)   Find the coordinates of a turtle 10 seconds later.   b)   How far did the turtle walk in 10 seconds?

viii)   A golf club exerts an average force of $800\,\text{N}$ on a golf ball for 0.02 seconds. If the initial velocity of the ball is 40 m/s and its final velocity is $60\,\text{m}/\text{s}$, what is the impulse experienced by the ball?

ix)   The International Space Station orbits at an altitude of $400\,km$ above the surface of the Earth. What is the space station's orbital velocity?

x)   Calculate the viscous drag on a drop of oil of $0.1\,\text{mm}$ radius falling through air at its terminal velocity. (viscosity of air $=1.8\times10^{-5}\,\text{Pa-s}$; density of oil $=850\,kg/m^3$).

xi)   Three resistors $1\,\Omega$, $2\,\Omega$, and $3\,\Omega$ are combined in series. What is the total resistance of the combination? If the combination is connected to a battery of e.m.f $24\,\text{V}$ and negligible internal resistance, obtain the potential drop across each resistor.

xii)   A pendulum of length $75\,\text{cm}$ and mass $2.5\,\text{kg}$ swings with a mechanical energy of $0.015\,\text{J}$. what is its amplitude?

xiii)   A source of sound and listener are moving towards each other with velocities which are 0.5 times and 0.2 times the speed of sound respectively. If the actual frequency of sound is 2000 Hz, calculate the percentage change in the frequency with respect to the listener.

xiv)   In a Newton's ring experiment the diameter of the 16th bright ring was found to be 0.653 cm. If the radius of curvature of the lens is 10 cm, find the wavelength of light.

SECTION 'C'
(DETAILED-ANSWER QUESTIONS)   (32 Marks)

NOTE: Answer any **Two** questions from this section. All questions carry equal marks. Draw diagrams where necessary.

3.   a)   Define 'Position Vector'. Two vectors $\vec{A_1}$ and $\vec{A_2}$ making angle θ_1 and θ_2 with the horizontal. Describe addition of these two vectors by rectangular component method

b)   Derive Bernoulli's equation for steady, incompressible, non-viscous and irrotational flow of fluid.

4.   a)   What is an Electric dipole? Derive the expression for electric field intensity due to electric dipole at a point which is at a perpendicular distance y from the centre of the dipole.

b)   Describe the stationary waves produced in a stretched string. Derive the expression for frequencies when string is vibrating in:
i)   One loop   ii)   Two loops   iii)   Three loops   iv)   n loops

5.   a)   Define simple harmonic motion. A particle in its state of uniform circular motion, Prove that its projection executes simple harmonic motion on one of the diameter of the circle.

b)   Describe Young's double slit experiment and derive the expressions for position of dark and bright fringes. Also derive expression for fringe spacing.

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Time: 20 minutes **PHYSICS PAPER – I MODEL QUESTION PAPER** Max. Marks: 17

(Science Groups)

FROM NEW BOOK

SECTION 'A'
(MULTIPLE CHOICE QUESTIONS) – (M.C.Qs.) (Marks : 17)

NOTE:
  i) This section consists of 17 part questions and all are to be answered. Each question carries one mark.
  ii) The correct answer bubble must be filled on OMR sheet 1) Ⓐ Ⓑ Ⓒ Ⓓ pasted in answer script.
  iii) Use only blue / black ball point pen or pointer on OMR sheet.
  iv) Avoid using pencil / White-o pen on OMR sheet.

1. Select the correct answer for each from the given options:

1) Unit of solid angle is:
   A) second
   B) kilogram
   C) steradian
   D) candela

2) The velocity of a particle at an instant is 10 m/s and after 5 second the velocity of particle is 20m/s. The velocity 3 second before the initial instant is:
   A) 8 m/s
   B) 4 m/s
   C) 6 m/s
   D) 7 m/s

3) If momentum is increased by 20% then K.E increases by:
   A) 44%
   B) 55%
   C) 66%
   D) 77%

4) A man, with his arms at his sides, is spinning on a light frictionless turntable. When he extends his arms:
   A) his angular velocity increases
   B) his angular velocity remains same
   C) his rotational inertia decreases
   D) his angular momentum remains the same

5) The absolute potential energy of an object depends on:
   A) The object's mass and height from earth's surface
   B) The object's mass and speed
   C) The object's shape and size
   D) The object's colour and temperature

6) One piston in a hydraulic lift has an area that is twice the area of the other. When the pressure at the smaller piston is increased by Δp the pressure at the larger piston:
   A) increases by $2\Delta p$
   B) increases by Δp
   C) increases by $\dfrac{\Delta p}{2}$
   D) increases by $4\Delta p$

7) A sky diver falls through the air with terminal velocity. The force of air resistance on him is:
   A) half of his weight
   B) equal to his weight
   C) twice his weight
   D) cannot be determined from the information given

8) The force between two charges placed in air is F, if air is replaced by a medium of relative permittivity $\in_r$ then force is reduced to:
   A) $F \in_r$
   B) $\dfrac{F}{\in_r}$
   C) $\dfrac{\in_r}{F}$
   D) $\in \in_r$

9) The charging of a capacitor through a resistance follows:
   A) linear law
   B) square law
   C) exponential law
   D) inverse square law

10) A wire of uniform area of cross-section A, length L and resistance R is cut into two parts. The resistivity of each part:
   A) becomes zero
   B) is halved
   C) is doubled
   D) remain same

11) A heat-sensitive device whose resistivity changes with the change in temperature is called:
   A) conductor
   B) resistor
   C) thermistor
   D) thermometer

12) A child swinging on a swing in sitting position, stands up, then the time period of the swing will:
   A) Increase
   B) decrease
   C) remains the same
   D) increases if the child is long and decreases if the child is short

13) A heavily damped system has a fairly flat resonance curve in:
   A) An acceleration time graph
   B) An amplitude frequency graph
   C) Velocity time graph
   D) Distance-time graph

14) If v_a, v_h and v_m are the speeds of sound in air, hydrogen gas and a metal at the same temperature, then:
   A) $v_a > v_h > v_m$
   B) $v_m > v_h > v_a$
   C) $v_h > v_m > v_a$
   D) $v_h > v_m > v_a$

15) In Young's double slit experiment when the distance between slits and screen is doubled, while separation of slits is halved, then fringe width will be:
   A) 4 times
   B) $\dfrac{1}{4}$ times
   C) doubled
   D) unchanged

16) A hill separates a television (TV) transmitter from a house. The Transmitter cannot be seen from the house but still the TV in the house has good reception. What wave phenomena make it possible:
   A) Coherence of waves
   B) Diffraction of waves
   C) Interference of waves
   D) Refraction of waves

17) The process of superimposing signal frequency on carrier wave is known as:
   A) Transmission
   B) Detection
   C) Reception
   D) Modulation

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ہدایات: اس حصے سے تمام سوالات کے جوابات تحریر کیجیے۔

۲- مندرجہ ذیل اشعار میں سے کسی دو کی تشریح شاعر کے حوالے اور تعارف کے ساتھ کیجیے۔ ۱۰

حصہ غزل میں سے پانچ شعر درج ذیل شعرا کی غزلیات سے دیے جائیں گے
شعرا: خواجہ میر درد، میر تقی میر، مرزا اسداللہ خان غالب، مومن خان مومن، فراق گورکھپوری، جگر مراد آبادی، ناصر کاظمی، جون ایلیا، فاطمہ حسن

کیا مجھ کو داغوں نے سرِ چراغاں	کبھو تو نے آ کر تماشا نہ دیکھا
صبر تھا ایک مونسِ ہجراں	سو وہ مدّت سے اب نہیں آتا
یا رب! زمانہ مجھ کو مٹاتا ہے کس لیے	لوحِ جہاں پہ حرف مکرّر نہیں ہوں میں
اثر اس کو ذرا نہیں ہوتا	رنج، راحت، فزا نہیں ہوتا
حالِ دل ہم بھی سناتے، لیکن	جب وہ رخصت ہوا، تب یاد آیا

۳- مندرجہ ذیل اقتباسات میں سے کسی ایک اقتباس کی تشریح کیجیے۔

(الف) منتخب کردہ اقتباس کے مصنف اور سبق کا نام تحریر کیجیے۔ ۲

(ب) منتخب کردہ اقتباس کی تشریح کیجیے۔ ۶

نوٹ: تین اقتباسات دیے جائیں گے۔
اقتباسات کے لیے مختص اسباق
سیرتِ محمدی خاتم النبیین صلی اللہ علیہ والہ وسلم کی جامعیت۔ عالم گیر کا انصاف۔ خوش طبعی۔ قطالزجال۔ مشاعرہ۔ حسرتِ موہانی۔ سراقبال مرحوم۔ وقتے کنا قیامت

(الف) ''دوستو! اگر تم مطالعہٴ فطرت کے بعد یقین رکھتے ہو کہ دنیا انسانی مزاجوں اور انسانی صلاحیتوں اور استعدادوں کے اختلاف کا نام ہے تو یقین کرو کہ محمد رسول اللہ خاتم النبیین صلی اللہ علیہ والہ وسلم کی جامع شخصیت کے سوا اس کا کوئی آخری اور روحانی اور عالم گیر نمونہ نہیں ہو سکتا۔''

(ب) ''وہ صاف و سفید و سفید ململ کی پوشاک پہنے ہوئے عصا کے سہارے پیری کے جھر مٹ میں کھڑا تھا اور اس کی پگڑی میں بڑا اکلڑا زمرد کا ٹنکا ہوا تھا۔ داد خواہوں کی عرضیاں لیتا جا تا تھا اور بلا عینک پڑھ کر خاص اپنے ہاتھ سے دستخط کرتا جاتا تھا۔''

(ج) ''اُس چینی پروفیسر نے چینی زبان میں لکھنا شروع کیا تو مجھے حیرت ہوئی کہ سطریں اوپر سے نیچے کی طرف آتی ہیں حیرت اُس وقت دور ہوئی جب یہ سمجھ میں آیا کہ ہر اچھی بات الہامی ہوتی ہے اور وارالہام نازل ہوا کرتا ہے۔''

۴- مندرجہ ذیل نظموں میں سے کسی ایک کا مرکزی خیال تحریر کیجیے۔

(الف) منتخب کردہ نظم کے شاعر کا مختصر تعارف تحریر کیجیے۔ ۲

(ب) منتخب کردہ نظم کا مرکزی خیال تحریر کیجیے۔ ۸

حضرت فاطمۃ الزہراؑ کی رخصتی	بدلی کا چاند	دو ہرے شناساؤں کی ملاقات

مرکزی خیال کے لیے تین نظمیں دی جائیں گی
مرکزی خیال کے لیے مختص نظمیں

حضرت فاطمۃ الزہراؑ کی رخصتی۔ چاند اور تارے۔ بدلی کا چاند۔ کتبہ کون لکھے گا۔ دو ہرے شناساؤں کی ملاقات (طنز و مزاح)۔

یا

درج ذیل بند کی تشریح شاعر کے مختصر تعارف کے ساتھ کیجیے۔

نظر بھی رکھے، سماعتیں بھی، وہ جان لیتا ہے نیتیں بھی	جو خانہ لاشعور میں جگمگا رہا ہے ، وہی خدا ہے
کسی کو تاج و قار بخشے، کسی کو ذلّت کے غار بخشے	جو سب کے ماتھے پہ نمبرِ قدرت لگا رہا ہے ، وہی خدا ہے

نوٹ: بند کی تشریح کے لیے مختص نظمیں
حمد۔ نعتﷺ۔ منقبت۔ گیت

(ورق الٹیے)

نوٹ:۲:-

سوال نمبر ۵   درج ذیل میں سے کسی ایک سبق کا خلاصہ تحریر کیجیے۔

۲   (الف)   منتخب کردہ سبق کے مصنف کا مختصر تعارف تحریر کیجیے۔

۸   (ب)   منتخب کردہ سبق کا خلاصہ تحریر کیجیے۔

☆   میرا البم   ☆   سحر ہونے تک   ☆   سویرے جو کل میری آنکھ کھلی

یا

مندرجہ ذیل سوالات میں سے صرف پانچ کے جوابات تحریر کیجیے۔ تمام سوالات کے نشانات مساوی ہیں۔

(i)   کن سلاطین و امرا کو دعوت اسلام کے خطوط روانہ کیے گئے؟

(ii)   اچھے حکم راں کے لیے منصف ہونا کیوں ضروری ہے؟

(iii)   خوش طبعی کے خاندان کا بانی کون ہے؟

(iv)   مردم شناسی سے کیا مراد ہے؟

(v)   طرحی مشاعرہ کن شعرا کی یادگار ہے؟

(vi)   سبق ''ادب آموزوں کے نام'' میں شیخ سعدی کی کون سی کتاب کا ذکر کیا گیا ہے اور کیوں؟

(vii)   ادیبوں کی کالونی کس شہر میں تعمیر ہونا تھی؟

(viii)   البم کے پہلے صفحے پر کس کی تصویر دکھائی دی اور یہ تصویر کس موقعے پر بنوائی گئی تھی؟

حصہ ''ج'' (تفصیلی جواب کے سوالات)   (نشانات: ۴۰)

۲۰   ۶۔   مندرجہ ذیل میں سے کسی ایک شاعر کی شاعرانہ خصوصیات تحریر کیجیے:- (تین شاعر دیے جائیں گے)

☆ خواجہ میر درد   ☆ مرزا اسد اللہ خان غالب   ☆ علامہ ڈاکٹر محمد اقبال

۲۰   ۷۔   مندرجہ ذیل میں سے کسی ایک نثر نگار کی نثر نگاری پر تبصرہ کیجیے:- (تین نثر نگار دیے جائیں گے۔)

☆ علامہ سید سلیمان ندوی   ☆ مولوی عبدالحق   ☆ پطرس بخاری

یا

مندرجہ ذیل میں سے کسی ایک موضوع پر مضمون تحریر کیجیے۔

☆ مصنوعی ذہانت فوائد و نقصانات   ☆ ماحولیاتی تبدیلیاں اور ہماری ذمے داریاں

انٹرمیڈیٹ ایگزامینیشن ۲۰۲۴ء و آئندہ

وقت : ۲۰ منٹ   ماڈل پیپر اردو (مادری زبان) لازمی (پرچہ دوم)   کل نشانات : ۲۰

(تمام گروپس کے لیے)

حصّہ الف: (کثیرالانتخابی سوالات)   (نشانات : ۲۰)

نوٹ : (i) اس حصہ میں ۲۰ جزوی سوالات ہیں یا تمام سوالات کے جوابات مطلوب ہیں اور ہر سوال کا نشان ایک ہے۔

(ii) اس حصہ کے درست جوابات کو OMR شیٹ پر دیے گئے bubbles (A) (B) (C) (D) (1 کو پُر کرنا ہے جو جوابات کی کاپی میں چھپاں ہے۔

(iii) سیاہ یا نیلے بال پوائنٹ پین یا پوائنٹر OMR شیٹ کو بھرنے کے لیے استعمال کیجیے۔

(iv) white-o pen اور پینسل کا استعمال OMR شیٹ پر ممنوع ہے۔

ا۔ مندرجہ ذیل میں سے ہر ایک کے لیے درست جواب منتخب کیجیے:

1) مضمون سیرت محمدی ﷺ کی جامعیت اس کتاب سے ماخوذ ہے:
   (A) خطبات مدراس   (B) خطبات مدراس   (C) خطبات بہاولپور   (D) خطبات احمدیہ

2) عالمگیر کو وحشت سے احساس تھا کہ کسی شخص کا نہ ہونے پائے:
   (A) قتل   (B) بال بیکا   (C) گمشدگی   (D) نقصان

3) سبق خوش طبعی میں اس فلسفی کا ذکر کیا گیا ہے:
   (A) سارتر   (B) میکسم گورکی   (C) ارسطو   (D) افلاطون

4) مضمون قطب الرجال میں البم کی قیمت تھی:
   (A) دو آنے   (B) تین آنے   (C) پانچ آنے   (D) چھ آنے

5) مضمون مشاعرہ اس کتاب سے ماخوذ ہے:
   (A) دوسرا کنارا   (B) اردو زبان و ادب کی افادیت   (C) حرف و حکایت   (D) گریبان

6) عقل بڑی ہے کہ:
   (A) بکرا   (B) بھینس   (C) گائے   (D) چیونٹی

7) منو بھائی کا اصل نام تھا:
   (A) منیر احمد قریشی   (B) بشیر احمد قریشی   (C) صغیر احمد قریشی   (D) سلیم احمد قریشی

8) ڈاکٹر وزیر آغا مشہور ہیں بحیثیت:
   (A) اداکار   (B) انشائیہ نگار   (C) ناول نگار   (D) شاعر

9) سحر ہونے تک اور خون جگر ہونے تک ان کے معروف ناول ہیں:
   (A) حیدر بخش حیدری   (B) خدیجہ مستور   (C) فضل احمد کریم فضلی   (D) مرزا قلیچ بیگ

10) ساجدہ اس ناول کا مرکزی کردار ہے:
   (A) آنگن   (B) زمین   (C) سحر ہونے تک   (D) نئے دور کی لڑکی

11) مظفر وارثی کی نظم میں احمد بنا، چلا، دکھا، بنا، بنھا، کہلاتے ہیں:
   (A) محاورہ   (B) ردیف   (C) قافیہ   (D) ضرب المثل

12) نظم نعت میں نقاش ازل سے مراد ہے:
   (A) وجود انسان   (B) وعدۂ ازل   (C) خالق کائنات   (D) روز ازل

13) اعجاز رحمانی کی منقبت اس مجموعے سے ماخوذ ہے:
   (A) دہشت   (B) عظمتوں کے مینار   (C) آہنگ   (D) بانگ درا

14) نظم حضرت فاطمۃ الزہرا کی رخصتی اس ہیئت میں لکھی گئی ہے:
   (A) مسدس   (B) خمس   (C) مثنوی   (D) رباعی

15) انھیں تصوف کا امام کہا جاتا ہے:
   (A) میر تقی میر   (B) محسن کاکوروی   (C) خواجہ میر درد   (D) مرزا غالب

16) "نہیں تاب لاتا دل زار اب" شعر مکمل کیجیے:
   (A) غلاموں سے اس کو قتل کیا   (B) بہت ہم نے صبر و تحمل کیا   (C) شب و روز ہم نے تاملل کیا   (D) یہ قطعہ تصرف میں بالکل کیا

17) نظم چا نداورتارے میں "ہ ہیب زمانہ میں" لکھی صنعت پائی جاتی ہے:
   (A) تشبیہ   (B) تلمیح   (C) استعارہ   (D) مبالغہ

18) شبیر حسن خان جوش ملیح آبادی کو کہا جاتا ہے:
   (A) خدائے سخن   (B) تصوف کا امام   (C) رئیس المغر لین   (D) شاعر شباب و انقلاب

19) نظم "کتبہ کون لکھے گا" کی شاعرہ ہیں:
   (A) فاطمہ حسن   (B) یاسمین حمید   (C) شاہد حسن   (D) شاہد تبسم

20) نگار صہبائی کی بڑی شہرت ہے:
   (A) غزل گوئی   (B) رباعی   (C) گیت نگاری   (D) مرثیہ نگاری

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BOARD OF INTERMEDIATE EDUCATION, KARACHI

INTERMEDIATE EXAMINATION, 2024 (ONWARDS)

BIOLOGY PAPER – I MODEL QUESTION PAPER

Time: 1 hour 45 minutes   **REVISED BOTANY (THEORY)**   Max.Marks: 36

(Science Pre-Medical Group)

FROM NEW BOOK

SECTION 'B'
(SHORT-ANSWER QUESTIONS)   Marks: 18

2.   Answer any **Nine** part questions. All questions carry equal marks.

i)   Why insectivorous plants use insects as food?

ii)   Why Chloroplast is said to be an energy converting organelle?

iii)   Describe the role and deficiency symptoms of Nitrogen and Potassium in plant.

iv)   Differentiate between Prokaryotes and Eukaryotes..

v)   Why Photorespiration is considered as wasteful process?

vi)   Define followings:

a)   Double Fertilization   b)   Heterospory

vii)   What do you mean by bacterial growth? Describe its phases.

viii)   Why Protoctista considered as polyphyletic kingdom?

ix)   Give botanical name of any four of the following:

* Wheat   *   Mako   *   Barley * Rice   *   Amaltas   *   Mulhethi

x)   Describe the classification of bacteria on the basis of their shapes.

xi)   Draw a well labelled diagram of the followings: (any one)

*Bacteriophage virus   * Fern prothallus

xii)   How many ATP and NADPH require fixing 1 carbon, 3 carbons, 6 carbons and 12 carbons during dark reaction?

xiii)   What features allow fungi to survive in all environments where life is possible?

xiv)   Why desert plants reduce their leaf size?

SECTION 'C'
(DETAILED-ANSWER QUESTIONS)   Marks: 18

Note: Answer any **Two** questions from this section. All questions carry equal marks.

3.   Explain structure and function of Plasma membrane with diagram.

4.   Describe light independent reaction (C_3 cycle) of photosynthesis in detail. OR Define Respiration Explain Glycolysis pathway in detail.

5.   What are Growth regulators? Name and discuss five in detail.

6.   Explain the life cycle of Moss with the help of diagrams.

OR

Define Bacteria, Describe structure of Bacteria with labelled diagram.

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BIOLOGY PAPER – I MODEL QUESTION PAPER
REVISED BOTANY (THEORY)
(Science Pre-Medical Group)

Time: 15 minutes   Max. Marks: 09

FROM NEW BOOK

SECTION 'A'
(MULTIPLE CHOICE QUESTIONS) – (M.C.Qs.) (Marks : 09)

NOTE:
i) This section consists of 18 part questions and all are to be answered. Each question carries ½ mark.
ii) The correct answer bubble must be filled on OMR sheet 1) (A) (B) (C) (D) pasted in answer script.
iii) Use only blue / black ball point pen or pointer on OMR sheet.
iv) Avoid using pencil / White-o pen on OMR sheet.

1. Choose the correct answer for each from the given options:

1) Organelles other than the nucleus that contain DNA:
   A) Ribosome only   B) Chloroplast only   C) Chloroplast and Mitochondria   D) Ribosome and Chloroplast

2) How many carbon atoms are fed into the citric acid cycle as a result of the oxidation of one molecule of pyruvate?:
   A) 2   B) 4   C) 6   D) 8

3) The Oxygen consumed during cellular respiration is involve directly in:
   A) Glycolysis   B) Accepting electron at the end of electron transport chain
   C) Citric acid cycle   D) Oxidation of pyruvate to acetyl Co-A

4) Bacteriophages escape from host cell by the activity of:
   A) Lysozyme   B) Ribozyme   C) Peroxidase   D) Reductase

5) In habitat where conditions become harsh and nutrients are exhausted, development of following initiated in bacteria:
   A) Capsule   B) Cell wall   C) Endospore   D) Mesosome

6) The most important cellulose degraders in ecosystem are:
   A) Ascomycota   B) Zygomycota   C) Basidiomycota   D) Deutromucota

7) Subdivision of Tracheophyta does not contain true roots and leaves:
   A) Lycopsida   B) Psilopsida   C) Pteropsida   D) Sphenopsida

8) The process involved in the promotion of flowering by cold treatment:
   A) Photoperiodism   B) Vernalization   C) Secondary growth   D) Transpiration

9) Guttation occurs through:
   A) Lenticels   B) Hydathodes   C) Stomata   D) Bark

10) Clarity of image is generally known as:
    A) Magnification   B) Contrast   C) Resolution   D) Sedimentation

11) Oxidative decarboxylation of isocitrate form:
    A) α-Ketoglutarate   B) Succinate   C) Cis-Aconitate   D) Fumarate

12) Plant oxidizes sugar in chloroplast during day time without production of energy called:
    A) C-4 cycle   B) Photorespiration   C) C-3 cycle   D) Photophosphorylation

13) Some structure are smaller than virus having single stranded RNA with some double stranded regions called:
    A) Viroids   B) Prions   C) Minus strand virus D) Double stranded DNA virus

14) Anaerobic bacteria produce all chemicals during respiration except:
    A) Ethanol   B) CO_2 C) Water   D) Lactic acid

15) A typical structure of obligate parasite, specialized for fixation and absorption:
    A) Flagella   B) Pili   C) Haustoria   D) Root hairs

16) In banana tree, flowers are covered over by one or many large brackets called:
    A) Spathes   B) Spadix   C) Capitulum   D) Palea

17) The hydrostatic pressure in excess of atmospheric pressure is known as:
    A) Water potential   B) Pressure potential C) Osmotic potential D) Solute potential

18) Induction of flowering in response to the relative length of day and night is known as:
    A) Photoperiodism   B) Photophosphorylation
    C) Photorespiration   D) Phototropism

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BOARD OF INTERMEDIATE EDUCATION, KARACHI

FROM NEW BOOK

MATHEMATICS PAPER – II MODEL QUESTION PAPER

Time: 2 Hours 40 Minutes   **(Science Pre-Engineering, Science General and Humanities Regular Groups)**   Max. Marks: 80

Note : **Attempt any ten parts from Section 'B' and any five questions from Section 'C'. Write your answer neatly and legibly.**

SECTION 'B'   (SHORT-ANSWER QUESTIONS)   (Marks: 40)

NOTE: Answer any **Ten part questions** from this section. All questions carry equal marks. (i.e 4 marks of each part)

2.   **i)**   Evaluate any one of the following:

a) $\displaystyle\lim_{x\to 1}\dfrac{\dfrac{1}{\sqrt{x}}-1}{1-x}$ b) $\displaystyle\lim_{x\to e}\dfrac{\ln x-1}{x-e}$

ii)   Find the values of m and n, so that given function f is continuous at $x=3$:

$$f(x)=\begin{cases} mx & if\ x<3 \\ n & if\ x=3 \\ -2x+9 & if\ x>3 \end{cases}$$

iii)   If $y=\sqrt{\tan x+\sqrt{\tan x+\sqrt{\tan x}}}+..+\infty$, prove that $(2y-1)\dfrac{dy}{dx}=\sec^2 x$.

iv)   Find $\dfrac{dy}{dx}$ $\ln\left(\cosh^{-1} x\right)+\sinh^{-1} y=C$ **OR**   Differentiate: $y=\cos^2 x\ w.r.t.\ \sin^2 x$

v)   Show that $f(x)=\tan^2 x$ is decreasing at $x=\dfrac{3\pi}{4}$.

vi)   A particle moves so that its position as a function of time is given by $\vec{r}(t)=\sin t\hat{i}+\cos t\,j+tk$. Write expressions for its:
a) Velocity   b)   acceleration as function of time.

vii)   Compute the definite integrals by using basic properties.

$$\int_{\frac{-\pi}{2}}^{\frac{\pi}{2}}\sin^2 x\cos^2 x\,dx$$

viii)   Find the area, above the x-axis under the following curve, between the given ordinates.

$$y=6\sin^2 x \qquad x=0, x=\dfrac{\pi}{3}$$

ix)   The line segment joining $P(-8,10)$ and $Q(6,-4)$ is cut by x and y axes at A and B respectively. Find the ratios in which A and B divide $\overline{PQ}$.

x)   The $x-$ intercept of a line is the reciprocal of its $y-$ intercept and line passes through $(2,-1)$. Find its equation.

xi)   Find the equation of the circle passing through $(-3,-4)$ and is concentric with the circle whose equation is $x^2+y^2-6x+8y-24=0$.

xii)   The volume of the cone is given by formula $V=\dfrac{1}{3}\pi r^2 h$. Differentiate V with respect to their independent variables.

xiii)   Find the equation of parabola whose focus is at $(-4,3)$ and equation of directrix is $y=6$.

xiv)   Find the condition when line $y=\sqrt{5}x+c$ is tangent to the ellipse $4x^2+9y^2=36$.

xv)   Find the orthogonal trajectory of the curve $y=ax^2$.

SECTION 'C' (DETAILED-ANSWER QUESTIONS)   (Marks: 40)

NOTE: Answer any **Five** questions from this section. Question No. 3 is compulsory. All questions carry equal marks.

3.   Evaluate any two of the following:

a) $\displaystyle\int\dfrac{1+2x}{\sqrt{1-x}}dx$ b) $\displaystyle\int e^{2x}\sin 2x\,dx$ c) $\displaystyle\int_{3}^{2\sqrt{3}}\dfrac{x^3 dx}{\sqrt{x^2+4}}$ d) $\displaystyle\int\dfrac{dx}{(x-3)(x^2+1)}$

4.   Find the first four terms of the Taylor's series of $f(x)=\ln(1+x)$ at $b=2$.

5.   If $A(2,5), B(3,7)\ and\ C(0,8)$ are the vertices of a triangle then find the equation of:

a)   median through A b)   right bisector of side $\overline{AC}$

6. Find the equation of tangent (s) to the circle $x^2 + y^2 = 25$ which is:

   a)   parallel to $3x+4y+1=0$ b)   perpendicular to $3x+4y+1=0$

7. Find Centre, foci, eccentricity, length of latus rectum and vertices of hyperbola:

   $$16y^2 - 9x^2 + 36x + 64y - 116 = 0$$

8. Solve the differential equation $(2x+y+1)dx+(2x+y-1)dy=0$

9. If $u = \tan^{-1}\left(\dfrac{x^3+y^3}{x-y}\right)$ then prove that $x\dfrac{\partial u}{\partial x} + y\dfrac{\partial u}{\partial y} = \sin 2u$.

10. Using any numerical method for finding roots of the equation up to 2 decimal places of $x^3 - 2x - 5 = 0$, $[2,3]$.

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BOARD OF INTERMEDIATE EDUCATION, KARACHI

INTERMEDIATE EXAMINATION, 2024 ONWARDS

MATHEMATICS PAPER – II MODEL QUESTION PAPER

Time: 20 Minutes   (Science Pre-Engineering, Science General and Humanities Regular Groups)   Max. Marks: 20

FROM NEW BOOK

SECTION 'A'
(MULTIPLE CHOICE QUESTIONS) – (M.C.Qs.)   (Marks : 20)

NOTE:
   i) This section consists of 20 part questions and all are to be answered. Each question carries one mark.
   ii) The correct answer bubble must be filled on OMR sheet 1) Ⓐ Ⓑ Ⓒ Ⓓ pasted in answer script.
   iii) Use only blue / black ball point pen or pointer on OMR sheet.
   iv) Avoid using pencil / White-o pen on OMR sheet.
   v) All notations are used in their usual meanings. The use of Scientific Calculator is allowed.

1. Choose the correct answer for each from the given options:

1) $[3,5] - (3,5) = :$

    A) $\varnothing$ B) $(3,5)$ C) $[3,5]$ D) $\{3,5\}$

2) The domain of the vector function $\vec{r}(t) = t^3 \hat{i} + \dfrac{1}{t-1} \hat{j} + \ln(t-2)\hat{k}$ is:

    A) $\{t > 2, t \in \mathbb{R}\}$ B) $\{t < 2, t \in \mathbb{R}\}$ C) $\{t > 2, t \in \mathbb{R}\}$ D) $\{t \geq 2, t \in \mathbb{R}\}$

3) $\displaystyle\lim_{x \to 0}(1-x)^{\frac{1}{x}} :$

    A) e^3 B) $e^{\frac{-1}{2}}$ C) e D) e^{-1}

4) If $y = \tan^{-1}\sqrt{x}$ then $\dfrac{dy}{dx} = :$

    A) $\dfrac{1}{1+x^2}$ B) $\dfrac{1}{x+\sqrt{x}}$ C) $\dfrac{1}{2\left(x+x\sqrt{x}\right)}$ D) $\dfrac{1}{2\left(\sqrt{x}+x\sqrt{x}\right)}$

5) The derivative of $\cot^{-1}(2x)$ is:

    A) $\dfrac{1}{1-4x^2}$ B) $\dfrac{2}{1-4x^2}$ C) $\dfrac{2x}{1-4x^2}$ D) $\dfrac{2}{1-x^2}$

6) The derivative of 2^x is:

    A) $2^x \ln 2$ B) $-2^x \ln 2$ C) $\dfrac{2^x}{\ln 2}$ D) $-\dfrac{2^x}{\ln 2}$

7) To reset all variables we use the command:
    A) $>$ Restart   B) $>$ Clear   C) $>$ Reset   D) $>$ Cancel

8) $\displaystyle\int_a^b f(x)\,dx = :$

    A) $-\displaystyle\int_a^b f(x)\,dx$ B) $\displaystyle\int_b^a f(x)\,dx$ C) $-\displaystyle\int_b^a f(x)\,dx$ D) zero

9) To draw a graph of a function $f(x)$ from $x = a$ to $x = b$, we use the command:

    A) $>$ Draw$\left(f(x), x = a..b\right)$ B) $>$ Plot$\left(f(x), x = a..b\right)$

    C) $>$ Curve$\left(f(x), x = a..b\right)$ D) $>$ Sketch$\left(f(x), x = a..b\right)$

10) $\displaystyle\int \dfrac{e^{2y}\,dy}{1+e^{2y}} = :$

    A) $e^y + c$ B) $\tan^{-1}e^y + c$ C) $\cot^{-1}e^y + c$ D) $\dfrac{1}{2}\ln\left(1+e^{2y}\right) + c$

11) The perpendicular distance between two parallel lines $y = mx + c_1$ and $y = mx + c_2$ is:

    A) $\dfrac{|c_1 - c_2|}{\sqrt{1+m^2}}$ B) $\dfrac{\sqrt{1+m^2}}{|c_1 - c_2|}$ C) $\dfrac{|c_1 - c_2|}{\sqrt{1-m^2}}$ D) $\dfrac{\sqrt{1-m^2}}{|c_1 - c_2|}$

12) For this value of k the radius of circle $x^2 + y^2 + 6x - 4y + k = 0$ is 5:
    A) 11 B) -12 C) 10 D) 12

13) This line $y = 2x + c$ will be tangent to $x^2 + y^2 = 25$ if:
    A) $c^2 = 25$ B) $c^2 = 625$ C) $c^2 = 50$ D) $c^2 = 125$

14) If the eccentricity is zero, then the conic is:
   A) parabola   B) circle   C) ellipse   D) hyperbola

15) The focus of parabola $x^2 = -16y$ is:
   A) $(0,0)$ B) $(4,0)$ C) $(-4,0)$ D) $(0,-4)$

16) The order and degree of differential equation $\left(\dfrac{d^3y}{dx^3}\right)^2 = \sqrt{\dfrac{dy}{dx}}$ is:
   A) order 3, degree 4   B) order 4, degree 3   C) order 2, degree 1   D) order 1, degree 2

17) The general solution of the differential equation $9y\dfrac{dy}{dx} + 4x = 0$ is:
   A) $4x^2 + 9y^2 = c$ B) $9x^2 + 4y^2 = c$ C) $4x^2 + y^2 = c$ D) $9x^2 - 4y^2 = 0$

18) A function $\tan\left(\dfrac{2x}{3y}\right)$ is a homogeneous function of degree :
   A) $\dfrac{3}{2}$ B) $\dfrac{2}{3}$ C) 1 D) 0

19) The fastest method to solve the nonlinear equation numerically is:
   A) Bisection Method   B) False Position Method
   C) Newton Raphson Method   D) Simpson $\dfrac{1}{3}$ rd Method

20) If plane cuts one nappe of a right circular cone perpendicularly then conic is:
   A) Parabola   B) Circle   C) Ellipse   D) Hyperbola

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BOARD OF INTERMEDIATE EDUCATION, KARACHI

INTERMEDIATE EXAMINATION, 2024 ONWARDS
REVISED MATHEMATICS PAPER – I MODEL QUESTION PAPER

Time: 2 Hours 40 Minutes   **(Science Pre-Engineering, Science General and Humanities Regular Groups)**   Max. Marks : 80

INSTRUCTIONS: The use of scientific calculator is allowed. The Graph paper will be supplied on demand.

FROM NEW BOOK

SECTION 'B'
(SHORT-ANSWER QUESTIONS)   (Marks: 40)

NOTE: Answer any **Ten part questions** from this section. All questions carry equal marks.

2.

i) If $z_1 = 3 - 2i$ and $z_2 = 2 - 3i$ then express $\dfrac{z_1}{z_2}$ in the form of $a + ib$.

ii) Find the value of $'x'$ for which the matrix $\begin{bmatrix} x & -2 & 1 \\ 2 & -3 & 4 \\ x & -2 & -1 \end{bmatrix}$ is singular.

iii) Without expanding, show that $\begin{vmatrix} 1 & \omega & \omega^2 \\ \omega & \omega^2 & 1 \\ \omega^2 & 1 & \omega \end{vmatrix} = 0$.

iv) Find a unit vector which is orthogonal to both the vectors $\vec{a} = \hat{i} - 2j + 3k$ and $\vec{b} = 3\hat{i} - 2j + k$.

v) How many terms are there in a G.P., if $a = 8, a_n = \dfrac{1}{512}$ and $r = \dfrac{1}{2}$?

vi) Sum the series $1 + (1+2) + (1+2+3) + \cdots$ up to n terms

vii) Find the values of n and r, when $^nP_r = 210$ and $^nC_r = 35$.

viii) Prove the proposition by mathematical induction for every positive integer n
$$2 + 4 + 6 + \cdots \ldots + 2n = n(n+1)$$

ix) Write in the simplified form the term independent of x in the expansion of $\left(2x + \dfrac{1}{x^2}\right)^9$.

x) Find the measure of the largest angle in $\triangle ABC$ with $a = 10\,cm, b = 20\,cm$ and $c = 26\,cm$.

xi) Let $f : \mathbb{R} \to \mathbb{R}$ be the function defined by $f(x) = \dfrac{1}{2}(x-3)$, find $f^{-1}(x)$ and verify that $f^{-1}[f(x)] = x$.

xii) Find the equation of the function of the type $y = f(x) = ax^2 + bx + c$ which cuts the $x - axis$ at the points $(-4, 0)$ and $(3, 0)$ & also passes through the point $(2, -4)$.

xiii) If $A + B + C = 180^o$ then prove that $\cos\left(\dfrac{B+C}{2}\right) = \sin\dfrac{A}{2}$.

xiv) Two planes start from Karachi International Airport at the same time and fly in directions that make an angle of 127° with each other. Their speeds are $525\,km/h$. How far apart they are at the end of 2 hours of flying time?

xv) Draw the graph of $y = \sin\dfrac{x}{2}$, $\quad 0 \le x \le 2\pi$

OR

Show that : $\cos^{-1}\left(\dfrac{2}{\sqrt{5}}\right) + \tan^{-1}\left(\dfrac{1}{3}\right) = \dfrac{\pi}{4}$ without using calculator.

SECTION 'C'
(DETAILED-ANSWER QUESTIONS)   (Marks : 40)

NOTE: Answer any **Five** questions from this Section. All questions carry equal marks.

3. Use Gauss – Jordan Method to solve the system of linear equations:
$$x + 5y + 2z = 9$$
$$x + y + 7z = 6$$
$$-3y + 4z = -2$$

4. If G.M. and H.M. between two numbers are 15 and $\dfrac{75}{13}$ respectively. Find the numbers.

5. The King, Queen and Jack of clubs are removed from a deck of 52 playing cards and then shuffled. A card is drawn from the remaining cards. Find the probability of getting:
    i)   a heart   ii)   a queen   iii)   a club   iv)   9 of red colour

6. Use binomial theorem to show that $16y\left(y+2\right)=1$ if:

$$y = \frac{1}{2}\cdot\frac{1}{16} - \frac{1}{2!\cdot 4}\cdot\frac{1}{16^{2}} + \frac{1}{3!}\cdot\frac{1\cdot 3}{8}\cdot\frac{1}{16^{3}} - \cdots\ldots$$

7. A,B,C are the points $\vec{a}, \vec{b}$ and $2\vec{a}-\vec{b}$ respectively. D divides $\overrightarrow{AC}$ in $2:3$ and E divides $\overrightarrow{BD}$ in $4:1$. Find the position vector of E.

<div align="center">

OR

</div>

Prove Hexagon law of vector addition.

8. Find the feasible region and its corner points for the following Linear Programming (LP) problem.
Minimize: $Z = x - 9y$ Subject to: $2x+3y \le 48$; $x \le 15$; $y \le 10$; $x, y \ge 0$

9. Find the general solution of the trigonometric equation $\sin\theta - \sin 2\theta - \cos 3\theta = 0$ and verify the solution.

10. Using trigonometric formulae, verify that: $\sin 10^{o}\sin 30^{o}\sin 50^{o}\sin 70^{o} = \dfrac{1}{16}$.

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BOARD OF INTERMEDIATE EDUCATION, KARACHI

INTERMEDIATE EXAMINATION, 2024 ONWARDS

REVISED MATHEMATICS PAPER – I MODEL QUESTION PAPER

Time: 20 Minutes　　(Science Pre-Engineering, Science General and Humanities Regular Groups)　　Max. Marks : 20

SECTION 'A' (MULTIPLE CHOICE QUESTIONS) – (M.C.Qs.)　　(Marks : 20)

NOTE:

i)　This section consists of 20 part questions and all are to be answered. Each question carries one mark.
ii)　The correct answer bubble must be filled on OMR sheet 1) Ⓐ Ⓑ Ⓒ Ⓓ pasted in answer script.
iii)　Use only blue / black ball point pen or pointer on OMR sheet.
iv)　Avoid using pencil / White-o pen on OMR sheet.
v)　All notations are used in their usual meanings. The use of Scientific Calculator is allowed.

FROM NEW BOOK

1. Choose the correct answer for each from the given options:

1)　The real and imaginary parts of $i(3-2i)$ are:
　A)　-3 & 2　　B)　3 & 2　　C)　2 & 3　　D)　-2 & 0

2)　If $z = 1+2i$ then $|z|$ is equal to:
　A)　1　　B)　$\sqrt{5}$　　C)　3　　D)　5

3)　If the order of two matrices A and B are $m \times n$ and $n \times p$ respectively, then the order of AB is:
　A)　$m \times p$　　B)　$p \times n$　　C)　$n \times p$　　D)　$p \times m$

4)　A matrix of order 2×1 is a:
　A)　Row Matrix　　B)　Null Matrix　　C)　Column Matrix　　D)　Square Matrix

5)　A matrix, in which the number of rows is equal to the number of columns is called:
　A)　Identity Matrix　　B)　Diagonal Matrix　　C)　Square Matrix　　D)　Scalar Matrix

6)　If $\vec{a} \cdot \vec{b} = 0$ then the angle between the vectors $\vec{a}$ & $\vec{b}$ is:
　A)　0　　B)　$\dfrac{\pi}{3}$　　C)　$\dfrac{\pi}{2}$　　D)　π

7)　The unit vector in the direction of $\vec{r} = \hat{i} + j + k$ is:
　A)　$(\hat{i}+j+k)$　　B)　$\sqrt{3}(\hat{i}+j+k)$　　C)　$\dfrac{1}{\sqrt{3}}(\hat{i}+j+k)$　　D)　$\dfrac{1}{\sqrt{3}}(\hat{i}-j-k)$

8)　In a geometric progression $S_n =$:
　A)　ar^{n-1}　　B)　$a(r^n-1)$　　C)　$\dfrac{(r^n-1)}{r-1}$　　D)　$\dfrac{a(r^n-1)}{r-1}$

9)　If H be the H.M. between a and b then H :
　A)　$\dfrac{2(a+b)}{ab}$　　B)　$\dfrac{a+b}{2ab}$　　C)　$\dfrac{2ab}{a+b}$　　D)　$\dfrac{ab}{a+b}$

10)　$\displaystyle\sum_{n=3}^{20} n^0 =$:
　A)　17　　B)　18　　C)　19　　D)　20

11)　If the balanced coin is tossed twice, then the probability of getting both tails is:
　A)　$\dfrac{1}{4}$　　B)　$\dfrac{1}{2}$　　C)　$\dfrac{3}{4}$　　D)　1

12)　The middle term in the expansion of $(a+b)^{2n}$ is:
　A)　$\left(\dfrac{n}{2}\right)^{th}$ term　　B)　$\left(\dfrac{n+2}{2}\right)^{th}$ term　　C)　$(n+1)^{th}$ term　　D)　$\left(\dfrac{2n}{2}-1\right)^{th}$ term

13)　If $|x| < 1$ then $1+2x+3x^2+4x^3+\cdots\cdots$ is equal to:
　A)　$(1-x)^{-1}$　　B)　$(1+x)^{-2}$　　C)　$(1-x)^2$　　D)　$(1-x)^{-2}$

14)　A function $f(x) = |x| - x^2$ is a / an:
　A)　even　　B)　odd　　C)　linear　　D)　neither even nor odd

15)　$\{x \mid x \in \mathbb{R} \wedge x > 5\} =$:
　A)　$[5, \infty)$　　B)　$(-\infty, 5)$　　C)　$(5, -\infty)$　　D)　$(-\infty, 5]$

16) $\cos u - \cos v = :$

A) $2\sin\dfrac{u+v}{2}\cos\dfrac{u-v}{2}$

B) $2\cos\dfrac{u+v}{2}\cos\dfrac{u-v}{2}$

C) $2\cos\dfrac{u+v}{2}\sin\dfrac{u-v}{2}$

D) $-2\sin\dfrac{u+v}{2}\cos\dfrac{u-v}{2}$

17) $\sin 2\theta = :$

A) $2\sin\theta\cos\theta$ B) $2\sin\theta$ C) $1+\cos\theta$ D) $\sin\theta$

18) If a, b, c are the sides of a triangle ABC then $R = :$

A) $\dfrac{\Delta}{s}$ B) $\dfrac{\Delta}{s-a}$ C) $\dfrac{\Delta}{s-b}$ D) $\dfrac{abc}{4\Delta}$

19) The period of $\tan\theta$ is:

A) $\dfrac{\pi}{2}$ B) π C) 2π D) 4π

20) $Tan\left[\tan^{-1}(-1)\right] = :$

A) $\sqrt{3}$ B) 1 C) -1 D) $\dfrac{1}{2}$

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BOARD OF INTERMEDIATE EDUCATION, KARACHI
INTERMEDIATE EXAMINATION, 2024 (ONWARDS)

Time: 2 Hours 40 minutes **CHEMISTRY PAPER – II (MODEL QUESTION PAPER)**   Max. Marks: 68
(Science Pre-Engineering & Pre-Medical Groups)

FROM NEW BOOK

SECTION 'B'
(SHORT-ANSWER QUESTIONS) Marks : 36

Note: Answer any **Nine** part questions. Select **Four** part questions from **Inorganic – General Chemistry** and **Five** part questions from **Organic Chemistry**. All questions carry equal marks.

INORGANIC – GENERAL CHEMISTRY

2. i)   Explain the general group trend and irregularities of ionization energy in the periodic table.
> **OR**

Give reasons for any four of the following:
* Boiling point of halogens increases down the group in the periodic table
* Electronegativity decreases regularly from top to bottom in s-block elements
* Alkali metals are good conductor of electricity
* Fluorine is the strongest oxidizing agent
* Multidentate ligands are known as chelating agents

ii) Give diagonal relationship on any two of the following pair:
*   Li and Mg   *   Be and Al   *   B and Si

iii) Why transition elements have the tendency to form alloy? Write the name of three alloys of transition element along with their compositions.

iv) Write down the IUPAC names of the following complexes:
* $[Ag(NH_3)_2]OH$ * $[Fe(CN)_6]^{-4}$

* $K_3[Cr(C_2O_4)_2Cl_2]$ * $[Pt(en)_2(NO_2)_2]SO_4$

v)   What are Pesticides? Write the name of three types of pesticides along with their specific use.

vi) How was ozone layer formed? Explain the causes of depletion of ozone layer:

vii) What is proton NMR spectroscopy? On what principle it works.

ORGANIC CHEMISTRY

viii) How is coal produced under the earth crust? Write the name of four types of coal and mention the %age of carbon content in them.
> **OR**

Define Homologous series and write its three general properties.:

ix) Draw the orbital structure of Ethyne and explain how it is distinguished from ethene by a simple chemical test.
> **OR**

Give the equations and write the name of final product in the following process.
*   Ethyne is treated with hydrogen bromide.
*   1, 2-dibormoethane is heated with alcoholic KOH
*   Ethene is ozonolysed
*   Ethyne is treated with H_2O in the presence of $H_2SO_4/HgSO_4$.

x)   Write the IUPAC name of the following organic compounds:

* $(CH_3)_2 CH – \overset{\overset{\displaystyle O}{\|}}{C} – CH(C_2H_5)_2$ * $CH_3 – CH_2 – OC(CH_3)_2 C_2H_5$

* $CH_2 = CH – C \equiv C – CH = CH_2$ * $CH_3 – CH = CH – CH_2 – COOH$

xi) Why benzene show stability towards addition reaction? Write the mechanism of nitration of benzene.
> **OR**

What is meant by sterio isomerism? Define Cis & Trans isomers with example.

xii) What is Grignard reagent? Write the equation of its reaction with
* H_2O * CO_2 * CH_3NH_2

xiii) Why are alkyl amines basic in nature? How a primary alkyl amine is converted into secondary and tertiary amine? Give the equation.

xiv) Name four derivative of carboxylic acid and write the equations of their preparation.

SECTION 'C'
(DETAILED-ANSWER QUESTIONS) Marks : 32

Note: Attempt any **Two** questions —— **One** question from **Inorganic - General Chemistry** and the other from **Organic Chemistry**. Both questions carry equal marks.

INORGANIC - GENERAL CHEMISTRY

3.   a)   Describe the manufacture of H_2SO_4 by contact process and show that by equation it act as an oxidizing agent and dehydrating agent

b) Write the balance chemical equations for the following.
* A mixture of carbon and silicon is heated under elevated temperature
* Phosphorus is put into water
* Bleaching powder is treated with hydrochloric acid
* Chlorine gas is pass through hot aqueous solution of caustic soda
* Copper is treated with concentration nitric acid
* A piece of chromium is put into dilute hydrochloric acid
* Reaction between $KMnO_4$ and $FeSO_4$ in the presence of H_2SO_4 (write ionic equation)
* Reaction between $K_2Cr_2O_7$ and $FeSO_4$ in the presence of H_2SO_4 (write ionic equation)

4. a) Describe various steps involve in the extraction of 99.99% pure copper from its chalcopyrite ore.

OR

Explain the following properties of transition elements.

* Catalytic property   * Paramagnetic property
* Variable oxidation state   * Colour formation.

b) What is meant by acid rain describe its causes and adverse effect on human life style.

ORGANIC CHEMISTRY

5. a) What is meant by orientation of benzene? Explain ortho-para and meta directing group. Write the equation for the preparation of TNT and m-nitro toluene from benzene.

b) Draw the structure of the following organic molecules:
* Isopropylbutanoate   * Ethyl neo-pentyl ether   * Divinylacetylene
* p-cresol   * Pyrogallol   * β-methyl butyric acid
* Benzamide   * Benzen-1,4-dioic acid

6. a) What is meant by nucleophile? Give the mechanism of
* SN^1 reaction between 3° alkyl halide and NaOH
* SN^2 reactions between 1° alkyl halide and NaCN.

OR

What are Carbohydrates? Classify them on the basis of structure and give their biological significance.

b) Write the equation for the following reactions.
* Oxidation of 2°-alcohol with $K_2Cr_2O_7/H_2SO_4$
* Reaction of phenol with H_2SO_4 at 20°C
* Reduction of acetaldehyde with Zn(Hg) amalgam
* Reaction of an aldehyde with Tollen's reagent
* Dehydration of ethyl alcohol at 170°C in conc. H_2SO_4
* Reaction of ethylene glycol with periodic acid.
* Reduction of acetic acid with $LiAlH_4$
* Oxidation of 1°-alcohol with PCC.

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Time: 20 minutes **CHEMISTRY PAPER – II**(MODEL QUESTION PAPER) Max. Marks: 17

(Science Pre-Engineering & Pre-Medical Groups)

FROM NEW BOOK

SECTION 'A'
(MULTIPLE CHOICE QUESTIONS) – M.C.Qs.) (Marks : 17)

NOTE:
i) This section consists of 17 part questions and all are to be answered. Each question carries one mark.
ii) The correct answer bubble must be filled on OMR sheet 1) (A) (B) (C) (D) pasted in answer script.
iii) Use only blue / black ball point pen or pointer on OMR sheet.
iv) Avoid using pencil / White-o pen on OMR sheet.

1. Choose the correct answer for each from the given options:

1) The oxidation states of the elements of group VA:
   A) +1 and +3 B) -3 and -5 C) -3, +3 and +5 D) +1, -1 and +3

2) Which of the following s-block element form super oxide when burn in air:
   A) Li B) Na C) K D) Mg

3) In the equilibrium of dichromate-chromate ion the colour of CrO_4^{-2} is:
   A) Orange B) Green C) Yellow D) Red

4) The coordination number of cobalt in $Na_3\left[Co(C_2O_4)_3\right]$ is:
   A) 3 B) 4 C) 6 D) 7

5) The knocking of internal combustion engine can be reduced by the following petroleum process:
   A) Reforming B) Refining C) Distillation D) Condensation

6) How many optical isomers are possible for
$$CH(OH)COOH$$
$$|$$
$$CH(Br)COOH$$
   A) 2 B) 3 C) 4 D) 5

7) Which of the following pairs of compounds represent functional group isomerism:
   A) 1-butene and 2-butene B) Ethanol and dimethyl ether
   C) n-butane and iso butane D) Diethyl ketone and methyl propyl ketone

8) Benzene burns with Smokey flame because of its:
   A) Inflammablity B) High carbon % age
   C) High resonance energy D) Aromaticity

9) The Kinetics of Elimination biomolecular reaction is:
   A) Zero order B) First order C) Second Order D) Third order

10) Lucas reagent is a mixture of:
    A) Zn and Hg B) Zn and HCl C) $ZnCl_2$ and HCl D) NaOH and CaO

11) Clemmensen reduction is the conversion of aldehydes and ketones into:
    A) Alkanes B) Alkenes C) Alkyl halides D) Alcohols

12) Formic acid is naturally found in:
    A) Valciran root B) Bees string C) Vinegar D) Butter

13) An example of quaternary structure of protein is:
    A) Myoglobin B) Hemoglobin C) Albumin D) Globulin

14) Drugs that lower the body temperature to normal are known as:
    A) Antibiotics B) Antipyretic C) Antiallergic D) Anti histamins

15) An example of thermosetting plastic is:
    A) Polyethene B) PVC C) Nylon D) Bakelite

16) The region of sphere which extend from 11km to 50km from our Earth's is known as:
    A) Troposphere B) Stratosphere C) Mesosphere D) Thermosphere

17) Infra red spectroscopy is a technique use to determine:
    A) Double and triple bonds B) Mass to charge ratio
    C) Functional group D) Conjugated system

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BOARD OF INTERMEDIATE EDUCATION, KARACHI

INTERMEDIATE EXAMINATION, 2024 ONWARDS

BIOLOGY PAPER – II MODEL QUESTION PAPER

Time: 1 hour 45 minutes **BOTANY (THEORY)** Max. Marks: 32
(Science Pre-Medical Group)

FROM NEW BOOK

SECTION 'B'
(SHORT-ANSWER QUESTIONS) Marks: 16

2. Answer any **Eight** part questions. Each question carries **two** marks.

i) What are the causes and symptoms of Corona?
    OR
    Name the major mechanisms of diseases management.

ii) Define Speciation? Name different types of Speciation.

iii) What is Test cross? Explain with the help of checker board.

iv) Differentiate between Renewable and Non-Renweable resources.
    OR
    What is the role of DNA ligase in rDNA technology?

v) Describe the process of denitrification.
    OR
    Describe composition of Ozone layer.

vi) What are leading and lagging strand of DNA?

vii) Why haemophilia is common in male?

viii) Why Amp^R and Lac^z genes are used in the construction of rDNA?

ix) Why Mutation is not always harmful?

x) Describe briefly the concept of trophic level.

xi) Write a note on Tissue culture. OR Define cystic fibrosis.

xii) Give the name of enzymes involved in replication of DNA along with their brief function.

xiii) Why 'O – negative' blood group person consider as an universal donor?

xiv) Why endosymbiotic theory seems more powerful in dealing with the evolution of eukaryotes?

SECTION 'C'
(DETAILED-ANSWER QUESTIONS) Marks: 16

Note: Answer any **Two** questions from this section. All questions carry equal marks.

3. What is Succession? Describe Xerarch or Hydrarch succession.
    OR
    What is the role of microbes in household food processing?

4. Describe latest technique to enhance the crop and fruit yield.
    OR
    Explain gene amplification through PCR and mention any two applications.

5. Define Mendel's law of Independent Assortment and explain with the help of checker board.
    OR
    Describe the process of Translation in gene expression.

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BOARD OF INTERMEDIATE EDUCATION, KARACHI

INTERMEDIATE EXAMINATION, 2024 ONWARDS

BIOLOGY PAPER – II MODEL QUESTION PAPER

Time: 15 minutes **BOTANY (THEORY)** Max. Marks: 08

FROM NEW BOOK

(Science Pre-Medical Group)

SECTION 'A'
(MULTIPLE CHOICE QUESTIONS) – (M.C.Qs.) (Marks: 08)

NOTE:
  i) This section consists of 16 part questions and all are to be answered. Each question carries ½ mark.
  ii) The correct answer bubble must be filled on OMR sheet 1) (A) (B) (C) (D) pasted in answer script.
  iii) Use only blue / black ball point pen or pointer on OMR sheet.
  iv) Avoid using pencil / White-o pen on OMR sheet.

1. Choose the correct answer for each from the given options:

1) The removal of floating solid and organic materials from the sewage is:
   A) Primary treatment
   B) Secondary treatment
   C) Tertiary treatment
   D) Zero waste

2) The fungi that gives puff appearance to dough is called:
   A) Lactobacillus
   B) Saccharomyces
   C) E.coli
   D) Penicillium

3) The significance of Polymerase Chain Reaction (PCR) is:
   A) Detecting Protein
   B) Creating GMO
   C) Enzyme synthesis
   D) Amplifying specific DNA fragment

4) Gel electrophoresis is a technique used to separate DNA fragments based on size. What is the significance of gel electrophoresis? :
   A) Study gene expression
   B) Sequence DNA
   C) Identify genetic variation
   D) Identify genetic disorder

5) Genomic map are useful for:
   A) Identifying genes associated with specific diseases
   B) Creating genetically modified organisms
   C) Analyzing DNA methylation patterns
   D) Detecting Protein-Protein interaction

6) The significance of Monoclonal antibodies is:
   A) Study gene expression
   B) Diagnosed diseases
   C) Genetically modified organisms
   D) Developed new drugs

7) The source of carbon to plant in the carbon cycle is:
   A) Carbonate rock
   B) Atmospheric carbon dioxide
   C) Fossil fuel
   D) Sunlight

8) The pioneers in Xerarch succession are the:
   A) Foliose lichens
   B) Mosses
   C) Crustose lichens
   D) Shrubs

9) Theory of natural selection lacking any support from:
   A) Biogeography
   B) Genetics
   C) Comparative anatomy
   D) Molecular biology

10) Archaeopteryx is a connecting link between:
    A) Amphibian and reptiles
    B) Reptiles and Aves
    C) Aves and Mammals
    D) Fish and Amphibians

11) Which of the following would cause phenotype variations among organisms of the same genotype:
    A) Continuous variation within species
    B) Different varieties of the same species
    C) Different sexes
    D) Exposure of different environment

12) A boy is color blind, his mother genotype could be:
    A) $X^N X^N$
    B) $X^N X^n$
    C) $X^N Y$
    D) $X^n Y$

13) The allele of holandric gene is located at:
    A) X-Chromosomes
    B) Y-Chromosomes
    C) Autosomes
    D)

14) International society of blood transfusion has found:
    A) 5 blood group system
    B) 10 blood group system
    C) 20 blood group system
    D) More than 30 blood group system

15) Plants having staminate flower can't perform the following:
    A) Cross pollination
    B) Self Pollination
    C) Parthenocarpy
    D) Double fertilization

16) The Nitrogenous base present in RNA but not in DNA:
    A) Adenine
    B) Guanine
    C) Cytosine
    D) Uracil

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Time: 1 hour 40 minutes   **BIOLOGY PAPER – II** (MODEL QUESTION PAPER)   Max. Marks: 36
ZOOLOGY (THEORY)
(Science Pre-Medical Group)

FROM NEW BOOK

SECTION 'B'
(SHORT-ANSWER QUESTIONS) Marks: 18

Note: Attempt any **Nine** part questions in all. Select five **Reasoning Questions** and four **Non-Reasoning Questions**. All part questions carry equal marks.

2. a) **Reasoning Questions:**

    i) How do neurotransmitters work as inhibitory and excitatory signals? Write some common examples of these neurotransmitters.

    ii) Why does excess use of dairy products, meats, and green-leaf vegetables cause kidney stones? Mention the methods for treatment of kidney stones.

    iii) Why is saltatory conduction the fastest?

    iv) How do aquatic osmoregulators overcome the osmoregulatory problems?

    v) Why the hormonal system of the female is better than the male?

    vi) How do bees communicate about food resources?

    vii) How do embryonic tissues influence other embryonic tissues?

    viii) How is tetany different from tetanus, while both show some common symptoms

   b) **Non–Reasoning Questions:**

    ix) Mention the role of kidney as an endocrine gland.

    x) Define biological rhythm. Mention that biological rhythm is important for man.

    xi) Define Receptors. State the gustatory receptors with their functions.

    xii) Explain the principal reproductive hormones of human male and explain their role in the maintenance and functioning of the reproductive system.

    xiii) Mention the injuries in joints (dislocation and sprain) and their first aid treatment.

    xiv) List some changes that occur in the system and those that occur at the cellular level during aging.

    xv) Write a note on taxis. Mention their types with examples.

SECTION 'C'
(DETAILED-ANSWER QUESTIONS) Marks: 18

Note: Attempt any **Two** questions from this section. All questions carry equal marks. Draw labeled diagrams where necessary.

1. Explain the resting membrane potential, depolarization, action potential, synapse, and repolarization.
OR
Define skeletal muscle? Describe the mechanism of contraction of skeletal muscle with the help of diagrams.

2. Explain the regulatory functions of the nephron with the help of a labelled diagram
OR
Explain habituation, imprinting, classic conditioning, and insight learning.

3. Describe the maternal-derived abnormalities
(Rubella, Abnormal neural tube, Thyroid dysfunction, limb development issues)

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Time: 20 minutes   **BIOLOGY PAPER – II (MODEL QUESTION PAPER)**   Max. Marks: 09

FROM NEW BOOK

ZOOLOGY (THEORY) (Science Pre-Medical Group)

SECTION 'A'   (MULTIPLE CHOICE QUESTIONS) – (M.C.Qs.)   Marks : 09

NOTE:
i) This section consists of 18 part questions and all are to be answered. Each question carries ½ mark.
ii) The correct answer bubble must be filled on OMR sheet 1) (A) (B) (C) (D) pasted in answer script.
iii) Use only blue / black ball point pen or pointer on OMR sheet.
iv) Avoid using pencil / White-o pen on OMR sheet.

1. Choose the correct answer for each from the given options:

1. An injury sustained by the hypothalamus is most likely to interrupt:
   A) Coordination during locomotion
   B) Short-term memory
   C) Regulation of body temperature
   D) Executive function like decision-making

2. Even after the brain of a frog has been crushed, it still responds to a pinch on the leg by drawing it away. This act is an example of:
   A) Conditioned reflex   B) Simple reflex   C) Automated motor response   D) Neurotransmitter induced response

3. In humans, Parkinson's disease is linked with the deficiency of:
   A) Acetylcholine   B) Dopamine   C) Glutamic acid   D) Gamma Amino Butyric Acid (GABA)

4. All of the following are hormones of the anterior pituitary except:
   A) Human growth hormone (GH)
   B) Follicle-stimulating hormone (FSH)
   C) Parathyroid hormone (PTH)
   D) Thyroid-stimulating hormone (TSH)

5. The following hormones are responsible for the "fight-or-flight" response:
   A) Epinephrine and norepinephrine
   B) Insulin and glucagon
   C) Estrogen and progesterone
   D) Thyroxin and melatonin

6. A characteristic of territorial behavior in animals:
   A) Migration   B) Herding   C) Defending an area from intruders   D) Hibernation

7. The following is an example of a learned behavior in animals:
   A) Fish swimming upstream to spawn
   B) Bee performing a waggle dance
   C) Goose flying south for the winter
   D) Rat navigating a Maz

8. This is an example of innate behavior:
   A) A dog learning to sit on command
   B) A bird building a nest
   C) A cat chasing a mouse
   D) A fish learning to swim in a tank

9. The correct sequence of cell stage in spermatogenesis is:
   A) Spermatocytes – Spermatids – Spermatogonia – Spermatozoa
   B) Spermatogonia – Spermatids – Spermatocytes – Spermatozoa
   C) Spermatocytes – Spermatogonia – Spermatids – Spermatozoa
   D) Spermatogonia – Spermatocytes – Spermatids – Spermatozoa

10. The decreased level of this hormone causes menstruation:
    A) Progesterone   B) Luteinizing   C) Estrogen   D) Oxytocin

11. The period of rapid physical and sexual maturation during adolescence is called:
    A) Menopause   B) Andropause   C) Puberty   D) Midlife Crisis

12. This disorder is characterized by the presence of an extra X chromosome in females, resulting in infertility and developmental abnormalities:
    A) Down syndrome   B) Turner syndrome   C) Klinefelter syndrome   D) Fragile X syndrome

13. Aging is characterized by:
    A) Increase in the consumption of oxygen
    B) Increased anabolism
    C) Increased metabolic activity
    D) A decrease in the metabolic activity

14. The only treatment in case of uremia is:
    A) Dialysis   B) Lithotripsy   C) Lung transplant   D) Kidney transplant

15. Apart from the conventional use, Dialysis can also be used in scenarios of:
    A) Blood transfusions   B) Acute poisoning   C) Low blood pressure   D) Extreme fever

16. Immunosuppressant drugs are consumed with:
    A) Major viruses   B) Peritoneal dialysis   C) Kidney transplant   D) Haemodialysis

17. This is correct for muscle contraction:
    A) Shortening of actin filaments
    B) Shortening of A, H and I bands
    C) No change in A bands
    D) Sarcomere does not shorten

18. Each hip bone is formed by the fusion of three bones Pubis, Ilium and:
    A) Sternum   B) Ischium   C) Scapula   D) Sphenoid

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